

the point of suppression of their action. Nourishing concentrated food, tonics, anodynes, etc., may, in visceral dropsy, be of more importance than diuretics. Of course it is desirable to lessen the accumulation of fluid; but the effects of the remedies used must be observed, and one symptom must not be allowed to overshadow the rest.

When enormous distension makes rest impossible, almost preventing breathing, it is necessary to relieve it by any possible means. Then, purging, as by elaterium, should diuretics fail, must be resorted to. Or, if the patient's stomach or general strength will not bear that, tapping is called for. Some patients require this many times.

The operation is best performed while the patient is lying down, upon the side, near the edge of the bed. A trocar and canula are introduced half way between the pubes and the umbilicus, and the fluid is drawn out through the canula. Dr. T. G. Morton,¹ of Philadelphia, has designed an improvement in the ordinary canula, by adding near its upper end a short silver tube, upon which india-rubber tubing may be attached. Thus fluid may be conveyed away in any desired direction; the extremity of the canula being closed with a plug. Lastly a bandage (with a compress) is applied firmly around the abdomen. Some practitioners favor keeping open the orifice with a slip of lint, to maintain drainage. If no local irritation occur, threatening peritonitis in consequence, this may be a serviceable measure. If the bolder practice of injecting iodine after tapping (as in hydrocele) should be thought of in any instance, it must be in that of simple peritoneal dropsy, uncomplicated by serious visceral disease.

Sometimes œdema of the lower limbs and scrotum becomes so great as to cause great inconvenience. Then the fluid may be let out by making a number of small punctures with an abscess lancet or small pointed bistoury. Dr. Handfield Jones recommends² a single puncture in each leg, with a trocar, leaving the canulas in to drain for several hours. The only drawback to this practice is the possibility of erysipelalous inflammation about the punctures. Such danger will not be at all great if, immediately after the operation, the parts be soothed by bathing or anointing the skin with diluted glycerin (fʒj in fʒj of rose-water), or cold cream (ung. aq. ros.), or glyceramyl (glycerin and starch) [F. 148].

For the treatment of ovarian dropsy, the reader is referred to works upon surgery. I only venture the opinion, that the place of ovariectomy has hardly yet been defined, clearly and with certainty, by experience. If compelled to decide upon it in a doubtful case, I should incline towards the views of those who make it a rare operation.

¹ Philada. Medical Times, May 30, 1874.

² Practitioner, April, 1871.

ZYMOTIC DISEASES.

VARIOLA.

Synonym.—*Smallpox.* **Varieties.**—Discrete and confluent;¹ also, *varioid* or modified smallpox, after vaccination.

Symptoms and Course.—*Stages:* These are, *incubation, primary fever, eruption, secondary fever, and desquamation.* The incubation (period between exposure to the contagion and beginning of the attack) lasts about twelve days. The first symptoms are languor, headache, vomiting, and severe pain in the back; soon developing into fever. On the third day of this, pimples, at first small and red, appear, first on the face, then on the neck, arms, trunk and lower limbs. These papules become vesicles, and then pustules; suppurating perfectly by the ninth day of the fever. Then they flatten and scab. Four or five days later, about the fourteenth day of the fever, these scabs begin to fall off. Desquamation is commonly completed by the end of the third week of the attack. To recapitulate: there are, after about twelve days of incubation, three of primary fever, six or seven for the coming out and maturing of the eruption, four or five for its scabbing, and six or seven for desquamation.

These periods vary somewhat; and the severity of the disease depends mostly upon the amount of the eruption. This makes the difference between the discrete (scattered, separate) and confluent smallpox. Even the primary symptoms are generally worse in the latter. The secondary fever, connected with the full development of the eruption (about the eleventh day of the disease), is much the most severe in the confluent. The suffering of the patient is great, even extreme, in this form, the whole surface of the body being covered with inflamed pustules. Even the eyes, mouth, and throat may be invaded. Blindness sometimes follows; and I knew of one case in which the eruption in the throat proved fatal by obstruction of the breathing and swallowing. A peculiar and disagreeable odor emanates from the body in confluent cases.

Malignant smallpox is simply a violent form of it characterized by rapidity and extreme prostration, with or without extensive pustulation. The eruption in it is sometimes attended by lividity of the skin. Delirium is common, and a typhoid stupor may exist.

After smallpox, abscesses in various parts of the body, hard glandular enlargements, ulceration of the cornea, suppuration of the ear, pneumonia, or pyæmia may occur.

The danger to life in this disease is always serious. Before vaccination was introduced, thousands died annually from smallpox.

Of those attacked, 1 in 8 died; in infancy, 1 in 3. Dr. Lettsom, of London, estimated that 210,000 died every year from it in Europe before the time of Jenner; 45,000 annually in Great Britain and Ireland alone.

