A PRACTICAL MANUAL

OF THE

DISEASES OF CHILDREN.

"Avant la parole, Dieu a donné à l'enfant un langage, que les philosophes appellent langage naturel. C'est le langage des signes, ... et je crois que le langage naturel n'est intelligible que pour ceux qui ne veulent pas faire d'efforts pour le comprendre."

BOUCHUT, 'Maladies des Nouveau-nés.'

John Mackenzie

A PRACTICAL MANUAL

OF THE

DISEASES OF CHILDREN,

WITH A

FORMULARY.

BY

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TO

SIR WILLIAM JENNER, Bart., M.D.,

D.C.L., F.R.S.,

PHYSICIAN IN ORDINARY TO HER MAJESTY THE QUEEN,
AND TO HIS ROYAL HIGHNESS THE PRINCE OF WALES; PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, ETC.,

AS A SLIGHT BUT SINCERE TOKEN OF

ADMIRATION, GRATITUDE, AND REGARD,

This Work is Dedicated

BY HIS FRIEND AND FORMER PUPIL,

THE AUTHOR.

PREFACE.

The object I have endeavoured to attain in the preparation of this Manual is to present concise, yet thoroughly practical, descriptions of the principal diseases of children.

I have omitted, as tending to expand too far the purpose of this book, all clinical records of my own or of others, and all controversial questions. For the same reason I have disregarded theories still under discussion. Hence cholagogues, alteratives, and counter-irritants are spoken of, because the profession attaches to these names qualities which are true qualities, though old theories of their actions may be incorrect. I have consulted the works of many distinguished authorities, both English and Foreign; carefully comparing them with the results of my own experience, and to all to whom reference is made

in the course of the work I desire cordially to express my acknowledgments. I also take this opportunity of thanking my friend and colleague, Dr. Hayward, for many valuable suggestions while these sheets were passing through the press.

Considerable care has been bestowed to render the Formulary which is appended useful, and as my aim throughout is essentially practical, I venture to hope that this little volume, notwithstanding many imperfections, may prove of value to students and practitioners, as a handy book of reference upon a class of diseases, presenting peculiar difficulties, and yet of the deepest interest because so continually met with in practice.

118, Warwick Street,
Eccleston Square;
September, 1869.

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A PRACTICAL MANUAL

OF THE

DISEASES OF CHILDREN.

CHAPTER I.—GENERAL OBSERVATIONS ON MANAGEMENT AND DIET.

1. Medical Examination.

It is very important in the study of the diseases of children to gather as much information as possible before making any manual or physical examination. The eye of the physician should inform him of a great deal, which the ear and the touch may afterwards confirm. This is a matter of the greater importance inasmuch as if we had to depend entirely upon physical examination, we might be often completely thwarted by the restlessness and excitement which are so frequently present. It is eminently fortunate if at the time of a visit the child should be asleep, as the pulse can then be felt, the breathing noted, the posture, the state of the skin, and other matters, before the child is aroused for us to see the tongue or to sound the chest. Supposing then that the little patient is asleep, what are the points that we should take note of before arousing it? First, the attitude; the

posture, if easy and natural, or otherwise; the colour of the face, if flushed or pale; the colour of the lips, if white or livid; the state of the skin, if dry or moist; if the moisture be general or restricted to the head and forehead; the expression, if natural or painful. We should note the presence or absence of moaning, starting, twitching, grinding of the teeth; the action of the nostrils, if quiet or working strongly; the eyes if closed, or partly closed, or staring, or clenched; the respirations should be counted; the condition of the fontanelle should be considered if closed or open, if pulsating greatly, if distended or retracted. The pulse should be noted; under two years of age it should range from 90 to 130, or in rare cases 140. Consistently with health, after three years it is rarely above 100. It may not be more than 70, yet still healthy. The actual number of beats is therefore of little value, but an infrequent pulse is a grave and valuable sign; for example, a child has had feverishness and sickness, and the pulse is found to be 130: the cause is very likely plum cake or jam; but if a child has had feverishness and sickness, and the pulse is found to be 40, the disease will most likely prove tubercular meningitis. The size and shape of the head should be noted, if large, if the veins are full, if hot. Let the child then be aroused; its aspect should be observed in waking. Does it frown or smile? is it peevish or languid? excited or resigned? Is there a dark ring round the eyes? Also the colour of the face, the shape of the face, and the presence or absence of snuffling.

Next let the child be stripped; the surface should be mottled, the flesh firm, the skin smooth and elastic to the touch, not flabby; the arms and legs should move freely. The joints should be noted, if swollen, if large or small. The respirations from one to three years of age should be

24 to 36 a minute, and diaphragmatic in character; in ordinary breathing there should be no recession of the chest-walls; this occurs in sobbing, or, if a mechanical impediment exists to the entrance of air into the lungs. Under one year the respirations vary from 40 to 50 in a minute. Eruptions should be looked for particularly around the anus. In infants the stools should be yellow, and three or four in a day. To see the tongue advantage should be taken of the child's crying, or if it be good its lips may be touched with the finger, and it will protrude it. Of teeth, it should have the first incisors by the seventh month, the first molars by the twelfth month, the canines by the eighteenth month, and the second molars by the twentieth month. The gums should be felt if hot, or swollen, or the reverse. Lastly, a child does not raise its head from the pillow till about the second month, and it cannot sit erect till the fourth or fifth month.

There are a few practical matters, then, in connection with the general management of children, and inferences to be drawn from peculiarities in their appearance, and which, for convenience, will be briefly discussed in the present chapter. 1. The expression of countenance; the *upper* portion of the face is affected chiefly in brain diseases, causing knitted brow, contracted forehead, and rolling, fixed, or purposeless eyes. 2. The *middle* portions of the face are changed in heart and lung affections, the nostrils are sharp or distended, or working, and there is a bluish circle round the mouth, and dark rings under the eyes. 3. The *lower* portion of the face suffers mainly in abdominal troubles, the cheeks are changed in colour, sunken, puckered, the mouth drawn, the lips livid or pale—a look assumed which Sir W. Jenner describes as a Voltaire-like look. Besides these indications which are most remarkable, and of the highest practical importance, the physician

will note special signs as redness or pallor, ptosis, unequal dilatation of the pupils, and the like.

Gestures are often significant: in brain disease, the child puts its hand to its head, pulls at its hair or any covering that may be on the head, rolls the head on the pillow, and beats the air uncertainly. In abdominal disease the legs are drawn up, the face is sunken and anxious, and the child picks at the clothes. In urgent dyspnœa it tears at its throat or puts its hand in its mouth, especially when false membranes are forming, or the tongue is much furred, as in fevers, &c. Then the cry varies; it is laboured, as if half suffocated, or better, as if a door were shut between the child and the hearer in pneumonia and capillary bronchitis; it is hoarse in croup, brassy and metallic, with crowing inspiration; in cerebral disease, especially hydrocephalus, it is sharp, shrill, and solitary, the so-called "cri hydrocephalique," whereas in marasmus, and tubercular peritonitis, it is moaning and wailing. Children shed no tears before the third or fourth month, and the saliva appears likewise about the third month. Trousseau considers that in children under two, and even up to seven years, shedding tears is a most favorable prognostic, whereas the absence of them is the reverse.

Temperature.—The normal temperature of the child, taken say under the armpit, is 88° to 98° F.; if over 100° F., fever undoubtedly exists, and the cause should be searched for. No indication is more simple or more valuable than that supplied by the thermometer; by its aid alone we are led often to suspect the advent of typhoid, or scarlet fever, or to detect some latent pneumonia, or tubercle producing irritation, or worms, or some other malady which we had overlooked. It should be remembered that rigors do not occur in young children,

but that convulsions and delirium correspond in a great measure to rigors and headache in the adult. Temperature is a better guide than the pulse in the diseases of young children, and should be used to correct its indications.

The Eye.—Squinting in acute illness is a grave prognostic; it may occur from reflex irritation or from paralysis, or from convulsions, but the convulsions may cease and the squint remain for a while or even permanently. When strabismus occurs in tubercular meningitis it is an almost fatal sign.

A small pupil is not so common as a large one; it occurs in active congestion, in opium poisoning, and in sleep. Large pupils if equal in size are only of grave import when insensible to light; inequality of the pupils coming on in acute illness is a very grave prognostic.

The Pulse varies from 110 to 150 consistently with health; it may be irregular consistently with health. It is rather quicker in the female than male after seven years; it is somewhat slower during sleep. A very slow pulse is an indication of cerebral disease.

The following aphorisms of Bouchut are of the highest practical value.

1. In early childhood there is no relation between the intensity of the symptoms and the material lesion. The most intense fever with restlessness, cries and spasmodic movements, may disappear in twenty-four hours without leaving any traces.

2. Abundant perspiration is not observed in very young children; it is entirely replaced by moisture.

3. Fever always presents considerable remissions in the acute diseases of young children.

4. In the chronic diseases of infancy fever is almost always intermittent.

5. When children are asleep their pulse diminishes from 15 to 20 pulsations. The muscular movements which accompany cough, crying, agitation, &c., raise the pulse 15, 30, or even 40 pulsations.

6. The diseases of youth always accelerate the process of growth.

2. General Management during the First Year of Life.

A child should be washed in warmish water twice a day, carefully dried, and dusted over with unscented starch-powder; if there be any excoriations oxide of zinc will replace the starch with advantage. An infant's clothes and napkins should never be washed in soda. If on the separation of the navel there is a little ulceration and serous exudation, a little zinc ointment is the best remedy, or a little bismuth ointment. If the navel be ruptured, it should be immediately secured with soap-plaster or diachylon, a small pad of lint over a piece of flat cork being placed on the protrusion; an elastic bandage over all is useful to keep things in place. In severe rupture a piece of sheet lead should be folded over the cork and well padded with lint, and then fastened as before.

The child's ordinary flannel bandage should not be left off till the third month, when it may be dispensed with gradually by using smaller ones. If pertussis or any straining cough be present, the band should not be left off even then.

The child should be put to the breast within a few hours of birth; the uterus is thereby induced to contract more thoroughly, and the child gains the benefit of the "colostrum," or earliest milk, which saves all necessity for castor-oil, honey and butter, and other recipes of old

nurses. If the child be tongue-tied, the frænum linguæ will require snipping with a pair of scissors. Mr. Maunder recommends that this little operation be done with the nail. The child should be applied alternately to each breast at intervals at first of an hour and a half to two hours, gradually increased to three and four hours as the child grows older. As a rule no artificial food whatever should be permitted when the breast of milk is good; at any rate until the sixth or seventh month. In cases where artificial food is absolutely necessary, cow's milk and water and sugar, one third milk and two thirds water; or, better still, lime-water (to prevent the curdling of the cow's milk in the stomach) with a little loaf sugar or sugar of milk may be given. When this disagrees, as it sometimes will, I have occasionally ordered the sugar in any form to be omitted, and a few grains of ordinary table salt to be substituted, with very satisfactory result. Brown sugar is never to be given. As the child grows older less water or lime-water, and more milk may be given, until after five or six months the milk may be given alone. A teaspoonful of cream may be added to a quarter of a pint of milk, as recommended by Sir W. Jenner; four or five ounces of the "food" thus prepared is amply sufficient for a meal; if the child is allowed to suck in more it will be sick from repletion. Other forms of diet adapted for occasional use or at weaning may next be mentioned, *e. g.* the crum of bread boiled and sweetened, with a little boiled milk added, is a good food, so are Robb's biscuits, so is baked flour, or baked flour and oatmeal (one part of oatmeal to two parts of flour); two tablespoonfuls with half a pint of milk well boiled and sweetened is a capital food. Revalenta Arabica, or lentil food, is strongly recommended by Dr. Routh. Hard's Food, Ridge's Food, Soojie, Wheat Phosphates, Brown and Polson's Corn Flour, have

all their advocates. For a very delicate child a small quantity of Liebe Liebig's Food may be added with advantage to the milk. Rice milk and rice jelly are especially useful when the bowels are disordered.

