

phosarcoma is of rare occurrence. There exist in the literature numerous accounts of sarcoma of the adrenal, but it is very probable that these tumors belonged to the hypernephromata and not to the true sarcomata. This is especially true of the cases reported as "malignant tumor," "adenosarcoma," "alveolar sarcoma," "carcinoma," etc. Through the occurrence of hemorrhages the growths may become very large, and occasionally break into the veins and set up metastases. The latter are found chiefly in the lungs.

*Gliomata* and *neuromata* of the adrenals have been described, but the true nature of the cases is uncertain. They arise from the medulla or from the sympathetic system.

*Connective-tissue growths* are very rare. Cystic lymphangiomas have been very rarely observed. Ganglionic fibromyosarcoma has also been described.

*Secondary tumors* (sarcoma and carcinoma) are of not infrequent occurrence. Metastasis takes place usually through the lymphatics. Secondary carcinoma may be associated with Addison's disease.

*Parasites*.—In very rare cases *echinococcus* has been found in the adrenals. *Alfred Scott Warthin.*

**SUPRARENAL BODIES, PHYSIOLOGY OF.** See *Secretion, Physiology of.*

**SUPRARENAL CAPSULE, EXTRACT OF.** See *Adrenalin, and Organotherapy.*

**SUSPENSORY BANDAGES** are employed for prophylactic purposes when the scrotum and its contents are normal, but exposed to injury or disease. Thus they are recommended to men whose occupation compels them to stand for hours in the upright position, to lift heavy weights, to take severe physical exercise, or to ride a horse or a bicycle for hours at a time. Athletes usually wear bandages technically called "jock-straps" in place of suspensories. These "jock-straps," however, while immobilizing the external genitals, drag them upward, and, in fixing them upon the pubes, may produce abnormal pressure of the scrotal contents, and expose them to the injuries which they are intended to prevent. Among the prophylactic uses of suspensory bandages, they are recommended in gonorrhoea to prevent epididymitis and orchitis. Experience, however, has proven that they are not always effective in this regard.

The therapeutic uses of suspensory bandages are as varied as are the diseases which affect the scrotum and its contents. In general depressed states, where relaxation of the scrotum causes it to hang down below its normal level, a well-fitting and properly adjusted suspensory bandage gives the organs within it the needed support. In local conditions, such as scrotal dermatoses, it serves to immobilize the sac and thus compels any medicaments which may be applied to the skin to remain in direct contact therewith. In varicocele of a minor degree it often-times renders operation unnecessary. In funiculitis, epididymitis, orchitis, and orcho-epididymitis, when the swelling is not too great to be controlled by a suspensory bandage, it serves its purpose admirably. When the swellings in these diseases are very great, they require modifications of suspensory bandages, called compressors, such as the Miliano, Zeissl, Langlebert, Casper, and other scrotal compressors. These modifications not only support the scrotum firmly against the ascending rami of the pubis, but, having a firm, strong bag with lace-strings, they render it possible to subject the scrotum and its contents to uniform compression. It is essential to suspensories and compressors that traction should be exerted in a posterior direction upon the lower (posterior) apex of the bag. This traction is made by means of counter-straps. If these straps are omitted, as they sometimes are, especially in the cheaper forms of suspensories, these contrivances then become useless and even at times injurious. Firm support and compression are not possible without these counter-straps. When they are absent the scrotum is dragged upward and forward by

the waist-band, and the posterior margin of the bag is likely to cut into the posterior surface of the scrotum. Many forms of excellent suspensory bandages are made, but no one form can be recommended for all prophylactic or therapeutic uses. The individual conformation of the external genitals varies as much as does that of the hand or foot. Suspensory bandages must therefore be "fitted" to the genitals, with consideration for the individual peculiarities as well as for the object to be attained. The inflexible rules regarding the effective use of suspensory bandages are, first, that they must not produce the slightest discomfort, and next, that they must instantaneously give at least marked, if not entire, relief from pain. If these ends are not attained, the bandage employed is not applicable to the case or has been defectively applied. In epididymitis, when the cord is not much involved, strapping the testicle by Fricke's method often enhances to a marked degree the value of a suspensory bandage. It must be remembered, however, that the application of strips of adhesive plaster for the accomplishment of the desired end is painful, unless it be done by an operator of great experience in the use of this form of dressing. When it is properly applied this dressing promptly reduces swelling and pain, and renders the patient entirely willing to have the operation repeated as often as may seem desirable. Gerson, of Berlin (*Berliner klinische Wochenschrift*, No. 3, 1897), devised "scrotal elevating strips" as a substitute for suspensory bandages. These strips (*Suspensionsbinden*) are elastic, adhesive bandages, with the upper margin softly fringed. Before applying them it is desirable to empty the lower part of the scrotum as much as possible by crowding the testicle firmly up against the external ring. In a certain number of cases these strips prove successful, and as it is an easy matter to apply them they may well be recommended for trial.