¹ Hemorrhagic smallpox has been occasionally described; it must be very uncommon.

In Audubon's biography it is stated that in 1837, 150,000 Mandan Indians died of smallpox; leaving only 27 of the tribe. Catlin asserts, that of 12 million American Indians 6 million have been destroyed by smallpox. In Philadelphia, between 1860 and 1870, the mortality has been 1 death in 6.6 cases of the disease.

Causation.—There is no disease more certainly contagious than variola. Generally either contact or approach within a few feet seems necessary for its conveyance; but I have met with one instance in which it must have traversed the high walls of an inclosed public institution, attacking an inmate who had not left the house for ten years, and without the admission of any one who could have brought it. In the large majority of cases, smallpox occurs but once in a lifetime. Exceptions are well known, however; some in which the same person has had it three—it is said even five times. Louis XV. died of a second attack.

Treatment.—The preliminary symptoms of smallpox do not differ from those of most other acute disorders, except that the headache, pain in the back, and vomiting are apt to be more severe. In that stage, rest in bed, after a warm mustard foot-bath, and drinking hot lemonade to promote full reaction, will be enough to do. The fever calls, first, for a cooling laxative dose, as Rochelle salt or citrate of magnesium. Then, refrigerant diaphoretics will be in place; as, *neutral mixture* [F. 149, 150], *effervescent draughts*, or *liquor ammonii acetatis*; the first, if the stomach be good and the bowels slow to act; the second, if nausea or vomiting continue; the third, if the bowels be free and the fever low in type. No cutting short of smallpox is possible; it is a self-limited disease. There is no specific remedy for it; we can palliate it only, and conduct the patient through it.¹

So decided is the tendency to exhaustion of the system in severe smallpox, that early support by concentrated liquid nourishment must be the general rule. As in other acute illness, appetite and digestive power are almost lost. Milk, however, in small quantities often (one or two tablespoonfuls every two or three hours) and chicken or mutton broth or beef-tea may be given. Other sick diet, as gruel, arrowroot, toast-water, etc., may do during the primary fever. But a good many cases will require even wine-whey or brandy, such in the second and third weeks; malignant cases, perhaps in the first week. Quinine should go with these, in tonic doses; e. g., one or two grains every three or four hours. An opiate at night is often servicable, especially in the confluent form. *Saracenia purpurea* is of no use whatever in smallpox.

Drs. Zuelzer and Nagel recommend highly *xylol*, in ten or fifteen drop doses, four times daily. The latter reports, under its use, only four deaths among thirty-four very bad cases. Where the throat is much affected, tincture of chloride of iron, in glycerin, has been found to do good.

An important object often is to prevent the *pitting* of the face. Three plans are resorted to: 1. To abort the vesicles. 2. To soothe and mitigate the inflammation connected with them. 3.

¹ Dr. Schwenniger (Berlin Klin. Wochenschrift, 25 Nov. 1872) asserts that large doses of quinine in the premonitory stage lighten the attack.

To exclude air and light during the scabbing and desquamation. The first of these ends is sought by touching each pimple on the face, on the fourth or fifth day of the attack, with a point of lunar caustic. Soothing inflammation is aimed at by covering the whole face during the first week with a soft poultice of bread and milk, flaxseed meal, or slippery elm bark. Exclusion of the light may be attained by gold leaf; of air, by mercurial ointment or collodion, softened by adding $\frac{3}{4}$ th part of glycerin before it is painted upon the face. Dr. Leach,¹ of Philadelphia, employs *white-lead paint*, thinned with linseed oil, and applied early with a camel's hair pencil.

How are we to choose? I would begin by touching the *worst* papules, on their second day, with nitrate of silver. Then poultice the whole face for four or five days, till the pustules flatten and umbilicate. Lastly, apply the collodion, softened by the addition of glycerin, with a camel's-hair pencil, over each pustule, thickly enough to make an artificial cuticle; which may be renewed every day or two, until desquamation has been completed.

The *sequelæ* of smallpox must be treated as they arise; by the opening of abscesses, improving the tone of the system by iron, etc. Great care is needed in convalescence from this, as from other acute (especially eruptive) diseases, not to undergo exposure to sudden changes or extremes of temperature. The danger of contracting pneumonia, pleurisy, or bronchitis is, at such times, much greater than usual.

Varioloid: Modified Smallpox.—In those who have been vaccinated, while the liability to be affected by the virus of smallpox is in most cases removed, in a few the disease is taken, on exposure, in a milder form. The primary fever is rather less severe, the eruption is more scattered, the pustules are not so deep nor so much inflamed, they scab sooner and very rarely *pit*; and there is no secondary fever. Varioloid is seldom fatal. Its treatment should be essentially the same as that of smallpox; only there is less often need of special measures to prevent marking of the face.