If the mother cannot suckle, a wet nurse is the best substitute. If possible she should be a healthy married young woman, without blotches or scars, especially on the neck, with regular teeth and clear complexion, whose child is about the age of the child she is to suckle, and whose child is itself healthy and free from sores, and redness about the anus. Her milk, of which a little should be examined in a glass, should be thin, bluish-white, sweet, throwing up a clear cream on standing. The breasts should be of moderate size, equal, and firm (glandular not adipose tissue being required), the nipple should be of moderate size, well made, and prominent, that the child may easily seize it. A wet nurse must not be too highly fed; she should live regularly, simply, and quietly, and take daily exercise.

Amongst the wealthier classes there is no more common error than over-pampering a wet nurse; forgetting the hardships from which she has come and amongst which she has thriven and kept her health, she is straightway made to do nothing and to eat constantly of the richest food, and then such persons are surprised that the milk does not appear to agree with the child, and that the nurse looks poorly and the like.

Woman's milk should have a specific gravity of 1032·67; its analysis, according to MM. Vernois and Becquerel, is—

Water	. .	889·08
Sugar	43·64	
Casein and extractive matters	39·24	
Butter	26·66	
Salts	1·38	
Solid constituents	. .	110·92
		1000·00

The amount of milk secreted per diem should be from thirty to forty fluid ounces. The milk of brunettes is richer in solid constituents than that of blondes, though the latter often secrete larger quantities.

Composition of Milks (Vernois and Becquerel).

	Specific gravity.	100 parts contain—		The solid components consist of—			
		Fluid.	Solid.	Sugar.	Butter.	Casein and extractives.	Salts.
Man . .	1032·67	889·08	110·92	43·64	26·66	39·24	1·38
Cow . .	1033·38	864·06	135·94	38·03	36·12	55·15	6·64
Ass . .	1034·57	890·12	109·88	50·46	18·53	35·65	5·24
Goat. .	1033·53	844·90	155·10	36·91	56·87	55·14	6·18
Ewe . .	1040·98	832·32	167·68	39·43	54·31	69·78	7·16

Weaning should be effected at from nine to twelve months, and it should be effected gradually, that is, artificial food should replace the breast milk more and more frequently, until the breast is only given at night, and at last not given at all. Any of the foods recommended at page 7 are suitable; that which agrees best should be selected and kept to. It is not good to accomplish weaning when the child is ailing; a favorable opportunity must be sought, but it should always be accomplished by the end of the twelvemonth.

Dentition commences usually at the seventh month, but, especially in rickets, it may be deferred till the eighteenth month or second year. When a child is born with teeth they usually fall out. The temporary teeth (twenty in number) are generally cut in pairs. The following table indicates in *months* the usual times of their appearance :

Molars.	Canine.	Incisors.	Canine.	Molars.
24—12	18	9 7 7 9	18	12—24

The lower jaw usually is a little in advance of the upper. The permanent teeth (thirty-two in number) appears as under in *years*.

Molars.	Bicuspids.	Canine.	Incisors.	Canine.	Bicuspids.	Molars.
25 13 6	10 9	11	8 7 7 8	11	9 10	6 13 25

At 2 years the child has altogether . . 16 teeth.
At 2½ „ „ . . 20 „
At 6* „ „ . . 48 „

During dentition the child's health requires unusual care, the bowels must be regulated, the diet strictly attended to, the gums lanced when they are hot and swollen, but not otherwise; the diarrhœa of teething is natural, and if in moderation should not be interfered with. A little castor-oil is the remedy when this diarrhœa becomes griping, offensive, or troublesome. Astringents do harm nine times out of ten in such cases.

At the end of the first year it is time enough to commence more solid and general diet, then bread and gravy, mashed potato and gravy, and by-and-bye, as the child gets teeth, small pieces of meat cut fine and mixed with potato and gravy, light puddings, and general diet which will be found indicated in the following diet tables.

* At six, 20 deciduous and 28 permanent make 48.

3. Diet Table for Children One Year old and upwards.

DIET TABLE.

Meal.	*Low.*	*Ordinary.*	*Extra, comprising ordinary and some of the following in certain cases.*
Breakfast, 8–9 o'clock.	Bread scalded with milk, and water in equal proportions. Gruel. Arrowroot. Rice milk. Milk and lime-water ($\frac{3}{4}$–$\frac{1}{4}$).	Half a pint of hot new milk poured on a slice of bread, and some bread and butter to eat with it. A little *loaf* sugar may be added to the bread and milk. Bread and butter, weak *black* tea, or better, cocoa or chocolate with plenty of milk. Chocolate is very nutritious and wholesome, and children soon like it.	Yolk of new-laid egg beaten up in tea with a teaspoonful or two of cream. Lightly boiled new-laid egg. Iceland Moss cocoa.
Dinner, 12–1 o'clock.	Bread and gruel. Light puddings, as sago, tapioca, semolina, bread, rice, tous les mois, corn-flour, &c. Fish, as boiled sole, whiting. Boiled chicken. Weak veal-tea. Weak chicken broth.	Bread, mashed potato, and gravy. Beef tea, veal tea, chicken broth, and mutton broth. Light puddings, rice, custard, vermicelli, sago, tapioca, corn flour, &c. *Fish.*—Turbot, soles, whiting, smelts, flounders, fresh cod, mullet, in all cases boiled rather than fried. *Meat.*—Roast mutton, boiled mutton, mutton chop, lamb, roast beef, chicken, pigeon, rabbit. *Vegetables.*—Mashed potatoes, cauliflower, brocoli, spinach, turnips, parsnips, carrots,	Clear soups made from the lean of beef, veal, or mutton, and thickened with sago, vermicelli, maccaroni, rice, pearl barley or wholesome vegetables, and not highly seasoned. Jellies, calf's foot, Iceland and Irish moss.[1] Liebig's Extract of Meat. Turtle soup, clear turtle is very digestible and highly nutritious. Raw meat made by shredding mutton or beef quite free from fat, and pounding till it becomes a pulp; it should then be carefully strained and about a teaspoonful given at a time. This is very valuable in protracted

		French beans, asparagus, sea-kale, vegetable marrow, lettuce. *Fruit.*—Most wholesome when baked or stewed; perfectly *ripe* fruit is also wholesome in moderation. *Beverage.*—Water, toast and water, sometimes milk and water.	diarrhœa and in exhausting diseases; the quantity given may be increased if the stomach retains it well. It causes offensive evacuations. Oysters, lamb's sweetbread, whitebait. Larks, pheasant, snipe. Stimulants, ordinary, sound hock or claret, bitter ale, stout; extraordinary, port wine, brandy, champagne.
Tea, 4 o'clock.	As breakfast.	As breakfast. If weak tea be taken in the morning, cocoa may be taken now or *vice versa*.	Gelatine, isinglass, or suet tied lightly in a muslin bag and boiled in milk, to be subsequently sweetened with white sugar. As breakfast.
Supper, 6 o'clock.	Thin gruel. Milk and water. Arrowroot.	Gruel, rice pudding, corn flour, arrowroot, as puddings or blanc mange, with a piece of bread.	Light puddings. Beef-tea. A little jelly or blanc-mange, with bread.

Childrens' meals should be regular in time, and a child should be put to bed soon after its supper; the meal before bed-time is never to be a heavy meal.

To be avoided.—All rich and highly-seasoned soups. *Meats.*—Pork, veal, bacon, salt beef, duck, goose, sausages, liver, kidney, heart, tripe. *Fish.*—Crab, lobster, in fact, all shell-fish except oysters, and those only as occasional aliments in extra diet. Salmon, salt cod, eels, sprats, herrings, mackerel, &c. *Vegetables.*—Cucumber, radishes, celery, onions, parsley, and flavouring herbs. Pickles, pastry, sweets, sauces, spices, nuts, cheese, sweet cakes, suet puddings.

In a general way the simpler a child's diet is, whether it be well or ill, the better, but cases of dangerous and protracted illness, especially amongst the children of the rich, will often tax the ingenuity of the physician, to permit variety without unwholesomeness, or to coax a pampered appetite without indiscretion.

CHAPTER II.—GENERAL DISEASES.

1. Scrofulosis.

It is of great importance in studying the diseases of children to get a clear idea of the various diathetic states that mask and change the course of ordinary acute diseases. Scrofula is a constitutional affection of childhood; it is, in fact, more limited to childhood than tuberculosis, and it is most important that its essential features should be clearly recognised. Sir W. Jenner has drawn particular attention to many of the points that distinguish tuberculosis from scrofulosis. The latter is characterised pathologically by affecting especially—the lymphatic glands, causing strumous inflammation and abscess; the mucous membranes, *e.g.*, strumous ophthalmia; the skin, producing obstinate and very chronic cutaneous diseases; and caries of the bones. The temperament of a child afflicted with struma is phlegmatic; the mind and body are backward; such a child is dull and heavy; its skin is thick and muddy-looking, its complexion doughy, its upper lips thick ("the strumous lip"), the nostrils wide, and the alæ of the nose thickened, the lymphatic glands, especially the cervical chain, enlarged, or becoming so on the slightest provocation. The abdomen is tumid, the ends of the bones are rather large, and the shafts thick.

Scrofula resembles tuberculosis in being hereditary, and in being readily induced by defective hygienic conditions, such as unwholesome and insufficient food, bad ventilation, scanty clothing, and the like. It also re-

sembles tuberculosis in frequently becoming associated with phthisis and hydrocephalus. Scrofulous deposits consist of albumen, gelatine, fibrine, and a little stearine.

There are a few manifestations of struma it will be convenient to notice here:—1. The formation of abscesses, which often takes place very early in life in the subcutaneous areolar tissue. The essential characteristic of a strumous abscess is *indolence*; they are not tender; they increase but slowly, and they leave deep and often permanent scars.

The cervical glands are perhaps the most prone to be affected in the scrofulous diathesis; these readily enlarge in teething, in slight attacks of stomach and intestinal disorder, and especially on the occurrence of any acute disease. The mother commonly states that the glands of the ears are down, and we find the whole chain like a string of beads round the neck. Sometimes one or other of them going on to slow suppuration, the neighbouring glands become similarly affected; sinuses are formed, and hence the unseemly marks and scars often seen in the necks of persons of the strumous type. Catarrhs, bronchial, gastric, and intestinal, are common accompaniments of the strumous diathesis; the child is always catching cold, and is especially prone to a watery diarrhœa, which is occasionally very intractable to treatment.

2. Otorrhœa is one of the very commonest accompaniments of the strumous diathesis. Besides the ordinary treatment of scrofula presently to be noted, the ears should be well syringed out daily with warm water or a weak zinc lotion, and a sinapism about the size of a florin should be frequently applied over the mastoid process.