*Ferd. C. Valentine.*

**SUTHERLAND SPRINGS.**—Wilson County, Texas. POST-OFFICE.—Sutherland Springs. Hotel and boarding-houses.

**ACCESS.**—From San Antonio via the San Antonio and Gulf Railroad, thirty miles distant.

The resort is pleasantly located on the Rio Cibola, at an elevation of about 400 feet above the sea-level. The surrounding country is of a gently undulating character and presents much pleasing scenery of a mild and tranquil character. This part of the State is celebrated for its genial climate and its freedom from malarial and miasmatic disorders. At the date of our correspondent's letter (December 27th), the flowers were in full bloom out of doors and the gardens were as green as in summer. There is no ice at any time, and the frosts are seldom sufficiently severe to cause the trees to shed their leaves. Many persons who begin the baths during the summer continue them during the winter months, as it is seldom cold enough to interfere with this pastime. No analysis of the water has been made, but the numerous springs are said to offer a variety of therapeutic properties—tonic, alterative, astringent, laxative, diuretic, etc. This combination of valuable spring waters with a mild, dry, equable climate makes the location a very attractive one for a large class of sufferers from various ailments. It is said that a fine modern hotel will soon be built.

*James K. Crook.*

**SUTURES.**—**SUTURE MATERIALS.**—The materials used for sutures are very varied. The ones most employed are silk, catgut, silkworm gut, silver wire, horse-hair, and kangaroo tendon.

*Silk*, not being absorbable, is not good, except in the smaller sizes, for deep sutures or ligatures, and finds its use chiefly in uniting the skin and in intestinal work. It is also used for tying off pedicles where great strength is requisite. It is best sterilized by boiling it in spools in alcohol or in a one-per-cent. solution of carbonate of sodium. The small sizes are usually dyed black for easier detection. When the suture is small it may be encap-

sulated and thus remain in the tissues indefinitely; but, on the other hand, it may give rise at any time to inflammation and the formation of a fistula.

*Catgut* is used largely for deep sutures, *i.e.*, those which are buried in the deeper parts. They are absorbed

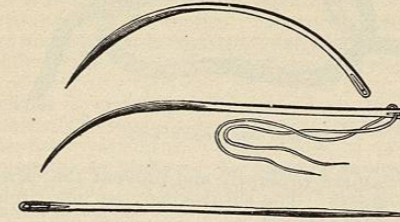


FIG. 4564.—Surgical Needles.

and thus produce no subsequent irritation, which is possible in non-absorbable materials. In order to prevent too rapid absorption the catgut may be "chromicized." Chromicized catgut may remain unabsorbed for as long a period as from two to six weeks. The gut is soaked in ether for twenty-four hours and placed for twenty-four hours more in a four-per-cent. solution of chromic acid in water. The gut is now dried in a hot-air sterilizer and disinfected by one of the usual methods. The most serious objection to catgut as a suture material is the difficulty of sterilizing it completely. This difficulty has given rise to a great number of methods of disinfection. Boiling in ninety-five-per-cent. alcohol for an hour with the use of a still is a very satisfactory method. For other methods, see under *Dressings (Surgical)*. Catgut is not so satisfactory as silk for suturing the skin.

*Silkworm gut* is an excellent material for tension sutures, but should not be used for buried sutures, as it has sharp ends and is non-absorbable. It is used extensively in perineum and cervix operations. It is prepared by boiling it in alcohol or water. It may be dyed black for easier detection. When boiled too often it breaks easily if drawn tight.

*Silver wire* is used in holding bone fragments together and also as a tension suture for the skin. The suture is twisted on itself and then it holds the parts in contact. It can be satisfactorily sterilized by boiling it in water.

*Horse-hair* is occasionally used for the skin when there is not great tension on the edges of the wound. It is sterilized by boiling it in water or alcohol.

*Kangaroo tendon* is obtained from the kangaroo's tail or leg. It is very strong and pliable. It can be satisfactorily used for buried sutures, and has found its chief employment in hernia operations. It should be chromicized. It is finally absorbed, but only after several weeks.

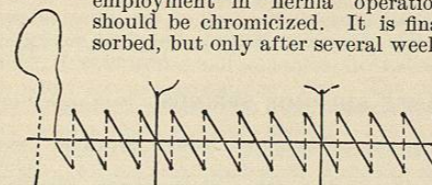


FIG. 4566.—Continuous Suture.

**Surgical Needles.**—These are of different sizes and shapes (Fig. 4564). They may be straight or curved, round or flat. Hagedorn needles which are flat and have a sharp cutting edge are in very general use. In intestinal work round needles are preferable, as they do not cut the thin tissues, causing the suture to pull out. For suturing deeper parts, as in pelvic operations, a needle-holder is

useful, and there are many forms. Needles are sterilized by boiling or by placing them in carbolic acid, 1 to 20, for fifteen or twenty minutes.