VACCINATION.

The ancient practice of inoculation² with smallpox, while it was, by the mildness of the attack, nearly always protective of the individual, at the same time propagated the disease, multiplying the amount of its virus. Jenner's introduction into professional practice of inoculation with the virus of cow-pox, known before his time among dairymen, has greatly abridged not only the destructiveness, but the prevalence of variola.

Whether "vaccinia," or cow-pox, is smallpox affecting the

¹ Philada. Med. Times, 1872.

² Inoculation was introduced into England from the East by Lady Mary Wortley Montagu in 1718. An account of it had been published in England, in 1714, by Dr. Timoni, of Constantinople. Dr. Boylston, of Boston, brought it into practice in this country in 1721. Dr. Jenner's first vaccination from arm to arm, was performed in 1796. Vaccination was first performed in America and Austria in 1799; in France and Spain in 1800; in Italy, Russia, Denmark, and Sweden, 1801; in India, 1802.

cow, or is a different disease whose virus is protective against smallpox, is not yet determined to the satisfaction of all investigators.¹ Experiments have been tried repeatedly, with conflicting results. Either way the fact is plain that most persons are, by one good vaccination, protected for life; that modified smallpox, occurring in the vaccinated, is very seldom indeed fatal, and hardly ever pits; and that repeated vaccination, after an interval of years, will make protection almost always complete. An altogether unjustified distrust of vaccination has within a few years done harm in some places. Besides the abundant proof of its value afforded in Jenner's time in Europe, recent facts confirm the opinion that smallpox might be *extirpated* by its universal use. Dr. Cameron (Lectures on Health, 1868) declares that this has been almost entirely effected in Ireland; where, on some accounts, we might expect smallpox to abound. In Paris, 1870, an alarm about "vaccinal syphilis" was the cause of a very destructive variolous epidemic.

Vaccination may be performed either with the fresh lymph, the same dried by keeping, or the scab, and either directly from the udder of the cow, or from a human being inoculated with cowpox. In Europe the lymph of the vesicle, before maturation, is generally preferred. In this country the scab is much used, and is found reliable when fresh enough. No matter how it is kept, after a month it is uncertain; although it has sometimes been found efficient after being sealed up for a year.² When kept in hermetically sealed glass tubes, the fresh lymph, dried upon fragments of quill, will keep nearly as long as the scab. Lymph is to be obtained on the eighth or ninth day after the vaccination; by puncturing the sore with a small lancet held *parallel to the arm*, to avoid drawing blood. Several small punctures may be made. The quill-pieces do best to be nearly a quarter of an inch wide at the end, and slightly roughened by scraping with a knife, to increase absorption of the lymph.

Direct inoculation from the cow often makes a very sore arm, without any certain increase of security. The cause of the severity of the inflammation appears to be, usually, some impurity contaminating the virus. Dr. Loines, upon extensive experience, declares vaccination from the heifer to be *less certain* than that from arm to arm. Dr. Seaton, author of an excellent work on vaccination, in an official report testifies against animal vaccination as a substitute for the human.³ It is at the same time possible that many transits through human bodies may somewhat

¹ M. Danet, of Paris, after many experiments pronounced that vaccinia and variola are distinct diseases. (Med. Times and Gazette, Feb. 23, 1867.) Jenner's opinion was that they are the same, and identical also with the *grease* of the horse.

² Recent observation, authentically reported, seems to show that *glycerin*, first suggested by Muller, of Berlin, will preserve vaccine virus for several months. The method used in England is, to take matter from the sore on the eighth day of the vaccination, on quill points, and mix it with ten times its bulk of glycerin diluted with an equal quantity of water. In Germany the proportions are, lymph one part, glycerin and distilled water each two parts; well mixed together.

³ Twelfth Report of the Medical Officer of the Privy Council, Appendix No. 7. London, 1870.

modify the virus. Renewal by inoculating healthy children, not too young, every now and then, from the udder of the cow, is to be recommended. Cattle with the cow-pox may be found in almost any agricultural neighborhood. As Dr. B. Lee¹ has well pointed out, the most reliable, often the most active virus, is that which has been *recently humanized*; especially if it be but one or a few removes from the cow-pock.

In the absence of smallpox the second month of infancy will be time enough for vaccination. But under danger of exposure, a babe should be vaccinated at any time after birth. Matter only from healthy children ought ever to be used. While it is unlikely that any constitutional disease (as syphilis² or scrofula) can be so introduced, there should, in practice, be no room left for any doubt of the kind; and some cutaneous diseases might certainly be transmitted. Unless on account of risk from exposure, the existence of an eruption on the skin, or any other indisposition of the child itself, may be a reason for postponing the operation. The excitement produced by it may aggravate an existing inflammatory affection. Vaccination has often been blamed for the breaking out of eruptions, supposed to be transmitted, when their cause was really the state of system of the patient.