3. Ozæna (rhinorrhœa) is also common; the amount

of heat and swelling about the lining membrane of the nostrils is often considerable, and with the offensive muco-purulent discharge make this complaint a very distressing one. When we are satisfied by the use of the speculum that there is no polypus or other nasal tumour, the local treatment must be directed to removing the offensive crusts of mucus by frequently syringing with weak Condy's fluid lotion (ʒij to Oj), or chloride of zinc (gr. xvj to Oj), or chlorinated soda or other disinfectant lotion, and directions must be given that the syringing be thoroughly and effectually performed, after which it is well to have the nostrils anointed with some stimulating ointment, as the Ung. Zinci or Hyd. Nit. Mitius, to diminish the amount of secretion. The stomach and bowels are frequently deranged in these cases, and should receive attention; occasionally ozæna is a concomitant of the syphilitic diathesis; the local treatment will be the same, but the constitutional remedies will then of course require to be directed against the syphilitic taint in place of the strumous.

With regard to the general management of struma, a few words must first be said about prophylaxis. If struma exist in the parents, or in either of them, the mother must observe unusual care during utero-gestation; she should live by rule, wear warm clothing, avoid excitement, and take regular exercise; it is far better for a strumous mother not to suckle her child, but a wet nurse should be procured from the first. When the child is weaned extra care must be used, all improper diet must be rigorously excluded, remembering that what another child can do with impunity and perhaps with advantage, will in the strumous subject only serve to develop the taint more quickly and certainly. It will be wise to keep such a child therefore to good cow's milk, impregnated perhaps with mutton

suet, according to the plan of Dr. Paris; to give it weak veal tea and other light broths, to let it have its potatoes mashed with milk, and to be careful in the use of vegetables; such a child should be warmly clad, not suffered to run with its bare legs exposed to the cutting east winds as so many in this city do, or to be cooped up in a perambulator with the said wind full in its face, till it is blue with cold. A strong child will live through such things (they are not good for them, but strong children survive them), strumous children will not. A bath in which a handful or two of Tidman's sea salt has been placed over night will be useful, but the child should after bathing be well rubbed with a Turkish towel to excite the glow and healthy action of the skin. Of medicines, iodide of potassium in small doses is useful, so is the syrup of the phosphate of iron, and the syrup of the iodide of iron; perhaps the best medicine is cod-liver oil and lime water in equal parts, taken twice or three times a day. The state of the bowels must also be carefully attended to. Should abscess occur it should be opened with a small opening, and the strength well supported during suppuration. The enlarged cervical glands, and indeed strumous enlargements anywhere, often improve wonderfully on being painted with iodine paint, or even with the ordinary tincture of iodine. It is of great importance to remember that mercury in all its forms is borne very badly by scrofulous children. I have repeatedly seen them get much worse under its use.

2. Tuberculosis.

In this most important and common diathetic condition the child has a nervous system highly developed, the mind and body are alike active, the figure is slim, little

adipose tissue being made; the organization delicate and refined. Sir W. Jenner thus sums up the chief characters, "Thin skin, clear complexion, the surface veins distinct, eyes bright, pupils large, eyelashes long, hair silken, face oval, ends of bones small, shafts thin, limbs straight." Children subjects of tuberculosis cut their teeth early, run alone and talk early. The leading pathological tendencies are fatty degeneration of liver and kidneys, deposition and growth of tubercle, inflammation of serous membranes. Tuberculosis manifests itself frequently in phthisis, in hydrocephalus, and in so-called tabes mesenterica, but tuberculosis in the child often exists without affecting the lungs; thus, for instance, the bronchial glands may be attacked, the lungs remaining free. Tubercle consists of animal matter, albumen and salts, such as the insoluble phosphate and carbonate of lime, and soluble salts of soda, and cholestearine. Tuberculosis is undoubtedly hereditary, and, like scrofulosis, favoured in its production by improper and scanty food, ill-ventilated rooms, and unhygienic conditions generally. It is important to remember that tuberculosis never produces scrofula nor scrofulosis tubercle, the two diathetic conditions being distinct and separate; for though in the course of scrofula signs of tubercle may be developed, the contrary does not occur, and the two types oftener remain completely distinct. Tuberculosis may be acute or chronic. When acute, the pyrexia is considerable, the emaciation rapid, and death may occur in a few weeks; or the disease may lapse into a chronic condition, evidenced by great anæmia, listlessness, want of firmness of the flesh, and a subpyrexial condition, in which thirst is a prominent symptom, and there is considerable heat of skin, some irregularity of the bowels, a little cough, vague and fleeting pains, and increasing debility; a temperature of

over 100° F. is a constant symptom and is a valuable aid in diagnosis. Perspirations are not uncommon, especially towards morning, but they are general, and not confined chiefly to the head, as in rickets. A peculiar, almost harsh dryness of the palms of the hands and soles of the feet is a very common symptom.

With regard to treatment, as in scrofulosis, it is all-important that prophylactic precautions should be carefully adopted. The child of tubercular parents must have a healthy wet-nurse provided; all hygienic conditions of feeding, exercise and sleeping, scrupulously observed; above all, fresh air in abundance will be of the utmost service. The mental powers are not to be excited in any way; it is well to allow such children to remain "backward;" on the other hand, exercise of suitable character is to be daily permitted, out of doors when possible (and that is always, except in damp weather and during prevalence of east winds); in-doors in some hall or spacious room, where romping can be indulged in. Such children will often bear heat well or cold well, but they will suffer acutely from sudden transitions; hence such should be guarded against. Damp is probably the busiest factor of tuberculosis; hence a marshy, ill-drained neighbourhood is on all accounts to be avoided. If the child is to winter abroad, a dry warm climate or a dry cold climate may be selected, but a moist warm or cold damp climate will be most prejudicial. Daily salt baths are useful, and friction should always be employed after them over all the skin. For diet, milk, cocoa, chocolate, the yelks of new-laid eggs beaten up, cream, white fish, chicken, mutton, and clear but not rich soups, are useful. The farinacea are to be used with moderation; the digestion is sometimes not strong enough for such food, and, if undigested, the bowels are only irritated, and harm rather than good

results. For medicines, cod-liver oil, glycerine, the syrups of the iodide and phosphate of iron, are the best. One tonic at a time is enough, and it is good practice to change it after a time, or even to omit it altogether for a few weeks. Slight ailments, unworthy of notice in healthy children, must receive attention in the subjects of tuberculosis, *e.g.* slight stomach and bowel disorders, headaches, unusual fatigue, and the like. By such judicious management, carried on year after year with unremitting patience, I have seen children whose lives have been despaired of live to grow up, if not strong, yet still sufficiently so for all the ordinary duties of life.

3. Rachitis—Rickets.

A constitutional disease, characterised by general cachexia, a peculiar condition of the bones, and often by albuminoid degeneration of some portion of the glandular system. Rickets is essentially a disease of childhood. It is rarely congenital, and probably not hereditary, although the children of drunken, syphilitic, and scrofulous parents are the most prone to develop it. So unhygienic conditions, bad ventilation, scanty and improper food, insufficient clothing, are frequent factors in its production. Of these, perhaps, improper food occupies the most conspicuous place. Rickets is, unfortunately, a very common disease; in fact, Sir W. Jenner says of it that it is "the most common, the most important, and in its effects the most fatal, of diseases which exclusively affect children."

The period at which rickets is at first usually manifested is about that of the first dentition, though it may be developed as early as the fourth month. The precursory symptoms are such as are common to many diathetic diseases, namely, fretfulness, irritability of temper, capri-

cious appetite, disordered state of the bowels, with offensive leaden-coloured stools, thirst, fulness of the abdomen, emaciation, slight pyrexia, some tenderness and swelling of the joints, especially of the wrists and ankles, and the bones are thickened just outside the sutures, the superficial veins enlarge, the fontanelle remains open. Next comes a series of symptoms all more or less characteristic of the disease, and the first of them is profuse perspiration, especially of the head; the second is the desire to be cool at night, which leads to the kicking off of the clothes; the third is general tenderness of the whole surface of the body, so that the child dreads to be touched; and the last is an increase in the normal quantity of urine, which also is frequently loaded with phosphates. The child now looks old and careworn, it huddles up in its chair, it evidently desires to be let alone, the eyes have an unnatural brilliance, and the head enlarges. Simultaneously also the long bones are found to be curved and their ends to enlarge; this is well observed at the wrists, ankles, or ends of the ribs. The spine suffers similarly; if the child cannot walk, there is posterior curvature, affecting the dorsal and lumbar vertebræ. If the child can walk, the posterior curvature is dorsal, only that there is anterior curvature combined with it of the lumbar region. Moreover, these curvatures of the spine become associated with the flattening of the ribs laterally, which gives rise to "pigeon-breast." The teeth of rickety children are always backward, and when formed soon decay or drop out, so that "if a child pass the ninth month without teeth the cause should be looked for." Meanwhile the general symptoms deepen in severity; the child is more fretful if touched, and more dull, morose, or languid, when left alone; its abdomen enlarges, its head enlarges, especially from before backwards, and it is also flattened on the

vertex; there is great loss of muscular power, the perspirations increase, the stools become very fetid, the appetite depraved and capricious, and if improvement do not take place from treatment the child sinks from exhaustion or from some thoracic or abdominal complication, such as bronchitis, or pleuritic effusion, or albuminoid infiltration of the spleen or lymphatic glands. This last condition is commonly associated with anasarca, and the child looks semitransparent, of a pale waxy appearance, not easily forgotten when once seen. The enlarged spleen can generally be felt, and the liver is not unfrequently enlarged also, though less commonly so than the spleen. Rickets may also terminate in chronic hydrocephalus, convulsions, diarrhœa, and laryngismus stridulus.

Should improved health take place, much of the superfluous bone is absorbed, the wrists and ankles get smaller, and, indeed, rickety children, if the disease be arrested, may grow up very healthy in every respect. The long bones, however, do not straighten, and the superfluous osseous tissue deposited along the cavity and at the ends of the bones is hardened, as some have said by ordinary ossification, as others, and with more probability, affirm by a calcifying process, similar to that which occurs in enchondromata.

Sir W. Jenner has pointed out that the white patches often found on the left ventricle, a little above the apex, in children who have died of rickets, are produced by attrition, this being the very spot where the fifth rib bends inwards.

There is also usually found collapse of lung tissue, and that form of emphysema, called insufflation, due to overdistension with air of the vesicular tissue of the lung. This condition invariably occupies the whole length of the anterior border of the lungs, extending about three

quarters of an inch from the free margins. Between this emphysematous tissue and the healthy lung beyond lies a groove of collapsed tissue, which corresponds to those projections inwards of the ribs where they unite with the cartilage. The lymphatic glands, spleen, liver, kidney, heart and thymus, may, one or all, be affected with albuminoid infiltration. On cutting such an organ the surface is pale and transparent, compact, smooth, and tolerably moist. No reaction can be got with iodine.

Treatment.—Remembering that improper feeding, bad ventilation, and "neglect" generally, are the great factors of rickets, so the treatment will comprise the reversing of these conditions; fresh air, proper food, and attention to cleanliness will alone do wonders. Children improperly fed on artificial foods should have a wet nurse, if possible, or be strictly dieted in quantity and quality of food. I believe that for rickety children it is good to add a little *salt* to their milk and water, or better milk and lime water than sugar in any form. I have often found this to agree admirably when the ordinary milk and water and sugar has been constantly rejected by the stomach with every sign of acidity and dyspepsia.

The addition of a teaspoonful of cream to the half pint of milk and water, is often beneficial.