**THE DIFFERENT KINDS OF SUTURES.**—Wounds can be united by a variety of forms of suture.

**Interrupted Suture** (Fig. 4565).—This is the usual form of suture for uniting the edges of the skin. The needle

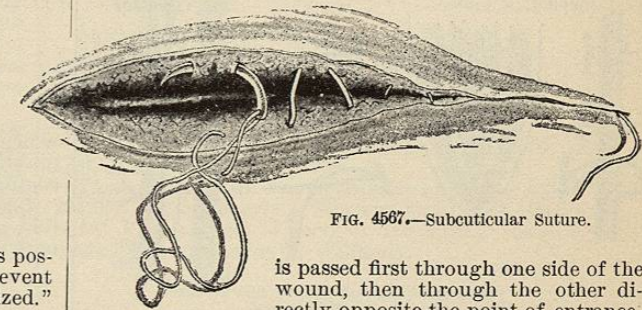


FIG. 4567.—Subcuticular Suture.

is passed first through one side of the wound, then through the other directly opposite the point of entrance. The two ends are tied with a reef-knot and cut short. The knot should be on one side of the line of the wound. When there is tension of the wound the so-called tension sutures are used, which are inserted at a further distance

from the edges of the wound than ordinary coaptation sutures. The interrupted sutures should be placed near enough together to insure good approximation of the edges of the wound. The suture is removed by cutting the thread close to the skin and pulling on the knot. Medium-sized silk is generally employed for the skin.

**Continuous Suture** (Fig. 4566).—This is begun at one end of the wound. Instead of

cutting the thread after the first suture, the latter is continued throughout the whole length of the wound. The needle is inserted at points directly opposite each other. In this way the visible part of the thread forms a row of parallel oblique lines and the invisible part a row of transverse lines. The suture is tied by tying the double thread on one side to the single portion on the opposite. This suture can be inserted more rapidly than the interrupted, and is well adapted for long wounds.

**Subcuticular Suture** (Fig. 4567).—This is a catgut suture in which the curved needle

is passed in and out below and parallel to the skin and then drawn up tight so as to bring the skin surfaces in contact. The advantages of it are that it leaves only a small scar and minimizes the danger of stitch-hole abscesses from penetration of the skin with its bacteria.

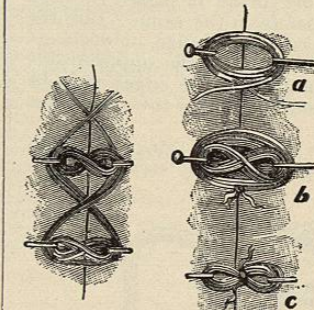


FIG. 4568.—Figure-of-Eight Sutures.

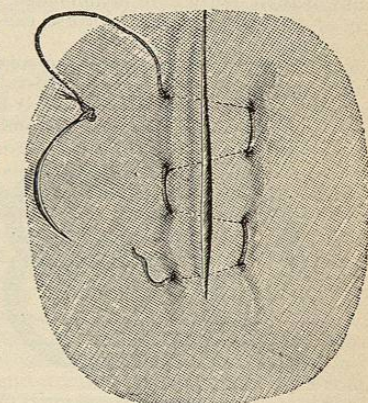


FIG. 4569.—Mattress or Quilt Suture.

The *Figure-of-Eight Suture* (Fig. 4568) is made by transfixing both edges of the incision with a short pin and twisting a thread about the two ends. This is sometimes used in harelip operations.

*Mattress or Quilt Suture* (Fig. 4569).—In this variety the needle is passed through each side twice, and in this

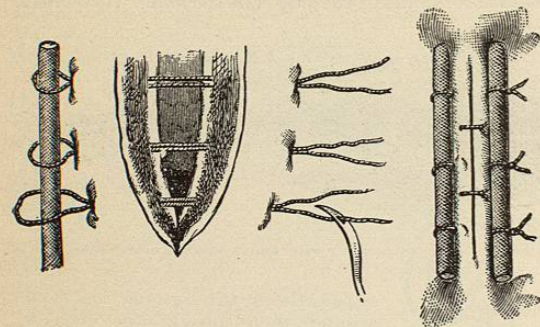


FIG. 4570.—The Quilted Suture.

way a firmer hold is obtained. It can be either interrupted or continuous.

*Quilted Suture* (Fig. 4570).—This is used in case of tension on the edges. A double thread is passed through both edges at a good distance from the same. Into the loop on one side a piece of catheter, gauze, or drainage tube is inserted and the free ends on the opposite side are tied about the same material. The edges may be brought into closer apposition by another row of sutures inserted close to the edges.

*Secondary Suture*.—If it is desirable to bring together a wound which is granulating, we employ secondary sut-

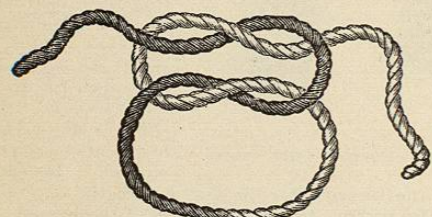


FIG. 4571.—The "Reef" Knot.

ure. This is also employed for wounds which, on account of their depth or of hemorrhage, were first packed. Any of the above forms of suture can be employed for this purpose.