For the operation, the outside of the arm, near the shoulder, is commonly selected. The exact method used is not important. A small, wedge-shaped lancet, or even a sharp-pointed penknife will do. Various slides have been contrived for the purpose. I prefer to cut or push out a very small flap of the cuticle, under which a thick paste, made by pressing and mixing a portion of the scab with a drop of tepid water, may be inserted. Or, instead of the scab, a lancet charged with fresh lymph (arm to arm) may be employed. Or, to use quill with *dried* lymph, dip it for a moment in tepid water, and apply it to the abraded or incised part. The art of the operation is to pierce the skin without drawing enough blood to flow; it is most successful when there is no blood at all. Besides the flap, it is as well to scratch the skin and puncture it at a little distance, giving three chances of taking instead of one. No disturbance of the arm must be allowed for twenty minutes or half an hour afterwards.

If it be successful, no sign of it is distinctly visible for two or three days. On the fourth day a decided, small red pimple is to be seen and felt. This becomes a vesicle of some size on the fifth day; it grows large and cylindrical, or hat-shaped, and by the tenth or eleventh day is fully umbilicated, or depressed like a navel in the centre. Before that, about the eighth day, the bright red ring or *areola* forms around it. This fades after the eleventh day, and the vesicle dries up into a round and flat, but rather thick,

¹ New York Med. Journal, May, 1872.

² At Rivaita, Italy, and Morbihan, in France, and in England, a number of cases of syphilitic disease (primary and secondary), following impure vaccination, have been reported; the last instances by H. Roger and Depaul, and by Jonathan Hutchinson, of London. But West, Marson, Seaton, Loines, and others assert the alarm concerning it to be groundless, as the instances of it are excessively rare, and *always preventable*. In North Germany (Auspitz, Wiener Med. Wochenschrift, Jan. 25, 1873), only one or two examples of it occurred in twelve million vaccinations.

mahogany-colored scab, which falls off about the nineteenth day. All of these particulars are important, as showing the genuineness of the vaccination. So is the appearance of the cicatrix left; which should be large in proportion to the vesicle, and *dotted* or marked with subdivisions. This is owing to the vesicle being composed of several small cells or compartments.

Slight fever, with restlessness, is not unfrequently observed during the first few days after the vesicle appears; but there is rarely anything requiring treatment.

Re-vaccination.—Experience shows that a small number of persons, after several years, reacquire the susceptibility to smallpox.

As the only test of this is exposure either to the latter or *vaccinia*, the renewal of this, at least once after puberty, is always advisable. On the occasion of epidemic smallpox it may be repeated again and again. There is no pain of any consequence in the operation, nor danger, and if a genuine vesicle form, making a sore arm, that discomfort for a few days cheaply purchases immunity from the terrible disease. I have sometimes thought it possible that the system may be protectively affected by re-vaccination, even when no local effect or only a "spurious" sore follows. Certainly smallpox is extremely rare in re-vaccinated persons.¹ M. Danet, in an official report, insists that persons who have had smallpox should also be revaccinated.

The virus from a second vaccination should not be relied upon for use.

VARICELLA.

Synonym.—*Chicken-pox.* This is a mild exanthematous disease resembling smallpox or varioloid considerably. Hebra, of Vienna, asserts its identity with variola; but this opinion is not well sustained by facts. After an incubation of four or five days from exposure to the contagion of one having it, pimples form, generally scattered widely. In the second day they become vesicles filled with lymph. Two or three days more find them scabbing; they dry and fall off soon, without pitting, except in rare instances. There is little or no fever or other indisposition. The disease is attended with no danger to life, and requires only precautionary treatment, *i. e.*, to avoid exposure to cold and wet, to keep the bowels regular, and, if needful, promote action of the skin by a diaphoretic, as neutral mixture.

The eruption of varicella differs from that of variola in coming out in successive crops; in not suppurating or becoming umbilicated; and in not deeply involving the true skin. Inoculation has been found to fail in propagating it, and vaccination has no preventive power over it. Adults are very seldom affected with it, and it is more often epidemic than smallpox.

¹ According to testimony obtained by a Medical Conference upon the subject of vaccination at Paris, in 1870, the proportion of the re-vaccinated liable to variolous infection is 2.33 per cent. Prof. Corfield, of London, has stated (*Nature*, Oct. 16, 1873), that, of fifteen thousand cases of smallpox in the London hospitals during the last epidemic, only four presented proof of having been re-vaccinated.

SCARLATINA.