Ass's milk is a nutriment of great value in these cases, as also is goat's milk. Older children will require beef-tea, bread, farinaceous and milk puddings, eggs, &c. In all cases fresh air and absolute cleanliness are to be insisted on. Tepid salt baths, followed by friction over the whole body with a coarse towel, is most useful; if the weather permit, the baths may gradually be made cold. Mercury, bleeding, blisters, and antimony, are never to be thought of for rickety children. Such children bear mercury in particular very badly. Of medicines I am

sure there are none more valuable than cod-liver oil, combined with an equal portion of lime water, the dose of oil not being too large for the stomach thoroughly to digest, that the bowels be not needlessly irritated, and the compound syrup of the phosphate of iron in drachm doses thrice daily. If preferred, phosphate of lime in small doses may replace the lime water. The syrup of the iodide and the old reduced iron are the next best forms in which to give steel. Alkaline medicines with a bitter infusion are occasionally needed to correct dyspepsia, especially "white stools" and acidity. The mineral acids are useful to check the extreme perspirations which sometimes occur. Intercurrent disorders occurring in rickety children will require restorative and by no means lowering measures.

4. Syphilis.

The congenital variety is that derived from the blood of one or both parents. The infantile variety is that acquired by accidental contact with a chancre, as in a wet nurse or other person brought into close connection with the child, and very rarely by vaccination. Such a chancre resembles an ordinary chancre, and requires no further notice beyond bearing the possibility of its occurrence carefully in mind.

The most striking symptom of congenital syphilis is "the snuffles," a snuffling noise which the infant makes in consequence of a subacute inflammation of the mucous membrane of the nose. If in addition to this the child is found to have condylomata about the anus, the diagnosis may be considered established. In addition, however, such a child is thin, poorly nourished; its muscles are not firm, but flabby, and its skin is brownish, cracked, thick,

rough, and unwholesome looking. The child often looks prematurely aged; its hair may have fallen off; the corners of the lips and nose are often ulcerated, as also the margin of the anus, and it may have a symmetrical copper-coloured eruption about the buttocks, &c., but especially characteristic when in the palms of the hands and soles of the feet. The voice is hoarse and squeaking; the nails are small and badly formed. The child suffers often from restlessness and sleeplessness, and has commonly a discharge from the ear. The liver is generally enlarged and hard, and has often undergone albuminoid degeneration. Iritis is rare, so also is excavation and ulceration of the tonsils, so also is disease of the bones, testes, and brain. (Berkeley Hill.)

The disease is usually manifested in from fourteen days to six weeks from birth, or, more rarely, the child may be born with it. It is of the utmost importance that the syphilitic diathesis should be early recognised, as all the after management of the child in health and disease will be modified by the fact of its existence.

Treatment.—Mercury in some form or other is the great sheet-anchor in this disease. Practitioners vary in the method of its administration. I prefer the use of grey powder, in doses of from half a grain to two grains twice or thrice daily, with a few grains of compound cinnamon powder to prevent the mercury running off by the bowels. The cinnamon powder may be replaced by P. Ipecac. c. Opio when necessary.

Many recommend the use of Ung. Hydrarg. (ʒss) rubbed into the thighs or arms, or simply laid on by means of a piece of flannel. When it is desirable to avoid suspicion I do not think these plans are good, and in out-patient hospital practice the mothers are often too ignorant or too careless properly to apply them. In the case of a sucking child

it is recommended to give the mercury to the mother, and this is often attended with undoubted benefit; but in severe cases it will usually be found necessary to give a little separately to the child. The mercury, in whatever form given, will require to be persevered with for about six weeks. It is often useful to change the method during this time, and then the combination of corrosive sublimate with bark is especially useful. Black wash is the best local application; the anal condylomata should be dusted over with calomel, and kept scrupulously clean. Occasionally they may require a touch with nitrate of silver. Caustic is also useful in ulcerations of the mouth and tongue. Iodide of potassium, bark, and sarsaparilla are of value after the mercurial course in improving the general health. The Syr. Ferri Iodidi is a favorite medicine for this purpose.

5. Acute Rheumatism

Is an affection not very common, especially in young children, but inasmuch as slight attacks of it are frequently complicated with pericarditis, its consideration is important. Rheumatism is an occasional complication of scarlatina, and it is then more especially liable to be attended with cardiac mischief. The disease, when it occurs idiopathically, sets in usually with rigors and feverishness, followed in a day or two by the swelling of the joints destined to be affected. The fever commonly runs high, the tongue is loaded with thick white fur, and the body is bathed in a peculiar acid perspiration of an odour which when once noted is always remembered. The urine is scanty and high coloured, and loaded with lithates. The large joints are generally the earliest affected, and the disease often wanders from ankles and knees to elbows

and wrists, the swelling readily subsiding in one set as another is attacked. A joint afflicted with rheumatism is reddish, swollen, very tender, and very hot; and a joint presenting all these symptoms urgently one day may on the next or day after be almost free from symptoms. The disease lasts from ten to thirty days, and is usually subject to exacerbations at night. Inflammation of the pericardium, which, especially in children, occurs in a very large per-centage of cases, is manifested by tightness and slight pain in the chest, often so slight as to be overlooked unless narrowly watched for, and besides, in children especially, delirium. Friction sound becomes audible at the base usually, but often over the whole area of the heart's dulness. As effusion takes place, this natural area of dulness is increased, and the sounds of the heart are muffled by the intervening fluid when the disease affects the lining membrane of the heart (endocarditis).

The murmurs are caused at the base or apex, according as they are aortic or mitral in origin; they are usually systolic; occasionally, however, a basic diastolic murmur is heard. These murmurs are produced by the effusion of plastic lymph on the valves. When the heart substance is attacked (carditis), great irregularity of action takes place, with syncope and often fatal collapse. (See Pericarditis and Endocarditis).

Treatment.—The affected joints should be wrapped in flannel or cotton wool, and hot poppy fomentations applied, or the joints may be covered with extract of belladonna. Lotions of carbonate of soda have their advocates. Blisters in children are decidedly undesirable. I am accustomed to rely on the so-called alkaline treatment, remembering that the materies morbi is by many attributed to excess of lactic acid in the blood, and that the urine is (if no alkalies be given) unquestionably very abnormally acid. The

bicarbonate of potash with the citrate of potash in fair doses, ten to fifteen grains every four hours, seems decidedly to relieve pain and to render the disposition to cardiac mischief less likely. Lemon juice, iodide of potassium, guaiacum, colchicum, mercurials, and vapour baths, have all their supporters. Iodide of potassium is of value in some cases, especially when the more acute symptoms are passing away; in combination with bicarbonate of potash and infusion of serpentaria, there is no more valuable remedy for rheumatic pains, which are so commonly the sequelæ of the acute disease. Colchicum can rarely be needed in children. Cimicifugin in small doses, gr. ½—gr. ij, according to the age of the child, is a most valuable remedy when there is a tendency to chorea, which is by no means an uncommon accompaniment of rheumatism.

The bowels will require to be carefully regulated, and a little P. Ipecac. Co. at night is useful either as a sedative or as a diaphoretic. Great relief is often obtained by sponging with warm water at bedtime, carefully wrapping the affected joints afterwards in cotton wool. When cardiac mischief has unhappily occurred, a few leeches over the heart give relief, and are preferable to blisters. If a blister be necessary, notably from great effusion, it should be effected by blistering fluid, and not by the Emp. Lyttæ, which last in delicate children often leaves the most intractable sores. Small doses of calomel and opium are of value. The child must be kept absolutely quiet, and if the heart's action be much excited a belladonna plaster externally is useful. There is no occasion, and indeed it is better practice not, to discontinue the alkaline treatment during cardiac inflammation.

The diet throughout must be light, yet nutritious. Soda water and milk in equal parts is very grateful. Beef-tea

and broths may also be given. Stimulants are needed, chiefly for heart complication, when the system evidently flags. Thirst may be allayed by cooling drinks, as lemonade, toast and water, currant water, weak tea, imperial, &c.

CHAPTER III.—SKIN DISEASES.

1. Exanthemata.

Roseola (Rose Rash).—A mild, non-contagious, sub-pyrexial disease, characterised by small rose-coloured spots or transient patches of redness, which endure from twenty-four hours to a few days or a week. The especial form of it now chiefly to be considered is *R. infantilis*, sometimes called false measles. This is especially common in hot weather, attacks the most prominent parts of the face and extremities, or may be limited to one limb. The eruption itches slightly. It lacks the crescentic form and the constitutional symptoms of measles. It is often preceded by sore throat. Roseola sometimes precedes variola, scarlatina and rubeola; it then shows itself chiefly at the joint flexures. I have more than once seen a child affected with sore throat and undoubted roseola patches disappearing in twenty-four hours, whilst one of its brothers or sisters has been suffering in another room of the same house from scarlet fever or measles, and it has occasionally happened that the child attacked with this transient roseola has escaped the severer affection altogether. The treatment of these cases is very simple; a moderated diet, mild laxative salines, simple drinks, and a warm bath or two, generally suffice for the cure. If the disease appear due to swollen gums and the irritation of teething, the gum lancet should be freely used, but not otherwise, as has elsewhere been frequently mentioned.

Erythema (Intertrigo, Red Gum, Tooth Rash) is known by large, slightly raised, red patches of irregular form, disappearing on pressure. The disease is non-contagious. It is common in the rheumatic diathesis; the eruption itches and burns a little. It is known from roseola chiefly by the rosy tint of the latter. It may be of local origin, as when two folds of skin rub against each other, as in the necks and loins of infants; the surface is then moist. Such intertrigo is best treated by washing the child with warm water, using no soap, and after carefully drying by dabbing with a soft cloth, dredge oxide of zinc powder over the inflamed surfaces. A mild aperient will complete the cure. If the disease be constitutional it may occur as—

E. nodosum, especially common in young girls. This eruption consists of red, elevated, oval patches, from one to two inches in length and about three quarters of an inch wide. Each patch lasts from four to ten days, and fresh patches continue to appear; the whole disease may last three or four weeks. It occurs generally on the fore part of the leg. The colour, at first red, passes into a bluish tint. It is usually preceded by slight fever and other constitutional disturbances. These patches, even when several coalesce, do not suppurate, though an obscure sense of fluctuation may thereby be imparted to the finger. The diagnosis from erysipelas is made, not only by the greater amount of constitutional disturbance, but also in erysipelas the margin of the patch is as much raised as its centre, the hardness is superficial and brawny, and its redness ends in a well-defined line; whereas in erythema these conditions are reversed. The disease is called E. papulatum and tuberculatum, according to the size of the patches.

Treatment.—Mild aperients, warm baths, light diet, and attention to the teeth and digestive organs. Bark and

quinine are useful in E. nodosum; steel is indicated if, as often, it is connected with chlorosis and amenorrhœa.

Urticaria (Nettle Rash).—In addition to red patches fading on pressure, this rash presents also wheals such as might be produced from the sting of a nettle or the stroke of a whip; there is intolerable itching and irritation, which is aggravated usually by the heat of the bedclothes, by the heat of a fire, or by the use of wine and stimulating condiments. It is non-contagious; the disease may be acute or chronic. Vomiting and diarrhœa seem to be the natural conditions of its cure.

It is caused by indigestible diet, acting, of course, on a constitution predisposed to take the disease; such diet is often shell-fish, mushrooms, cucumbers, certain fruits, pork, and also some medicines, as turpentine and copaiba. I saw some years ago a most remarkable case, in which copaiba was the cause, and in which the eruption was of the most extensive and formidable description, ushered in with smart fever, extending over the whole body and resembling scarlet fever in its appearance in many respects. This case yielded readily to a calomel purge, followed by salines and diaphoretics, and in thirty-six hours the patient was well. The patient was a woman of about thirty years of age.

Urticaria is more often a chronic disease, and it then forms several varieties, as conferta, perstans, evanida, and tuberosa. These varieties are rare in children, in whom urticaria is more frequently acute or dependent on teething or improper food.