*Knots*.—The knot used for tying sutures is usually the reef-knot (Fig. 4571). This is preferable to the granny knot (Fig. 4572), which is more likely to slip and become untied. The square knot can be combined with the so-

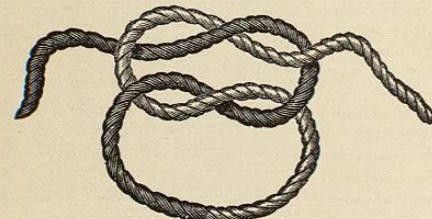


FIG. 4572.—The "Granny" Knot.

called surgeon's knot (Fig. 4573), in which the ends of the thread are twisted about each other twice instead of once.

*Intestinal Sutures*.—For intestinal work the small sizes of silk are employed and either the straight or the curved

needle. An ordinary strong needle answers the purpose. The main object is to bring peritoneal surfaces in contact,

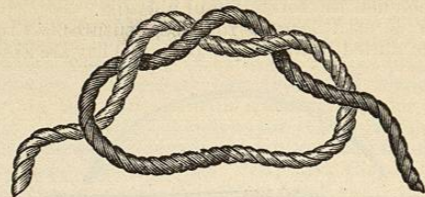


FIG. 4573.—Surgeon's Knot.

which then adhere promptly and prevent the escape of intestinal contents. The sutures may be interrupted or continuous.

*Lembert Suture* (Fig. 4574).—The needle penetrates a fold of the intestinal coat consisting of the peritoneal, muscular, and submucous layers without entering the

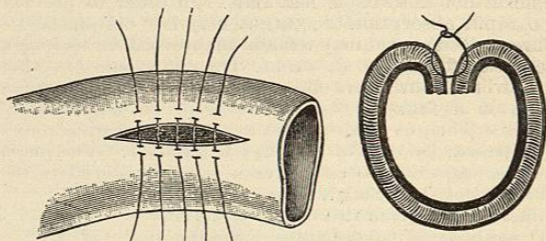


FIG. 4574.—Lembert Suture.

mucosa. The fold is about one tenth of an inch wide, and is situated about one-eighth of an inch from the edge. A similar edge is picked up on the opposite side and the suture is drawn tight, thus inverting the edges and bringing serous surfaces in contact. This is the usual form of intestinal suture and answers the purpose admirably. A second row outside the first may be added and in this way the edges inverted still more.

*The Czerny-Lembert Suture* (Fig. 4575) is merely a Lembert suture reinforced by a deep row bringing together the edges of the mucous membrane. These latter sutures are knotted inside or outside the bowel.

*Halsted Suture*.—This is supposed to have the advantage of not tearing so readily as most sutures do when subjected to tension. It is a Lembert suture which passes through the wall of the intestine parallel with the line of incision instead of at right angles to it.

Benjamin T. Tilton.

**SUWANEE SULPHUR SPRINGS.**—Suwanee County, Florida.

**POST-OFFICE.**—Suwanee. Hotel, Suwanee Springs Hotel.

**ACCESS** from all points via Savannah, Florida, and Western Railroad to Suwanee, thence one mile to springs.

The famous Suwanee River is now open as a regular tourist route, and the traveller for health or pleasure can with ease and comfort visit this romantic stream of legend and song and the attractive resorts located along its banks. The Suwanee Springs Hotel property consists of a beautiful park of massive live oaks and tall pines to the extent of one hundred acres situated along the river banks and on the picturesque bluffs. In the park the company has built a handsome hotel and eight-

teen comfortably furnished and conveniently appointed cottages. The visitor need therefore have no fear of being subjected to the usual discomforts of a newly settled country. The buildings are well equipped with an excellent system of water works, and the sanitary appointments are of the first class. The water from the springs is supplied, either hot or cold, by pipes directly from the fountains to the rooms. The springs are located about two hundred yards from the hotel, and immediately on the banks of the river. They boil up from the ground at a rate of forty-five thousand gallons per hour, and the water exhales a strong sulphurous odor. Bathhouses are conveniently located along the margins of the springs. An unvarying temperature of the water, of 74° F., enables the visitor to bathe in the springs at any season without ill effects. An analysis of the water by Professors Chandler and Pellew, of New York, in 1893, resulted as follows: One United States gallon contains (solids): Sodium chloride, gr. 0.62; potassium sulphate, gr. 0.60; calcium sulphate, gr. 1.78; sodium bicarbonate, gr. 0.96; calcium bicarbonate, gr. 11.02; magnesium bicarbonate, gr. 3.48; oxide of iron and alumina, gr. 0.15; silica, gr. 0.81; organic and volatile matter, gr. 2.19. Total solids, 21.61 grains. The waters are quite heavily charged with sulphureted hydrogen gas, to which they owe much of their virtue. Rheumatism, nervous disorders, dyspepsia, and diseases of the liver, kidneys, and blood are benefited by the waters and baths. The neighborhood holds forth many attractions to the tourist, not the least being the poetic old Suwanee, which is said to possess more elbows, curves, and angles in a shorter space than any other river in the world. Its banks are carpeted with ferns and mosses, and its dark but clear waters are overarched by a luxuriant tangle of umbrageous foliage. "A trip through the tortuous windings of this stream is indeed one of the most romantic that can be imagined, and when seated in a rowboat on a clear moonlight evening, floating over the placid surface of the dear old river, one can well imagine the sentiment that inspired the poet who has made the name of Suwanee so famous."