Synonym.—*Scarlet fever.*

Varieties.—*Scarlatina simplex, anginosa, and maligna.*

Symptoms and Course.—After an incubation supposed to be of about five days from exposure to its cause, lassitude, anorexia, headache, pains in the back and limbs mark the beginning of the attack. Soon these are followed by fever; on the first day, very often, the throat is sore. On the second day, usually, a punctated red eruption appears on the face and neck, and in ten or twelve hours has covered the whole body. It is of a scarlet, or sometimes a brick-red hue, uniformly diffused, with a swollen appearance, and great heat; reaching by the thermometer even 106° Fahr. Occasionally miliary vesicles are seen. There is also a sense of burning and some soreness or irritation of the skin. The tongue has a strawberry-like look, from the projection of enlarged red papillæ through a whitish fur. The throat is very red and swollen, generally, with a hue not unlike that of the skin. Fever runs very high, with an extremely rapid pulse, great thirst, headache, perhaps delirium, costiveness, in some cases vomiting. Bad cases may have stupor. By the fifth day, mild examples of the disease show already an abatement. Most have passed the height of the pyrexia by the ninth; although *sequelæ* may protract the attack much longer. Malignant cases may be fatal in a day or two, or even in less than twenty-four hours. Desquamation of the skin follows the fading of the eruption; often large masses of cuticle coming away at once. At this stage more or less decided albuminuria is common.

Scarlatina Simplex.—In this the eruption comes out early and well, with moderate fever, little inflammation of the throat, and an even course throughout. Sometimes there is hardly any febrile disturbance; and the child may play about without having to go to bed.

Scarlatina Anginosa.—Here the violence of the disease falls upon the throat chiefly. The tonsils swell greatly, suppurating either early or late, or they are covered by pseudo-membranous deposit, white, gray, or dark-brown, whose coming away leaves an ulcerous surface, with in some instances an acrid, offensive discharge. The extension of the ulcerative inflammation may pass the Eustachian tube to the tympanum, and may even destroy the auditory apparatus so as to cause permanent deafness. After the rash has disappeared, abscesses in the neck may form and discharge, exhausting the patient.

Scarlatina Maligna.—This term designates an overwhelming toxicæmic impression of the morbid cause of the disease. Depression in the first stage becomes intense, without reaction; or, after the eruption has partly come out, it recedes, or grows livid in appearance; or the brain is oppressed with coma. Coldness is sometimes present, or unequal temperature of different parts of the body, instead of the usually diffused febrile heat. The throat may be much or little affected. In some instances the patient seems almost as if struck by lightning—so sudden and deep is the general prostration. In this condition death may take place in a few

hours. Otherwise, there is continued prostration, and hemorrhage from the stomach or bowels, or vomiting, or diarrhoea, threatens an untoward result.

Sequelæ.—Abscesses about the throat have been mentioned; similar local affections may take place elsewhere after the attack. Ozaena is not uncommon; neither is suppurative inflammation of one or more of the joints, or of the testicle; nor vaginitis. Endocarditis or pericarditis may occur. So may paralysis; either hemiplegia or paraplegia; generally this is partial, and it is often slowly recovered from.

Dropsy from arrested action of the kidneys, with imperfect action of the skin, is the most common, and in many cases the most serious of the sequelæ of scarlatina. It comes most frequently within a week or two after desquamation has commenced. Mild cases are almost as likely to be followed by it as severe ones. Exposure to cold is the generally observable direct cause; but cases happen in which no such exposure could have existed. Anasarca is the least dangerous though most frequent form of this dropsy. There may, instead or in addition, be ascites, hydrothorax, or hydrocephalus. Albuminuria, and often hæmaturia, may accompany either form.

Diagnosis.—From measles, scarlet fever is known by the eruption coming out on the second day, without catarrhal symptoms but with sore throat—and by its being of a brighter red color, and uniformly diffused instead of being in patches.

From roseola, it is distinguished by the fever and sore throat, and by the rash in the latter being in irregular blotches, and of a damask rose color instead of a brick or scarlet-red hue.

Prognosis.—This is proverbially *uncertain* in scarlet fever. The simple form is, however, the least dangerous, and a very large majority of cases get well. The anginose is more threatening and serious. But the malignant variety, as its name indicates, is far the most so; recovery from it is the exception, although it does occur. I have known two cases of such recovery; one, in which coma was complete for thirty-six hours. Adults are, when affected with scarlet fever, in somewhat greater danger than children; and so, especially, are puerperal women.

Causation.—Although most (not all) authorities agree that this disease is contagious, it is certainly very capricious or variable in its manifestation of this quality. That is, many persons who are exposed escape it. It is true, that several children in a family often have it in immediate succession. But the escape of all but one is, so far as my observation has gone, as common. It rarely occurs twice in the same person. I remember but one or two instances of this in my own practice. It seldom occurs in infants under three months of age.