Treatment.—If acute, emetics and purgatives, to imitate the natural cure; the gums should be lanced if at fault. If chronic, the diet must be regulated, stimulants avoided; the local irritation may be relieved by sponging the surface with vinegar and water, or a lead lotion, or a lotion of

prussic acid and glycerine, with almond emulsion. The most reliable drugs are arsenic—the Liquor Arsenicalis in small doses immediately after meals. Quinine is often useful, and occasionally the alkalies to correct acidity.

2. Vesiculæ.

Sudamina are colourless and transparent vesicles, and resemble drops of perspiration; they appear in the course of acute rheumatism, typhoid fever, &c.; their contents are acid; they are of no clinical signification, and require no treatment.

Miliaria.—Miliary vesicles are pointed and have a red blush around their bases, they become opalescent and even purulent in appearance; in all these points they differ from sudamina. They occur also in the course of acute rheumatism. Children who perspire freely, and especially if seldom washed, often become covered with them. The treatment will be thorough and frequent ablution and a mild aperient.

Eczema is inflammation of the sweat-follicle; it consists of vesicles surrounded by a red zone; the zones coalesce and the vesicles burst; a fluid exudes, which is alkaline. When the vesicles have burst, scabs or scales cover the surface of the patches. It is non-contagious. Parts affected with eczema smart and burn rather than itch. A common form in children is eczema impetiginodes; in this variety the inflammation is exceedingly acute and is accompanied by swelling; the contents of the vesicles become purulent, and yellowish scabs form. In children the scalp and the ears are, perhaps, the most frequent sites of eczema. In strumous children it occurs often at the flexures of the elbow- and knee-joints. Mr. Balmanno Squire has pointed out that when the eczematous patches

are confined to the occipital portion of the scalp they are usually caused by pediculi, whereas the constitutional variety affects the anterior portion of the scalp, a statement quite borne out by my own observations.

Treatment.—If acute and inflammatory, a free purge of calomel and jalap, followed by saline aperients, will be useful at the outset. If chronic, gentle aperients may be resorted to; the diet must be carefully regulated, and the benzoated oxide of zinc ointment may be locally applied; the gums should be lanced if they require it. If the case be of strumous origin, cod-liver oil and steel will be necessary, and the best application is then a lotion of nitrate of silver (gr. xx—℥j) applied on lint twice a day. In eczema capitis it is always better to remove the scabs by poultices of linseed meal before using the zinc ointment. If the case be very obstinate, and there be no heat and swelling, linseed oil having been applied at bedtime to the scalp (freed first from hair and scabs), the part may be covered in the morning with liquid pitch; this is a strong measure and requires care, but it is usually very efficient. It is necessary that the skin be kept very clean; for this purpose juniper tar soap will be found useful; common soaps, especially scented soaps, are better avoided. It is sometimes useful to employ an alkaline lotion—Sodæ Bicarb. ℥j, Aq. Oj; also in chronic cases small doses of Liq. Arsenicalis three times a day; if this, however, should cause diarrhœa, it must be left off. It is generally most serviceable to combine its use with iodide of iron and cod-liver oil. In obstinate cases calomel ointment or the Ung. Hyd. Nit. Mitius, or a lotion of nitrate of silver, may be tried. When the disease is caused by pediculi, or by scabies, the cure of these conditions is sufficiently indicated.

Herpes (Tetter) is a non-contagious disease, consisting

of clusters of vesicles of spheroidal shape and of some size, upon inflamed patches of irregular form. The vesicular contents, at first watery and neutral in reaction, soon become yellowish-white or purulent, and escape and form scabs. The disease may last a week or ten days. The simplest variety is H. labialis, which appears usually on the upper lip during a common cold; it often occurs also in mild cases of lobar pneumonia.

Herpes zoster, or shingles, is common in children. This variety is ushered in with poorliness and subpyrexial conditions, and occupies half the body, usually the right side, in the form of a band; the thorax and lower part of the back and groin are the commonest sites. There is generally some pain in the part before the rash appears. The treatment is a mild saline aperient, plain diet, and warm baths. If any local application be used, warm mucilaginous fluids are the best, but they are seldom needed.

H. circinatus occurs in two forms: that with large vesicles runs the usual course of herpes, and requires the same treatment as H. zoster.

That with the small vesicles is arranged in rings somewhat smaller than a threepenny piece, with a centre of sound skin and a red border. The disease spreads at the circumference and heals in the centre. It is furfuraceous and without constitutional derangement. It has a tendency to become chronic, and often occurs in the strumous child. Local astringents are the appropriate remedies; as strong solutions of sulphate of iron or gallic acid. An application of acetic acid, or of a solution of Nit. Silver (ʒj—ʒj) will suffice when milder measures fail. This form of the disease is contagious. Some writers assert that herpes circinatus and tinea tonsurans are the same disease from their being frequently associated. The balance of evidence, however, seems to favour the opinion that

herpes circinatus forms a nidus eminently favorable to the propagation of the spores of the Trichophyton Tonsurans. (See Tinea Tonsurans.)

3. Bullæ.

Pemphigus, Pompholyx.—This eruption is usually preceded for twenty-four hours or more by a feeling of lassitude, sickness, and headache; feverishness, and even delirium, are not rare; there appear a number of clear blisters varying in size from a sixpence to a halfcrown. These blisters rest on an inflamed patch which may or may not form an areola round them; they appear on the face, neck, trunk, and extremities. In a few days they attain their full size and either fade away or burst. The bladders shrivel and leave some brownish-coloured scabs. The duration is from one to three weeks. When seen on the soles and palms of young children they are evidences of constitutional syphilis.

The disease often attacks young and poorly-nourished infants. The variety called infantilis may, however, also be produced by dentition, bad feeding, or any gastro-intestinal irritation. The disease shows a tendency to become chronic in enfeebled children.

Pompholyx, which is rare during childhood, is merely a variety of pemphigus unattended with fever. Pemphigus is always a serious disease, and, when chronic, it is very obstinate.

Treatment.—The vesicles should be punctured as they appear, and if there be any difficulty in the separation of the scabs, they should be poulticed, and the ulcerated surfaces beneath treated with some stimulating application; nitrate of silver is perhaps the best. If the disease occur in a weak cachectic child it will require bark and

quinine, stimulants, and good food for its cure. If, on the other hand, the type be inflammatory and the child be strong, moderate doses of saline aperients, low diet, and tepid drinks will be appropriate. In the chronic form it is well to give iodide of potassium a trial, especially if the disease be suspected to be syphilitic. Arsenic may also be used, and cod-liver oil is frequently beneficial. Alkaline and gelatine baths have been recommended by different writers.

Rupia.—The bullæ in this disease are round, flattened, and isolated, about the size of a shilling; filled at first with serum which soon changes to pus. These bullæ are surrounded by an inflamed areola; after a time the bullæ shrink and become covered with thick, brownish scabs. One variety—rupia prominens—resembles a limpet shell, the scabs being thicker and formed by several layers of hardened secretion consequent on the extension of the ulcerated surface beneath the scab.

Rupia usually occurs in the lower extremities; rupia prominens is almost always syphilitic; rupia simplex, the least virulent form of this disease, and rupia escharotica, which is accompanied by much constitutional disturbance and extensive ulceration, often with sloughing, are both common in children; the former in children about six or seven, the latter in infants up to the period of the first dentition; it is then a very dangerous disease.

Treatment.—The bullæ should be punctured as soon as formed, the scabs, if obstinate, may be removed, and the ulcerated surfaces below dressed with solution of nitrate of silver, or some stimulating ointment. Alkaline and gelatine baths are recommended. The constitutional treatment should be tonic; if the disease be syphilitic, iodide of potassium; if otherwise, quinine, the mineral acids, or bark, with generous diet and wine.

4. Pustulæ.

Impetigo (running tetter) is a suppurative inflammation of the hair follicles. It is contagious. This common eruption appears in the form of clusters of small pustules slightly raised above the skin which burst in a few days, exude slightly acid purulent fluid, and harden into thick, yellowish scabs. There is more or less constitutional derangement, with great heat and itching of the parts affected. The lymphatic glands in the neighbourhood always enlarge even in slight cases, and in strumous children will suppurate.

Impetigo Figurata occurs usually in patches of definite form on the cheek. This is a common variety in children about the period of dentition; children also often suffer from the disease on the scalp, which is called impetigo capitis. It is of importance to remember that no permanent disfigurement of the skin remains even after severe impetigo. The disease is often obstinate and shows a tendency to become chronic. The treatment will comprise a moderate and well regulated diet and saline aperients; locally the crusts should be removed by steaming them, or by means of a poultice; if on the head the hair must be cut short, and the operation of removing the scabs will be difficult and require patience. When accomplished the Ung. zinci rubbed in twice a day is often sufficient to cure the disease—if it fail, however, and fresh crops of pustules continue to appear, the next most useful application is Ung. hyd. nitrat. mitius. This rarely fails where the zinc has not succeeded. Should, however, a case be extremely obstinate the Ung. sulph. iodid., the Ung. hyd. ammon. chlorid., or the Ung. hyd. nit. oxyd., might deserve a trial; at the same time the little patient

should be freely purged from time to time, and take regularly from half a grain to a grain of Quinine twice daily; sometimes steel will seem more beneficial. Cod-liver oil is also valuable in the strumous and ill nourished. Very chronic cases require the use of Liq. arsenicalis. Impetigo capitis, like Eczema, is frequently caused by pediculi.

Ecthyma.—This eruption consists of pustules formed in the centre of inflamed circumscribed patches; in a few days the pustules dry up and leave thick scabs; when the scab separates purple discoloration of the skin, or in strumous cases an unhealthy ulcer is left. The disease is generally chronic; children are very prone to suffer from this disease; it is not contagious, but it is not unfrequently, especially in children, accompanied by scabies. It is sometimes of syphilitic origin.

Emollient applications, of which warm water is one of the best, and simple saline aperients, with a moderately generous diet, form the treatment of the acute disease. If chronic, more stimulants will be required, the ulcers may be touched with Nitrate of silver, or a stimulating ointment employed. Bark and Steel and Cod-liver oil will also be of service; when scabies is present it must be attacked at once.

5. Papulæ.

Lichen. — Lichen is an eruption of small, hard red pimples which do not disappear on pressure, and which itch greatly. The eruption usually terminates in desquamation. The commonest sites are the back of the hands, forearms, trunk, and face. It is generally a chronic disease and not contagious.

Lichen strophulus or Red gum is a common affection of

infants from birth to the first dentition. It generally lasts three or four weeks and has many varieties, according to the colour of the skin and the arrangement of the pimples. It requires merely a little rhubarb and magnesia, attention to the diet, and lancing the gums when necessary.

Lichen simplex.—The papillæ are the size of millet seeds and bright red; it is often pyrexial and subacute.

Lichen urticatus has papules of a large size, preceded by wheals, which look like the sting of a nettle.

In *Lichen agrius* the papules are confluent and on an inflamed base; the pain and smarting are severe, and considerable constitutional disorder is manifested. After a while the papules burst, sero-purulent fluid is exuded, and painful cracks are formed; this variety may last from ten days to several months; it is not common in children.

Treatment.—Careful attention to the diet and to the bowels will be required in all the varieties. Stimulants and excitement must be avoided, the child must be warmly clad and should be bathed every other day in a gelatine bath; acidulated drinks may be given. Of local applications the best are those which relieve itching, as Liquor Plumbi Diacetatis, Prussic acid, or

℞ Glycerini, ʒij;
Hyd. Bichlor., gr. vj;
Chloroformi, ♏xx;
Aquæ, ʒvj. Ft. Lotio.