James K. Crook.

**SWEAT.** See *Skin, Functions of.*

**SWEET CHALYBEATE SPRINGS.**—Alleghany County, Virginia.

**POST-OFFICE.**—Sweet Chalybeate Springs. **ACCESS.**—Via Chesapeake and Ohio Railroad to Alleghany Station, thence a drive of nine miles to the springs.

These well-known springs are ensconced in a lovely valley on the backbone of the Alleghany Mountains, at an elevation of 3,000 feet above the sea. The location is in the midst of the "Springs Region," and whatever may be said regarding the salubrity of climate, the charm of scenery, and the general attractiveness of the Old Dominion mountain resorts, may be fittingly applied to these springs and their environments. Among the more immediate desirable features may be mentioned a comfortable and tidy hotel, a commodious bathing establishment with facilities for hot and cold mineral-water baths, enclosed pools for plunge-bathing, etc. The section round about abounds in deer and other mountain game, while the streams afford excellent fishing. The springs, formerly known as the Red Sweet Springs, are situated in one of the most beautiful valleys of Virginia. So far as chemical composition is concerned, their waters do not show any very marked differences. The combined flow of the four is about forty-eight thousand gallons per hour. The following analysis was made by Prof. W. B. Rogers: One United States gallon contains (solids): Magnesium carbonate, gr. 2.70; sodium sulphate, gr. 3.23; calcium sulphate, gr. 32.88; magnesium sulphate, gr. 7.18; sodium chloride, gr. 0.09; magnesium chloride, gr. 1.57; calcium chloride, gr. 0.02; iron sesquioxide, gr. 0.73. Total, 48.40 grains. Gases: Carbonic acid, cub. in. 106.49; sulphureted hydrogen, a trace; oxygen, cub. in. 0.46; nitrogen, cub. in. 0.59.

A second analysis, by Professor Rowelle, shows four grains of iron (in combination) to the gallon. This is a very good calcic-chalybeate water. Its taste is somewhat sweet, but ferruginous. Its temperature at the fountain is about 75° F. The water is beneficially employed in anemia, chlorosis, leucorrhœa, and other conditions indicating an impoverished state of the blood. It has also proved efficacious in neuralgia and gastralgia.

James K. Crook.

**SWEET SPRINGS.**—Saline County, Missouri.

**POST-OFFICE.**—Brownsville. Hotel. **ACCESS.**—Via Sedalia and Lexington branch of the Missouri Pacific Railroad to Brownsville, thence one mile to springs.

The location is fifteen miles from the Missouri Blue Lick Springs.

These springs are five in number and have a flow of 224,000 gallons hourly. The temperature of the water is 54° F. Analyses of two of the springs have been made by Prof. Charles P. Williams:

ONE UNITED STATES GALLON CONTAINS:

Solids.	Akesion Spring. Grains.	Sweet Springs. Grains.
Calcium carbonate.....	40.25	9.56
Iron carbonate.....	.27	.57
Manganese carbonate.....	.20	Trace.
Sodium sulphate.....	2.61	....
Calcium sulphate.....	57.93	9.46
Barium sulphate.....	8.15	....
Calcium phosphate.....	.24	....
Magnesium nitrate.....	.18	....
Ammonium nitrate.....	1.17	....
Sodium chloride.....	756.11	86.92
Calcium chloride.....	74.79	14.72
Potassium chloride.....	28.56	3.40
Magnesium chloride.....	87.32	22.29
Lithium chloride.....	.30	.05
Magnesium bromide.....	.13	.12
Aluminum oxide.....	.17	.09
Silica.....	.51	1.08
Organic matter.....	3.05	4.01
Total.....	1,061.94	152.27

It will be observed that there is a great difference in the strength of these waters, the Akesion Spring being much more potent. The spring also contains a considerable amount of sulphureted hydrogen. It is especially recommended for diseases of the liver. The water of the Sweet Springs is recommended for diseases of the kidneys and bladder. An excellent bathing establishment is maintained at the springs, baths being supplied by water from the salt-sulphur spring, five miles distant. There are also white and black sulphur springs in the neighborhood.

James K. Crook.