Treatment.—Mild cases require no medication at all, other than to make sure that the bowels are well opened. If fever is high, after a saline cathartic (citrate or sulphate of magnesium or Rochelle salts), neutral mixture or effervescent draught, or liquor of acetate of ammonium may be given. Sweet spirits of nitre may be added, in small doses ($\frac{1}{4}$ to $\frac{1}{2}$ fluidrachm for an adult, and proportionately less for a child) if the kidneys act slowly. Drinking cold water

freely is to be encouraged; as it is demanded by thirst. If the throat be much inflamed, the frequent melting in the mouth of ice, in small pieces, will do good.

Dr. Egbert, of Pennsylvania,¹ uses, instead, an *ice-bag*, applied to the throat. This must require caution, not to allow the local impression of cold to become extreme.

Venesection is prohibited now in scarlatina by nearly all writers. In the early part of my practice, I bled from the arm in six cases, all of which did remarkably well. They were examples of violent fever with abundant eruption, severe sore throat and headache, in children of good constitution. I do not *advocate* the practice, simply in deference to the common opinion of the profession. Certainly it should be always ruled out in asthenic cases, and in all unless at the early stage of the fever. Dr. Squire and others have reported well of the employment of *quinine*, in 5 or 10 grain doses, during the height of the febrile attack in scarlatina.

For the sore throat, which is *specific* in character, besides the use of leeches externally, if the inflammation be great and the case asthenic, local alteratives may be used. An old and popular gargle is one of red pepper, vinegar, and water. More powerful in changing the character of the inflammation, I think, is a strong solution of nitrate of silver (gr. xxx in fʒj) applied with a large hair pencil. When pseudo-membranous patches appear, with a tendency to fetor or ulceration,² muriatic acid, with honey, equal parts, may be applied in a similar way; or, diluted, used as a gargle. Sulphate of zinc (gr. xv to xx in fʒj) is also a good application; and so are solutions of creasote in glycerin; chlorinated soda; and permanganate of potassium.

For the irritation of the skin connected with the rash, according to my experience the best relief is to be obtained by sponging with cool or tepid water, two or three times a day. Inunction with lard, or glycerin, is preferred by some. Cold *affusion* is unnecessarily violent and troublesome.

The diet in scarlet fever should be, as a rule, liquid, but need not be *low*, generally, in the sense of dilution or exclusion of animal material, unless in the first few days. Sooner than in most diseases, the tendency to debility is manifest. Then, milk, chicken-broth, mutton-tea or beef-tea, etc., will be suitable. At the same stage, some patients will require a tonic treatment, by quinine, or, as some prefer, nitric acid in small doses.

Malignant scarlatina is a disease of terrible depression from the outset. Deficient reaction is one of its characteristics. To promote this, external stimulation is primarily important. The hot salt or mustard bath is a powerful agent for the purpose. *Urtication*, *i. e.*, the direct application of fresh nettles, has been sometimes employed. Mustard plasters may be applied energetically; and so may hot bottles, or bags of hot salt, etc. Internally, ammonia, quinine, and capsicum are the most prompt and reliable stimulants, although we may add to the same list, Hoffmann's anodyne,

¹ Transactions of Penna. Med. Society, 1872.

² Sir W. Jenner considers the danger to be increased by septic infection from absorption of fetid material from the ulcerated throat.

and brandy, whisky, or wine. Where a tendency to *stupor* exists *free purging* will be the main hope. Jalap is a convenient article for the purpose [F. 151].

The sulphite of sodium is now under trial in various zymotic diseases, as an antagonistic of morbid blood-changes. The dose for an adult (perhaps not yet well settled) may be about ten grains every two or three hours [F. 152]. Chlorine water, in fluidrachm doses for an adult (ten drops for a child of two years), is sometimes given in scarlet fever with a similar view; and so is chlorate of potassium.¹

Other modes of treatment for severe cases are, the use of tincture of chloride of iron freely; of infusion of digitalis (L. P. Gebhard); of diluted acetic acid (ʒj to ʒiv of the officinal acid in ʒiv of water, the dose of the solution being a tablespoonful, sweetened, every few hours); and of diluted nitric acid. Carbolic acid, in one or two grain doses, diluted, has lately been used by Drs. Kempster, Bissell, Fuller, Shoemaker, and Cleaver, with asserted beneficial effects.² Its dose³ should be always small (1 grain), and given well diluted with water.