Or, pyroligneous oil of juniper, and spirit of wine, of each one fluid ounce, to be added to six ounces of water, are useful lotions. Fowler's solution and iodide of potassium with serpentaria are useful in very chronic cases, for the disease is often syphilitic.

Prurigo.—In this disease the papulæ are the colour of the skin, larger than those of lichen, and very chronic in their course; moreover their itching is well-nigh in-

tolerable. In children the disease is seldom so severe as in the aged; the commonest site is the neck and shoulders. When the spots have been scratched they often present a small dark spot of blood on their summits.

The best *treatment* in children, after regulating the diet and the state of the evacuations, is the daily use of tepid alkaline baths. Sponging with vinegar and one of the lotions to relieve irritation and the internal administration of nitro-muriatic acid in sarsaparilla; taraxacum in some cases, and Fowler's solution in others act like specifics. Quinine and cod-liver oil are valuable in the strumous. Sulphur vapour baths are also useful in many instances.

6. Squamæ.

Psoriasis (dry tetter) is a chronic, non-contagious disease, characterised by slightly raised red patches covered with silvery scales, and without itching. The eruption has many varieties, according to the site, extent, and course. The red patches are due to inflammation of the skin, the scales to excessive formation of epithelium on the inflamed surface. Its commonest sites are where the skin perspires least and is coarsest; hence below the knee and on the elbow are characteristic positions. If it occur on the palms and soles it is usually syphilitic in origin. The disease is not very common in children.

Lepra is so closely allied to psoriasis in its nature and appearance that many writers do not separate the two diseases; the main distinctions between the two are found in the comparatively greater regularity of the patches in lepra, by their being depressed in the centre and presenting a raised margin at the circumference. Both diseases are often symmetrical and hereditary. Scrofula seems to

be a predisposing cause, and a disordered stomach an exciting cause.

This gives the first indication for *treatment*, viz., to unload and regulate the secretions of the primæ viæ. Local applications are of little service, but warm baths and alkaline baths are useful. Liquor Potassæ, Pot. Iodid., and especially Liquor Arsenicalis are valuable remedies. Tincture of Cantharides has been recommended by some writers. Arsenic will be required to be given with the usual precautions, and the decoction of Dulcamara will form a good vehicle for its administration. Some cases require mercury for their cure; the bichloride is the best preparation, and it should be given with bark.

Pityriasis (Dandriff) is chronic inflammation of the skin, attended with itching and abundant desquamation of small scales or scurf. The head is the part commonly affected. If the disease becomes chronic the hair gets thin. Pityriasis capitis is not uncommon in newly-born infants; there is no constitutional disturbance. Pityriasis rubra and versicolor are varieties chiefly marked by their colour, the former red, the latter yellowish-brown. The best application in Pityriasis capitis is a lotion containing borax and Tinct. Arnicæ; sometimes the citrine ointment is of service; the head should be kept very clean, and a soft hair brush used. A tonic aperient will complete the cure.

7. Tubercula.

Acne is inflammation of the sebaceous follicle, with accumulation of its secretions.

This disease and its varieties will not detain us as it does not occur in childhood in any form.

Molluscum is enlargement of the sebaceous follicles, and

presents indolent tumours, varying in size from a three-penny piece to half-a-crown, sessile or pedunculated, of the natural colour of the skin, and containing an atheromatous matter. At the same time there is neither constitutional disorder nor pain, nor ulceration. The trunk and head are perhaps the commonest sites, but they may appear anywhere. The disease often occurs in childhood, and lasts for years or throughout life. It is contagious. The treatment is to slit up the tumours and touch them freely with caustic, if necessary, or if pedunculated they should be cut off, and the base from which they spring cauterised.

To this order also belong Elephantiasis, Keloid and Frambœsia, of which diseases Elephantiasis and Frambœsia occur only in foreign climates, and none of them occur in children.

Lupus is also an affection very rare in children; there are two varieties:

1. *Exedens*, which is highly ulcerative and destructive in character, and attacks especially the nose.

2. *Non-exedens* is without ulceration, but the tubercles leave deep pitting and marks of cicatrization, and also the skin is seamed by white scar-like ridges, very characteristic when once seen.

Donovan's solution, or Liq. arsenicalis internally, and one of the powerful caustics, such as chloride of zinc, potassa fusa, or nitric acid locally form the treatment of L. exedens. Of L. non-exedens the constitutional treatment will be the same, but the caustics need not be so powerful; acetum cantharidis, the iodide of mercury, and iodide of sulphur ointments answer best; the disease is often syphilitic.

8. Xerodermata.

Icthyosis, or fish skin, is often congenital; the skin is dry, harsh, and rough; in a further stage the whole body, or the palms and soles, face, eyelids, outer surface of limbs, &c., are covered with small, hard, thick, dry, brown scales overlapping each other like the scales of a fish; there is no heat, pain, nor itching. Patients afflicted with this disease are usually cachectic, and have often a disagreeable smell. The disease is generally hereditary, if not congenital. The treatment will comprise alkaline baths; arsenic and cod-liver oil may be tried. The disease, however, is often incurable.

9. Parasitici.

The vegetable parasitic diseases are Tinea tonsurans, favosa, decalvans, and Chloasma. The animal parasitic disease is Scabies.

Tinea tonsurans (Porrigo scutulata, ringworm). This disease occurs in patches of circular form, in size from sixpence to half-a-crown, on the scalp. It is chronic and contagious. The surface of the patch is covered with loose white scales, while the hairs look as if they had been cut off close to the patch. This is because the hairs are very brittle, and they also possess no elasticity. The vegetable parasite causing the disease is called Trichophyton tonsurans, the spores of which infiltrate the hair. Herpes circinatus is by some writers regarded as being identical with this disease. Sir W. Jenner maintains that the diseases are quite distinct, but that the secretions of the part of the skin affected with Herpes circinatus form a favorable nidus for the growth of Trichophyton tonsurans. Tinea tonsurans affects not only the scalp, but the neck, trunk, &c.

The *treatment* of these diseases will comprise the destruction of the fungus; this is to be effected by the use of the iodide of sulphur ointment, or a strong solution of nitrate of silver, or a strong lotion of sulphurous acid, or the mixed vapours of iodine and sulphur may be applied to the part. The vapour evaporated from gr. iv of iodine and ʒi of sulphur applied twice or three times a day, or ointment of creosote, or white precipitate gr. xx to sulphur ointment ʒiv, or lastly, the liquor epispasticus. Perhaps of these the iodide of sulphur, and the white precipitate and sulphur ointments, are the best. Cleanliness is essential; the scalp should be frequently washed and bathed. Tonics are often valuable, as steel and cod-liver oil. The disease, though it persist long, does not cause baldness.

Tinea favosa attacks not only the scalp, but also the chin, eyebrows, and forehead, and sometimes even the trunk and extremities. It consists of small cup-shaped yellow crusts, dry, and looking something like a honeycomb; each cup has a hair in its centre. The odour emitted is very offensive; it has been compared to that of a mouse.

The parasite causing the disease is called *Achorion Schönleinii*. This disease, if not arrested, destroys the follicle, and permanent baldness is the result. Sir W. Jenner has pointed out that herpes circinatus is as favorable to the growth of *Achorion Schönleinii* as it is to *Trichophyton tonsurans*. It is contagious.

Treatment.—Constitutionally, as in the preceding disease. Locally, a lotion of Hyd. Bichlor. (gr. vj, aq. ʒj), or Cupri Acetat. ʒss, adipis ʒj, are good applications; or a strong solution of sulphurous acid may be applied to the part. If on the hairy scalp epilation has often to be resorted to.

Tinea decalvans (*Alopecia circumscripta* or porrigo

decalvans). This consists of smooth bald patches, without pain, heat, or redness. The roots of the hair have atrophied, until being smaller than the follicles, they fall out. The parasitic fungus in this case is *Microsporon Audouini*. It is contagious, and common in children.

The constitutional treatment is as in the other parasitic diseases. Locally, Tinct. Iodi applied night and morning, or a strong solution of sulphurous acid, or Liquor Epispasticus in very obstinate cases. The baldness is never permanent, and the first sign of improvement is the appearance of soft downy hair on the bald patch.

T. sycosis (mentagra) does not occur in children.

Chloasma (Pityriasis versicolor) or liver spot, appears usually on the front of the chest and abdomen. The patches are of a dull brownish yellow colour. It may last for years, and is contagious. The parasitic plant is the *Microsporon furfur*. Want of cleanliness favours its production. Hence in the treatment cleanliness and frequent washings are most important. The sulphurous acid lotion or Hyd. Bichlor. (gr. iii—ʒj) may be used. Mr. Startin considers a course of arsenic essential to the permanent cure.

Scabies or itch is a vesicular disease, caused by the *Acarus scabiei*, a small animal parasite, which is found about a line from such vesicles. It mainly attacks the hands between the fingers, but no part is exempt, though the face is rarely attacked. After the disease has lasted some time, cracks appear, and excoriations, owing to the scratching the itching of the disease occasions.

It occurs on the soles of the feet in young children, not unfrequently. Scabies is often complicated with eczema, ecthyma, and other cutaneous affections to which this irritation gives rise.

Sulphur ointment is the general remedy for this disease.

The patient having been thoroughly washed, should be rubbed over with it wherever spots exist. If there be unusual thickness of the cuticle, the ointment may be

℞ Adipis, ℥j;
Sulphur. Præcip., ʒij;
Pot. Bicarb., ʒj. Ft. Unguent.

A strong alcoholic solution of stavesacre is also efficacious, or the Pulv. Staphisagriæ may be combined with Ung. Sulph. The oil of chamomile is also stated to be useful in the Ung. Sulph. A lotion of pentasulphide of calcium is recommended by Mr. Erasmus Wilson. If it be desired to conceal the fact of using sulphur ointment, it may be coloured with Hyd. Bisulph. (Cinnabar), and scented with oil of Bergamot. Styrax is also occasionally employed, *e. g.*

℞ Styracis Liquid., ℥j;
Sp. Rectif., ʒij;
Ol. Olivæ, ʒj. Ft. Unguent.

CHAPTER IV.—FEVERS.

Measles—Rubeola—Morbilli.

An acute specific disease—febrile and infectious, ushered in with catarrhal symptoms and characterised by an eruption on the skin, which appears usually upon the fourth day.

Usual symptoms.—After a period of incubation varying from twelve to fourteen days,* there is manifested alternate chilliness and heat, a quickened pulse, aching in the limbs, slight headache, soon followed by redness of the eyes, coryza, huskiness and hoarse cough. On the fourth day there is an eruption of soft, circular, very slightly elevated dusky red spots, which appear first in the forehead, and extend over the face, neck and whole body. The spots gradually coalesce and present a peculiar crescentic or horse-shoe shape. The spots disappear on pressure. They attain their greatest intensity on the fourth day from their invasion, and by the seventh day they fade away with a slight desquamation of the cuticle. As a rule the fever does not abate on the appearance of the eruption.

Occasional symptoms.—There may be no prodromata whatever, or the attack may be ushered in with convulsions (especially in children), or there may be delirium, or there may be a great amount of fever, or there may be

* The period of incubation in cases produced b inoculation is seven days.

and often is sore throat; more rarely severe headache, and sometimes absence of the coryza.

The eruption may be scanty, or most abundant and confluent, but the quantity of the eruption *per se* does not affect the gravity of the attack; the colour of the eruption may be dark, constituting so-called "black-measles;" there may be petechiæ, which do not fade on pressure and resemble purpura; these do not *per se* affect the prognosis. Miliary vesicles are often present, and when abundant the amount of desquamation will be greater.