**SYCOSIS.**—(Synonyms: Folliculitis et perifolliculitis barbæ; sycosis non-parasitica.) Sycosis is a disease of the skin that primarily affects the hair follicles. Most of the cases occur on the bearded portion of the face, but it may occur anywhere where there are coarse hairs, as on the scalp, eyebrows, axillæ, pubes, and even on the limbs of coarse-haired individuals. It has been called barber's itch, which is wrong, as that is ringworm of the beard. The term "non-parasitic sycosis" is also erroneous, as we now know that the disease is parasitic, though not due to the trichophyton fungus.

**SYMPTOMS.**—First, as it occurs on the face. The disease begins by the eruption of a number of red, inflammatory, conical papules or nodules scattered over the whole or part of the bearded portion of the face. The lesions are discrete, and it will be noticed that each one is pierced in its centre by a hair. The skin between the lesions is unaffected. If the onset is very violent, so that a very large number of hairs are affected, the individual zones of redness will meet and then the whole of the affected area will be reddened and somewhat swollen. The lesions vary in size from that of a millet seed to that of a pea. Unless the disease is promptly relieved by

treatment the papules give place to pustules, which likewise are pierced by hairs. The pustules show no tendency to run together and form patches as do those of eczema. After a time the pustules dry up and small crusts form about the hairs. If the disease is very intense infiltrated patches will form, and, instead of pustules, there may be abscesses. New papules continue to form and undergo their evolution into pustules, so that we find both forms of lesions present at the same time. The hairs in the pustules early lose their lustre. While at first firmly seated in their follicles so that attempts at depilation are painful, when the pustules are fully formed the hairs come out easily and without much if any pain. When the hairs are extracted early their root sheaths appear as glassy cylinders. After the pustules form the root sheaths will be yellowish and swollen with pus. While usually the hair is not permanently damaged, in chronic cases the hair papillae are destroyed, the beard is thinned, and small cicatrices are seen.

The course of the disease is chronic, marked by relapses, the disease being at one time apparently cured, and then breaking out again with renewed violence.

Any part of the bearded portion of the face may be attacked. The disease is specially common on the upper lip. Usually there will be found at the same time a catarrhal or purulent discharge from the nose. The cheeks are the parts next most frequently affected, either one or both. The disease may occur symmetrically. It may be limited to a single area. As a rule it does not occur below the angle of the jaw. If it does occur there it is usually by extension from the cheeks. With it there is no eruption upon the non-hairy parts of the face. Not uncommonly the eyebrows and the eye-lashes are affected at the same time as the cheeks.

There is little if any itching, the patient complaining rather of a feeling of soreness, distention, or burning.

Secondly, as it occurs on other parts. On the eyebrows and pubes and in the axillae the appearances are similar to what obtains on the face, and the course of the disease is the same. On the scalp we meet with the characteristic papules and pustules pierced by hairs. When the disease occurs on the limbs (and it is mostly on the legs that it occurs), we find the same lesions; but, as the hair is more sparse, there is not the same tendency to form diffuse patches, the lesions remaining discrete throughout.

ETIOLOGY.—There is no doubt that the disease is parasitic. The majority of investigators ascribe its origin to the invasion of the hair follicles by the staphylococcus aureus et albus. Sabouraud states that it is due to the staphylococcus aureus alone. Unna teaches that there are two varieties of the disease, one of which he names the coccogenic, being due to the staphylococcus aureus et albus; and the other bacilligenic, being due to an organism which he calls *bacillus sycosiferus foetidus*.

The disease is contagious, and barber shops are, without doubt, a frequent source of contagion. Like many other diseases due to micro-organisms, there are two factors at work—one the predisposing cause, the character of the soil; and the other the exciting cause, the micro-organism. Eczema is sometimes the forerunner of sycosis. Other predisposing agencies are irritant applications to the skin, such as mustard or other poultices, intense heat, cosmetics, and the like. A nasal discharge is the predisposing cause of sycosis of the upper lip. Shaving with a dull razor is supposed to be the cause in some cases, but those who do not shave are by no means exempt from the disease. Most patients with sycosis are in poor general condition. Men naturally are the most frequent sufferers from the disease.

PATHOLOGY.—Sycosis is primarily a perifolliculitis, the hair follicle and the sebaceous glands being affected secondarily.

DIAGNOSIS.—The two diseases from which sycosis must especially be differentiated are eczema and ringworm of the beard.

Eczema may be limited to the bearded portion of the face, but it is prone to pass over to the non-hairy parts; sycosis is confined to the hairy parts. Eczema is very

pruritic and the skin is scratched; sycosis is not pruritic and the skin is not scratched. The lesions of eczema bear no special relation to the hairs; it is a catarrhal disease of the skin, and the hairs are affected as it were accidentally and superficially. No matter how bad an eczema may be, it never destroys the hair. Sycosis is primarily a disease of the hair, the skin between the individual hairs is unaffected except in very bad cases, and the hair may be destroyed. In eczema crusting is a feature of the disease, and when the crusts are removed a raw and oozing surface is exposed. In sycosis the crusts are usually confined to the hair follicles. If diffused crusts are formed, when they are removed it will be found that the hairs stand in little inflammatory areas while the intervening skin does not present a moist surface as is the case in eczema. In some cases it is impossible to make a diagnosis at first, but it is arrived at by studying the effect of treatment, sycosis being more intractable than eczema, and the follicular character becoming more pronounced as the disease approaches recovery.