Of the *sequelæ* of scarlet fever, each has its own indications for treatment. That of dropsy is the most frequently important. If, during desquamation, the kidneys show any threatening of inaction or suppression, the greatest care of the state of the skin must be maintained. It is, indeed, a good rule of precaution, for fear of some carelessness and exposure, not to allow a patient recovering from scarlet fever to leave his chamber for three or four weeks at least, from the beginning of the attack, nor the house for four or five weeks. Lemonade as a drink, if the urine be scanty, may be freely used. Cream of tartar and acetate of potassium are approved in the same case as diuretics. Digitalis has the confidence of many. *Quinine*, in doses large enough to cinchonize, is reported very favorably of, in scarlatinal dropsy, by some practitioners. Dry cupping to the lumbar region, and the application there of a large mustard plaster, are measures suggested by the known congested state of the kidneys. Dr. C. West even bleeds from the arm upon the same indication; a practice which I should hesitate to follow, *after* so exhausting a disease as scarlet fever. Purgatives must not be omitted when diuretics fail; the principles governing their use being the same as in other varieties of dropsy.

Prophylaxis.—Belladonna has been asserted to have a protective power against the contagion or infection of scarlet fever. But the evidence in its favor does not appear to me to warrant our giving any confidence to it, or to any prophylactic.

¹ See Squire, on Temperature Variations in Children, 1871.

² Cleaver, in Iowa Med. Journal, 1869. Dr. Kempster, of Utica, and Dr. A. M. Carpenter (Physician and Pharmaceutist, November, 1868), use carbolic acid, with glycerin and water, as a local remedy for the sore throat of scarlatina.

³ Readwin (Pharmaceutical Journal, Oct. 1869), gives the following quantities as safe; for internal use, 1 grain of pure carbolic acid (crystals) in a fluidounce of water. As a gargle, 1 or 2 grains in an ounce of water. For injection, 1 grain to 4 ounces; lotion, 15 grains to an ounce of water, liniment, 1 part to 20 of olive oil; ointment, 16 grains to an ounce of lard. Some facts of experience, accidental and therapeutic, render it not improbable than carbolic acid may be safe in larger than one grain doses.

MEASLES.

Synonym.—*Morbilli*. Formerly, with all writers, and still with many, *rubeola* is a synonym for measles. Some English writers, however, designate by the name of rubeola only a hybrid or blending of measles with scarlatina.

Symptoms and Course.—After an incubation of from ten to fifteen days from exposure to its contagion, the attack begins with a slight or obscure stage of depression, passing into fever. With this there are all the symptoms of a cold; running at the nose, redness and watering of the eyes, and a cough. On the fourth day of the attack the rash begins on the face, and extends over the body and limbs. It is not so bright in color as the eruption of scarlet fever; and is irregularly distributed in patches more or less crescentic in shape. By about the seventh day the rash begins to fade, and about the same time or before, the fever has begun to decline. Desquamation is much less extensive than after scarlatina.

No such intensity of febrile movement, nor severity of any kind, as is common in the last-named disease, exists, except very rarely, in measles. *Camp* measles, during the late war in this country, often assumed a typhous character, with a considerable mortality; due to the conditions under which it occurred among the soldiers. Otherwise measles seldom threatens life.

The *sequelæ* which are of the most consequence are, ophthalmia, diphtheria, chronic bronchitis, and phthisis. Very severe inflammation of the eyes sometimes follows measles; but blindness from this cause is rare. Diphtheritic sore throat is not infrequent, and may be fatal in children. Chronic bronchitis is common, especially when care is not taken during convalescence to avoid exposure. Phthisis, under the same circumstances, is to be apprehended only where the constitution suffers under a predisposition to tubercular disease.

Causation.—Measles is one of the most contagious of diseases, beyond all doubt. Singularly enough, however, I once attended with it one of a pair of twins at the same mother's breast, the other escaping it altogether. A second attack is exceptional, but not very rare.¹

Treatment.—Beginning with a moderately active saline cathartic, diaphoretics, expectorants, and demulcents are next in place. Syrup of ipecacuanha with neutral mixture ($\frac{1}{4}$ drachm of the former, for an adult, with each tablespoonful of the latter) every two, three, or four hours, would be an average treatment for the first week; flaxseed lemonade being freely used as a drink. After that, the continuance or relief of the bronchial symptoms must determine whether some other expectorant (as squills or wild cherry) shall follow. Debility may require tonics during convalescence.

¹ Not long since, Dr. Salisbury, of Ohio, produced measles-like symptoms in several persons by exposing them to the influence of fungi growing upon damp straw. The identity of the affection with measles is not, however, shown. Drs. Hammond and Woodward, at Washington, repeated the same experiments without result. Some British writers aver that *rubeola notha* is a distinct disease, and may be ascribed to straw-fungus.

HYBRID BETWEEN SCARLATINA AND MEASLES.

Synonyms.—*Rötheln*; *German Measles*.