Complications.—Bronchitis (very common). Collapse of a portion of the lung. Pneumonia—this should be especially looked for at the apex of the inferior lobe; it is often insidious and unsuspected. Laryngitis, croup, and otitis, the last common towards the close of the disease. Ophthalmia.

Sequelæ.—Diarrhœa—this in moderation is beneficial, and should not be interfered with. Albuminuria and dropsy (rare). Tubercular deposits. Pertussis very common. Parotitis.

Average mortality.—One in fifteen.

Prognosis.—If uncomplicated favorable. Unfavorable signs are great fever, great dyspnœa, sudden vanishing of the rash, together with an access of delirium; brown dry tongue, with special severity of some two or three symptoms; —petechiæ, with a typhoid form of fever. Capillary bronchitis and pneumonia are the most frequent proximate causes of death.

Treatment.—The child must be kept in bed in a large well-ventilated room, free from draughts—a point of vital importance, looking to the frequency and danger of chest complications. The diet must be low. Tepid drinks may be freely given. It is very important in measles as in all infectious fevers to remove all discharge and soiled linen

instantly; the motions should be passed into vessels containing chloride of lime, carbolic acid, or Condy's fluid; this with ventilation will go far to prevent infection. There is no objection if it be grateful to the patient to have the body gently sponged with warm water; and if itching be much complained of inunction with unsalted lard is useful. Cough is often the first troublesome symptom which requires special treatment. A mixture containing Citrate of potash and Ipecacuanha wine, with a few drops of Nepenthe or Tinct. Camph. Co., will usually quiet this. If the fever runs high, the weak mineral acids sweetened and largely diluted will be very grateful. Or a mixture of Citrate of potash and Rochelle salt may be given in an effervescing form. If the fever be of low type, with brown tongue and failing powers, large doses of chlorate of potash will be useful, and stimulants will be required. Yolk of egg beaten up with wine is excellent in such cases. Purgatives, as a rule, are not required; if employed they should be mere laxatives, remembering the diarrhœa which usually sets in towards the close of the disease. In cases attended with much nervous excitability and convulsions or delirium, Bromide of potassium in full doses will be useful. This drug will also procure sleep, and is better for the purpose than any opiate. Sudden recession of the rash attended with an onset of delirium should be met by plunging the child into a bath containing mustard, and leaving it in until the surface becomes red, which usually occurs in a few minutes. The child should then be rolled in a blanket, and the strength supported by nutritious diet, and stimulants as needed. For laryngitis, a sponge wrung out of very hot water should be applied over the larynx, and inhalation of steam encouraged. Pneumonia will call for a stimulating embrocation over its site, and the administration of stimulant expec-

torants — carbonate of ammonia with senega is the best.

As the disease declines the diet may be more solid, and tonics will be of service. Convalescence from measles is often slow, and as discharges from the ears, eyes, and nose are not uncommon, sea air is very beneficial in re-establishing the health. Such discharges will require astringent lotions and the use of cod-liver oil and steel.

Scarlet Fever—Scarlatina.

An acute specific disease—febrile, contagious, and infectious, and accompanied by a peculiar eruption of the skin. After a period of incubation varying according to different authors at from four to forty days, and probably averaging from four to six days, there appears in children vomiting; in older persons sore throat, and the onset is usually sudden. It is common for adults to be able to fix the hour in which the sore throat began. In children severe vomiting often prognosticates severe throat affection. Next there is noticed fever, a frequent pulse, commonly 130—170, a flushed face, a high temperature (103° or 104° F. even on the first day), hurried breathing, furred tongue, hot skin and thirst. At the same time there is lassitude and restlessness, headache, and at night delirium. On the second day, usually about the root of the neck and upper part of the chest, appears the eruption, which is a scarlet efflorescence consisting of innumerable red spots at first separated by natural skin, but soon coalescing and producing a general redness; the skin is rendered pale by pressure, but the redness immediately returns—the rash is not elevated to the touch. It is most abundant about the hips and loins, and the flexures of the joints, in fact

where the papillæ of the skin are largest. The eruption reaches its maximum intensity on the third or fourth day; by the fifth it has begun to fade and by the eighth it disappears. It goes off in an order corresponding with its invasion. Miliaria are often present, perhaps more commonly in adults than in children; they in no wise affect the prognosis. The sore throat is very important, especially in children. A child may die from throat disease without any complaint about its throat having been made. The throat should therefore always be carefully examined. The tonsils will usually be found enlarged and inflamed, and often coated with a thick white tenacious mucus. Superficial ulceration of the tonsils is sometimes present, but ulceration of any other portion of the mouth or throat is uncommon, except in the malignant form of the disease. Œdema often occurs, and the glands at the angle of the jaw become tender and swollen. The papillæ of the tongue are elevated and project as bright red points through the white mucus on the surface, or the whole tongue may be vividly red with prominent papillæ. These conditions produce the well-known and highly characteristic white and red "strawberry tongues." The fever does not, as in variola, abate on the appearance of the rash, but declines with it; the temperature may reach 106° Fahr., and is usually at its height by the fifth day. There is generally an increase in the amount of fever towards night and remission towards morning. The pulse continues frequent, varying from 120—160, is quicker in children than in adults, and declines gradually with the fever. The urine, as in all fevers, is scanty and high coloured; during the decline of the disease it may contain albumen, as will be more fully noticed presently. The bowels are generally confined. As the rash fades desquamation of the cuticle commences in the order of invasion; the desquamation in

delicate skins is furfuraceous, but from the hands and feet it is generally in scales; sometimes pieces like portions of a glove are thrown off from the hand. The desquamation may last from a few days to a week or more. If miliary vesicles have been present, it is generally earlier and more complete. It is attended with a good deal of itching, irritation, and tenderness. The disease is considered especially contagious during desquamation.

The duration of an ordinary case of scarlet fever is about a fortnight.

Varieties and deviations from the type.—S. maligna.—The tonsils in this form become the seats of sloughing ulcers, leaving ragged sores, but the especial character is the pyrexia, which is of the so-called malignant type; the excitement great, the delirium violent, followed by extreme ataxia, and exhaustion. Sometimes the excitement period is so short and so soon followed by the depressed or typhoid condition that the disease may kill within forty-eight hours of its invasion.

S. anginosa.—In this form the stress falls upon the throat. The swelling of the glands and cellular tissue around the neck is so great as to form a so-called "collar of brawn" from ear to ear. There may be ulceration and sloughing of the fauces and pharynx, and posterior pharyngeal abscess. The mouth is opened with difficulty, there is great dysphagia, and liquids return through the nose. The inflammation often extends to the ears through the Eustachian tube, and is followed by a purulent discharge from them.

The rash in these deviations from the type is of little clinical significance; it is often abundant and of good colour. In the worst cases death occurs before the rash appears.

Scarlatina sine Scarlatina or S. latens.—This form

occurs oftenest in those who have had an attack of scarlatina, and become exposed again to its contagion. But it is important to remember that the mildest form of scarlatina may give rise to the very gravest sequelæ, and to the most malignant varieties in persons exposed to their infection.

Sequelæ.—For the sake of convenience some affections already mentioned will be rearranged here.

1. Ulceration and sloughing of fauces and pharynx.
2. Retro-pharyngeal abscess.
3. Scarlatinal bubo, which may be either an inflammation and suppuration of cellular tissue around the parotid, that gland remaining itself unaffected; or inflammation and suppuration of the lymphatic glands around the parotid, the parotid still unaffected; or, more rarely, inflammation of the parotid itself.
4. Pleurisy—pneumonia—pericarditis.
5. Otorrhœa, sometimes followed by permanent deafness.
6. Diarrhœa.
7. Abscesses.
8. Joint affections.

Tenderness, redness, and swelling of the joints are all very common after scarlet fever. These symptoms mostly occur about or a little before the time of desquamation; moreover a tendency to suppuration is shown, which in true rheumatism never appears. About the same time is often heard a systolic murmur at the heart's apex, but this is by no means necessarily due to rheumatic endocarditis, as it may arise without any quasi-rheumatic pains being present; this murmur may persist for a month or more—may remain constant or may gradually die away.

9. Renal Dropsy.

This is a common and very fatal sequela. Albuminuria

is usually the first symptom of the coming mischief. It may occur as early as the first week, or it may not be found till the third. The twenty-second day has been found to be a common day for dropsy to make its appearance. With the albuminuria is considerable pyrexia—the skin becomes again hot and dry—the process of desquamation ceases, the appetite is lost, the bowels become constipated, and in a day or two puffiness is noticed about the eyes, followed by some œdema of the hands and feet, and these again may be followed by large serous effusions into the various serous cavities, the swelling and anasarca may increase, the urine becomes more and more scanty. If the urine be examined it is found to be smoky in appearance and highly albuminous. The microscope reveals blood-corpuscles, epithelial cells, and granular and epithelial casts. The final effusion may be peritoneal, which is the least fatal—pericardial, which is known by sudden and urgent dyspnœa—blueness of the face and fluttering pulse—a tendency to faintness—besides the ordinary physical signs of that condition; and lastly, hydrothorax, which is recognised by the sudden accession of vomiting, dyspnœa and lividity, accompanied with great restlessness, anxiety, suppression of urine, and death within twenty-four hours. In mild cases, which go on to convalescence, albuminuria is often persistent for a long time after the disappearance of the dropsy. A chill during desquamation is the common cause, and the first signs of amendment are the disappearance of the dropsy and copious diuresis. During convalescence, a child will pass from three to five or six pints of urine in twenty-four hours.

10. Scarlatinal vaginitis, or muco-purulent discharge from the vagina, is by no means rare, but is often passed over, unless so severe as to compel attention. I have seen

several very obstinate cases of persistence of this discharge, one in particular which lasted eighteen months, and was accompanied by severe pain in micturition. This case, after a great variety of treatment under different practitioners, finally yielded to two or three applications of nitrate of silver about the orifice of the urethra (where there were a few very fine projecting red points), an injection of oak bark, and quinine and steel in good doses.

11. Lastly, diphtheria, or one or other of the acute specific diseases, may supervene in the course of scarlet fever.

Post-mortem.—Scarlet fever possesses no special anatomical character. The lesions after death will be those of the special complication by which death was caused.

Law of Infection.—The disease is communicated from person to person and by clothes, and its infecting power through the air is also considerable. It is usually a non-recurring disease. If it recur, it is mostly in a mild form, *e. g.* S. latens. It is often epidemic, and different epidemics present marked differences in many of the more prominent characters, and especially in the tendency to acute desquamative nephritis.

Prognosis.—It is probable that pregnant women are peculiarly exempt from the liability to take scarlet fever; but the puerperal state is one peculiarly predisposing to its reception, and in such cases it is extremely fatal. Unfavorable symptoms in the ordinary course of the disease are, a tendency to typhoid or malignant type; early delirium, especially if accompanied with vomiting and hiccough; convulsions and coma; parotid abscess; bronchitis; pneumonia; albuminuria; anasarca; serous effusions; suppurative arthritis.

Prophylaxis.—The temperature of 212° F. destroys the

morbific principle; hence the clothes, &c., may be baked. Belladonna and other reputed specifics are in reality useless. To prevent infection clinging to a room, carpets, curtains, and hangings should be dispensed with. Fresh air must be freely admitted; all secretions are to be passed into vessels containing carbolic acid or chloride of lime, and instantly removed. The surface may be sponged with weak Condy's fluid, basins of which may stand about the room. By rigorous observance of these rules the disease may be prevented from spreading through a house.