Ringworm of the beard usually occurs on the chin and neck below the angle of the jaw; sycosis occurs most often on the upper lip and cheeks. Ringworm occurs either as a superficial scaly ring or as large-sized nodules arranged in circles and segments of circles; sycosis occurs as an eruption of papules and pustules pierced by hairs and without any grouping. In ringworm the hairs are broken and split and can be pulled out readily though the root is often left behind; in sycosis the hairs lose their lustre, but otherwise are unaffected, and in the early stages attempts at removing them are very painful. Ringworm once cured does not tend to relapse; sycosis does. Under the microscope the hairs from a case of ringworm will be found loaded with spores and mycelia; in sycosis micro-organisms are found not in the hair but in cultivations from the follicle contents.

Aene should offer no difficulty in diagnosis, as it occurs all over the face and comedones are always present.

PROGNOSIS.—While the disease is essentially chronic, it is curable. Permanent loss of hair is exceptional.

TREATMENT.—When the upper lip is affected it is necessary first to seek out and cure any disease of the mucous membrane of the nose that may be present. In all cases attention to the general health should be given, so as to improve the character of the soil and enable it to resist the invasion of the fungus. The skin must be protected from irritation. The congestion of the skin that is often present in acute cases should be relieved by the administration of laxatives. There is no specific for the disease. Locally, the treatment will vary with the stage of the disease. At the beginning the inflammation may be treated by bathing the affected parts with hot water and following this with an alkaline lotion, such as black wash, lead and opium wash, or a zinc lotion containing two per cent. of salicylic acid. In some cases the application of six drachms of the ointment of the ammoniate of mercury and two drachms of cold cream will abort the disease. When pustules have formed the hairs should be plucked from the diseased follicles,—a conservative process, as it tends to prevent the destruction of the hair papillae. If there are a large number of pustules a rapidly favorable effect may be produced by going over the face with a dermal curette, after which the parts should be bathed with a 1 to 1,000 solution of bichloride of mercury. If crusts are present they should be removed by soaking them at night with a two-per-cent. solution of salicylic acid in sweet oil, and washing them off on the next day with soap and water. The applications advised above may be used. Diachylon ointment, made according to Hebra's formula and spread on cloths and bound down on the face, is an excellent remedy.

In more chronic conditions sulphur ointment is often a sovereign remedy. The employment of tumenol is at times followed by brilliant results. Tar ointment may be used. In very obstinate cases we may have to resort to stimulation by means of scrubbing with green soap and then binding on zinc-oxide ointment. It is best to keep the beard clipped short during treatment. Epilation is

advised by many authorities. Many cases have been cured by both radio- and phototherapy. As the disease is a most obstinate one, we shall have to make many changes in our treatment before we succeed in curing it. It is well to continue some protective applications for several weeks after the disease seems to have been cured. George Thomas Jackson.

**SYMPATHETIC NERVOUS SYSTEM.**—An orderly presentation of the facts and theories relating to the sympathetic nervous system calls for the adoption of the following three heads: Anatomy, Histology, and Physiology.

**GENERAL SURVEY OF ANATOMY.**

The sympathetic nervous system is composed of the following anatomical elements:

1. The great gangliated cords.
  2. The intermediate or central nerve plexuses.
  3. The peripheral plexuses.
  4. The terminal or monocellular ganglia.
- The general structure and topographical relations of each of these will first be considered, and afterward the general relations of these divisions to each other and to the central nervous system.

**I. The Great Gangliated Cords.**—The great gangliated cords (sympathetic cords, sympathetic nerves; trunci sympathici; Grenzstrang des Sympathicus; nerf grand sympathique) consist of a series of ganglia (sympathetic ganglia, ganglia trunci sympathici) united to each other by longitudinal cords, the so-called *rami internodiules*. These two gangliated cords are placed symmetrically, partly in front and partly to the side of the vertebral column, and extend from the base of the skull to the coccyx. The internal carotid nerve which emanates from the uppermost cervical sympathetic ganglion must be considered the upward continuation of the sympathetic cord into the region of the head. Some of the cephalic ganglia, viz., the ciliary, the sphenopalatine, the otic, the submaxillary, likewise the cervical ganglion of the pneumogastric, and probably also the ganglion petrosus glossopharyngei, must be regarded as homologues of the ganglia of the great sympathetic cords.

The two great gangliated cords and their homologues in the cranial division of the sympathetic have the following connections:

1. **The Interfunicular Cords or Rami (Rami Interfuniculares).** These serve to unite the two great gangliated cords and are developed to the greatest extent in the lumbar and sacral portions of the sympathetic nerves.