This, called *Rubeola* by some, is not common, but undoubtedly does occur. I have seen a case in which the symptoms of the two disorders were so nicely balanced that two physicians of similar experience pronounced it, the one scarlet fever, and the other measles. Dr. Murchison and others assert "German measles" to be an entirely distinct disease, an attack of which affords no immunity from either measles or scarlet fever.¹ If this be so, such a disease has been very little known in this country. Dr. J. Lewis Smith, in the *Sanitarian* for July, 1874, gives a brief account of its prevalence as an epidemic in New York at that date. In severity, the hybrid attack is more like measles; although dropsy and albuminuria may follow it, as well as bronchitis, etc. Its treatment requires no special consideration, being involved in what has been said of the two diseases of which it really seems to be a combination.

MUMPS.

Synonyms.—*Parotitis contagiosa*; *Cynanche parotidea*.

Symptoms and Course.—This is generally a mild affection, of a few days' duration. The parotid gland swells and becomes hot, painful, and tender to the touch. Some inconvenience in swallowing may result. There is little or no fever, but some general malaise; and the attack is generally at an end within a week. One or both parotids may be affected. There seems to be reason to believe that attacks may occur at considerable intervals, even of years, involving first one gland and afterwards the other. Suppuration is rare; I have seen it but in one case. The disease is undoubtedly contagious.

Bouchut, in 1873, in a communication to the French Academy, brought forward the remarkable assertion that parotitis is simply a salivary retention, due to catarrhal inflammation of the parotid duct.

Diagnosis.—As the parotid gland, as well as other glands about the neck, may inflame from cold, salivation, or scrofula, it becomes sometimes a question whether a swelling in that region be mumps or not. When the parotid alone is affected, it is impossible to decide, unless immediate exposure to another case of mumps be known. The parotid is, however, not apt to inflame under other causation, even from salivation by mercury; the submaxillary glands are much more liable to swell from that cause. The suddenness of the attack, and its brief duration, are generally quite diagnostic of mumps, as compared with scrofulous or other inflammations of glands about the neck.

Complications.—*Metastasis* of mumps, to the mamma or testicle, or even to the brain, occasionally occurs. Instances of the last-named complication have come to my knowledge. In either of the first two, a somewhat similar inflammation of the gland attacked takes place; usually more protracted than that of the paro-

¹ See a Lecture by Dr. Liveing, *Lancet*, March 14, 1874.

tid. If the brain be the seat of the transfer of the morbid element or action, meningitis, or coma, may follow; and even death is said thus to have resulted. Otherwise, mumps are free from danger to life.

Treatment.—Care to avoid being chilled, lest metastasis or greater severity of the attack be produced, is important. No general treatment is necessary, nor does the patient usually need to remain in bed. Perhaps a mild laxative may be given on the first or second day. A poultice of flaxseed meal is a good local application for the gland. It may also be bathed night and morning with soap or volatile liniment.

HOOPING-COUGH.

Synonym.—*Pertussis*.

Symptoms and Course.—After an incubation of about six days, the attack commences with symptoms much like those of acute bronchitis, including fever of variable degree; soon showing its peculiar character. This is, a spasmodic and paroxysmal cough. For hours the patient may be apparently well, and then, often with a premonitory sensation which leads the child to run to its mother or nurse, or, if at night, to sit up in bed, a fit of coughing begins, and lasts for several seconds or minutes. It consists of a rapid succession of short but violent expiratory efforts, with scarcely any intervals of inspiration; at the close of which, air is taken in by force through the contracted glottis, making a whooping sound, whence the name of the disease. All who have it do not whoop; but the paroxysmal character of the cough is pathognomonic.

Expectoration is often copious, of thick mucus, sometimes even of lymph and pus. Vomiting occurs often during the spells of coughing. The child may become very much exhausted, even to a fatal end; but unless from complication or previously feeble constitution, death does not very often occur. I never knew asphyxia to be fatal during the paroxysm, though it is sometimes threatening. One case has recently come to my knowledge in which death took place with *apoplectic* symptoms. Intense congestion of the eyes, from the violent coughing, is common. There may be many variations of severity in all the symptoms in the course of an attack. Dr. Gibb has found the urine saccharine in this disease.

The *duration* of hooping-cough is seldom less than six weeks, although cases have ended within three weeks. Often it lingers for three or four months; in one case I knew it to last a year.

Complications.—Pneumonia, collapse of the lungs, and (as a sequela) phthisis, are the most likely to occur. Deafness from rupture of the membrana tympani during the violent coughing, has been known. Sometimes the eyes become bloodshot from the same cause. Convulsions occasionally increase greatly the seriousness of the disorder. I have known it to terminate with fatal apoplexy.

Causation and Pathology.—There is no question of the contagiousness of hooping-cough. Generally it occurs but once in the same person; but second attacks are not very rare. Like scarlet