2. **The Communicating Rami (Rami Communicantes)** establish a connection between the sympathetic ganglia and the cerebro-spinal nerves. By these rami communicantes the ganglia of the sympathetic chain are united with the anterior primary divisions of the spinal nerves of their immediate vicinity. There are white and gray rami communicantes, the former consisting mainly of medullated fibres, the latter of pale fibres (Gaskell). The two kinds form either separate branches or are in other instances blended into one cord, composed of a white and a gray part. Having arrived in the spinal nerves, the fibres of the rami communicantes, according to Gaskell, take opposite directions; part of the fibres, contained mainly if not all in the white rami, pass into the spinal cord; the other part, contained chiefly, perhaps exclusively, in the gray rami, assume a centrifugal course, passing with the other fibres of the spinal nerve to the periphery. (See Fig. 4576 and page 581.)

The rami communicantes are represented in the cranial division of the sympathetic system by the so-called roots of the cranial sympathetic ganglia (the sphenopalatine, ciliary, etc.).

3. **The Peripheral Rami (Hoffman and Rauber) or Rami**

*Efferentes seu Afferentes.* These are branches proceeding from the gangliated cord to the prevertebral plexuses or vice versa.

We now pass to II. **The Intermediate or Central Nerve Plexuses of the Sympathetic.**—Here it will be convenient to distinguish, as Thane (Quain's "Anatomy") proposes:

1. **The Large Prevertebral Plexuses.** These are three

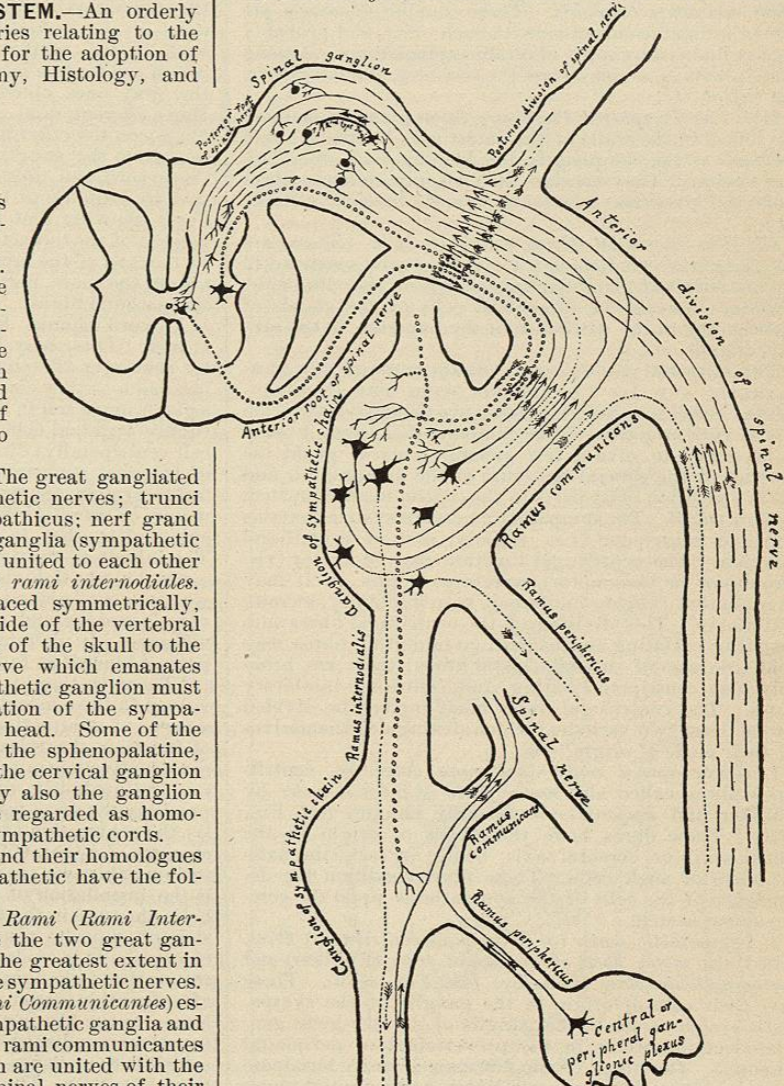


Fig. 4576. — Diagram of the Structural Interrelation between the Cerebro-spinal and Sympathetic Systems.

- — Cerebro-spinal neurones of centrifugal functions.
- — Cerebro-spinal neurones of centripetal functions.
- ★ — Sympathetic neurones of centrifugal functions.
- — Sympathetic neurones of centripetal functions.
- ★ — Marked "2nd type Dogiel" in the figure = spinal ganglion cell of the second type of Dogiel.

in number, the *cardiac*, the *solar*, and the *hypogastric*. They are not bilateral but single, and lie all in front of the vertebral column, occupying the thorax, abdomen, and pelvis respectively. They are connected on the one