Treatment.—If the general and local diseases are alike mild, watching and nursing will be the chief elements of the treatment. The child should be put to bed in a large, well-ventilated room. It should not be too heavily covered with clothes. A fire should be burnt in the room, and the windows left open, draughts being, of course, avoided. The whole body may be greased with unsalted lard, night and morning. This greatly relieves itching and irritation. The surface may be sponged with tepid water or Condy and water, but chill must on no account be permitted. The diet must be plain and simple, without stimulants. An infant at the breast should be kept to the breast; older children may have milk and water, light puddings and gruel; lemonade, toast-and-water, and other drinks, may be freely allowed. It is better not to open the bowels by drugs, unless such is really needed, and then the aperients should be gentle.

The best local application to the throat is a warm fomentation, *e.g.* a linseed-meal poultice, a yeast or oatmeal poultice, a poppy stupe, frequently changed. Inhalation of steam is also useful. The best medicines are refrigerants, such as chlorate of potash or sulphuric acid, in rose infusion sweetened. Large doses of chlorate of potash may be given to the youngest infants in the adyna-

mic type of fever. The throat may be sponged or syringed out with a gargle of chlorate of potash and honey, or tincture of kino, or chlorinated soda, or the Inf. Rosæ Acidum (B. Ph.). These are all useful in removing the tenacious ropy mucus, which is so great a torment to many patients.

A regurgitation of fluids through the nose points to the existence of ulcerations, or more often to retro-pharyngeal abscess. This should accordingly be searched for and opened by cutting through the pharynx towards the spinal column, as it often burrows long and seriously before opening of itself. Ulcerative patches should be well cauterised with the solid nitrate of silver. In the adynamic type carbolic acid in small doses is well spoken of. The occurrence of otorrhœa and suppurative discharge of the nostrils will require quinine and careful syringing—the ear with warm water, the nose with a weak solution of sulphate of zinc or nitrate of silver. All inter-current possibilities are to be narrowly watched for, the chest auscultated from day to day, the urine examined, the temperature taken. Rheumatic pains will require that the affected joints be wrapped in cotton-wool; and the administration of small doses of iodide of potassium will be attended with the best results, whether mitral murmur be present or not. Such coexistence may, however, in addition, demand an occasional application of blistering fluid, or even a few leeches; but such cases are rare, as the constitutional depression usually far outweighs in importance all local inflammations; and this must be borne in mind, whether the inflammation be pneumonia, bronchitis, or whatsoever, stimulants are constantly needed, and the sesquicarbonate of ammonia with senega, the most appropriate drugs when cough is troublesome and expectoration deficient. Ice is of value, and may be fearlessly given to allay cough, or vomiting, which is often a concomitant of albuminuria. For dropsy,

elaterium is the drug commonly recommended; its tendency to excite vomiting I consider a great objection to its use. When employed, the dose is one twelfth to one sixth of a grain for a child nine years old, repeated every three or four hours. I prefer the compound jalap and scammony powders, with or without a little nitre or calomel, as need requires. About twenty grains should be given to a child ten years old every four hours, till copious diuresis and purgation result. Counter-irritation over the loins by sinapisms or turpentine stupes is useful, so are warm baths. After a few days Tinct. Ferri. Perchlor., with or without quinine, will be needed.

Convalescence from scarlet fever is a time for the exercise of much firmness and patience. The child must be kept at home when there is apparently but little the matter with it, both for its own sake and also for that of others, the disease being undoubtedly contagious during the whole period of desquamation. Convalescents must be warmly clad, wear flannel next the skin, have generous diet, and, after a month or six weeks, get the benefit of sea-side or country air.

3. Typhoid Fever.

An acute specific disease, slightly infectious and contagious, associated with a peculiar eruption on the skin, and disease of the solitary and agminated glands of the intestines.

This disease is the so-called infantile remittent fever, bilious fever, gastric fever, and mesenteric fever, of different authors.

Symptoms.—Sometimes the disease is so slight, and runs so quiet a course, that but two recognizable symptoms mani-

fest themselves; but these are most significant, viz. loss of muscular power, and heat of skin, as shown by a thermometer under the axilla or tongue; and it is important to be aware that a disease manifesting but these two symptoms, with some little poorliness and general malaise in addition, even in a healthy young adult, may prove fatal suddenly in the third or fourth week, and that such a case will require to be treated with the same care and precaution that we should give to the form manifesting any or all the more alarming symptoms we have now to discuss. The first in importance, and one often earliest observed, is diarrhœa, it may be slight or severe—sometimes so slight, that the patient or the patient's mother will not mention it unless asked if it existed; with this symptom in the adult is associated frontal headache; in the young child evidence of cerebral distress is shown by restlessness, peevishness, and drowsiness towards night, with a hot skin and some thirst. The motions are often ochrey and pasty in character, with a very offensive smell. The tongue is dry, red at the tip, and fissured. The urine scanty and highly coloured. The pulse is variable, and it may rise or fall without affecting the heat of the skin, or without affording any prognostication that the child is better or worse. This is not so in typhus, where, if the pulse fall, the prognostic is good. It often happens that there is an increase of pyrexia towards night and remission in the morning. This is common, indeed, in all febrile affections in children; but in this disease it occurs with sufficient frequency to have given it the name of infantile remittent fever.

On the eighth or twelfth day of the disease a careful search will reveal the eruption. This consists of rose-coloured spots, elevated slightly above the skin, disappearing on pressure. Each spot may last from two to five

days, when it disappears, while fresh ones keep coming out. The spots occur on the abdomen, chest, and back; and their number altogether varies considerably, from two or three up to thirty or forty, nor does the number prognosticate anything of the gravity of the attack. Severer symptoms may now manifest themselves, such as vomiting, delirium, excessive diarrhœa; occasionally the opposite condition of obstinate constipation may exist. There is often some tenderness over the abdomen, particularly over the right iliac fossa, where gurgling may also be heard, or the abdomen may be tympanitic: sometimes the condition may be one of drowsy languor passing into heavy stupor, from which the child is with difficulty aroused. The child, during the progress of the disease, loses flesh fast, "wastes away." The face looks worn and anxious. Often there is cough, short and hacking, with some dyspnœa and harshness of breathing. Auscultation will reveal rhonchus and sibilus, and even large crepitation. Epistaxis occasionally occurs, and sometimes the gums bleed also. A crop of sudamina may break out; such an occurrence, however, will not *per se* affect the prognosis. The pulse often becomes reduplicate in character. The symptoms may either gradually improve in the third week, and the child become better, or the disease goes on, and may terminate in exhaustive hæmorrhage from the bowel, or perforation of the bowel, owing to the disease in the agminated patches of Peyer. If the pulse become reduplicate suddenly in the third week, especially with tenderness and great distension of the abdomen, hæmorrhage is to be feared. Hæmorrhage rarely occurs after the fourth week, but perforation may occur up to the sixth week. Muscular tremor, if out of proportion to the delirium, is a grave prognostic. Again, a very high pulse, say above 150, is a grave sign; in very young

children this is, of course, not so. If headache and delirium coexist for some time it will probably indicate some cerebral mischief. Bronchitis and pneumonia may both arise, and should be looked for; they are both serious complications. If tuberculosis be present, typhoid often excites the active deposit of tubercle, and in this it differs from scarlatina markedly. Perforation may be preceded by some signs of peritonitis, with hiccough and vomiting, when a sudden paroxysm of intense abdominal pain indicates what has occurred. In such cases the perforation takes place in the small intestine, generally within a few inches of the ilio-cæcal valve. Hæmorrhage occurs in about 25 per cent. of the cases; perforation in about 13 per cent.

Post-mortem.—The agminated glands of Peyer are found in every stage of inflammation, from slight swelling or increased vascularity up to the severest form of ulceration and sloughing. The more destructive changes occur in those patches which are situated nearest to the ilio-cæcal valve. There is at first merely swelling of the mucous membrane over the patch; in the next stage the borders are elevated, the centre depressed, and small circular ulcers are visible, each corresponding to a closed follicle. If the ulcerative process extend through the peritoneal covering, perforation results. The solitary glands of the small intestines present similar changes. The mesenteric glands are also secondarily more or less congested, softened, and swollen. The spleen is commonly found enlarged, as it is often in all acute specific diseases, and its structure is softer and more friable than is natural. The liver is also found enlarged, and often softened. Besides these changes there may be congestion of the brain and its membranes, ulceration of the mucous membrane of the stomach, hepatization of the lungs; these are, however,

the result of complications, and not pathological changes belonging to typhoid fever.

Diagnosis from common gastric disorder may be made by remembering that typhoid is rare in children under five years of age, rarer still in those under two, while slight gastric disorders incident to teething, &c., are at this age exceedingly common; further, the muscular weakness, the presence of fever (as shown by the thermometer), and the occurrence of delirium, will also aid the diagnosis. In tubercular peritonitis the tongue is generally clean and moist; there is no eruption, and the abdomen is distended, not from tympanites, but from serous effusion.

From acute tuberculosis it must be confessed that the diagnosis is often sufficiently difficult, still there will be the absence of eruption and usual absence of diarrhœa in tubercular disease, at any rate at the *commencement* of the illness, and, moreover, in it the stomach is generally flat and even shrunken; at the same time it must be remembered that typhoid fever undoubtedly disposes to the active deposition of tubercle, and hence cases may and do occur in which the diagnosis is extremely difficult or impossible during life. *Post-mortem.*—The tubercular ulcers of the agminated glands have a hard, thick, inflamed, elevated border, enclosing little yellow masses of tubercular matter attached to the base of the ulcer.

The diagnosis from typhus is given under the head of that disease.

The mortality is large, one fifth of the cases attacked die, and it cannot be too often repeated that the prognosis must be guarded, as the fatal complications may occur just when convalescence seems about to take place. The most favorable prognostic is a fall in the temperature. The duration of the disease being from twenty-eight to thirty days, some guide to prognosis may be found in the

time elapsed; for instance, great exhaustion about the twelfth or thirteenth day would be unfavorable, as there would be yet a long time to run, while a similar amount of exhaustion on the twenty-sixth or twenty-seventh day would not cause so much alarm.

Treatment.—At the commencement of an attack of typhoid fever it is of great importance to remember that twenty-eight days have to be got over, and that no treatment whatever can shorten the duration of the fever. And yet in no disease, perhaps, is the skill of the physician more needed or more shown. Of foremost importance will be to place the child in bed in a large well-ventilated room; the precautions against infection recommended under scarlatina should be practised; but it is well to bear in mind that typhoid is but slightly infectious as compared with that disease.

Then great cleanliness will be necessary, all stools and secretions must be immediately removed, and should be passed into vessels containing Condy's fluid or carbolic acid. The diet will require at first to be plain, simple, unstimulating, such as beef-tea, veal tea, chicken broth; the farinacea must be charily given lest diarrhœa be provoked. Light puddings without currants and milk may be freely allowed. The use of wine requires the following cautions and restrictions: it will be wrong to give wine if the patient is doing well during the first three weeks of the disease, but if towards the twenty-eighth day there is much exhaustion wine will be required to get the patient safely through the disease. Its effects must be narrowly watched and the quantity nicely proportioned to the weakness of the child and the result produced. Nervous and muscular tremor are symptoms calling for the employment of wine, so again evident flagging of the heart's action is an indication of its requirement, but the rule is a sound one, that

if there be any doubt as to the propriety of giving a stimulant it is better *not* to give it (the rule is reversed in typhus fever). As to the medicine, purgatives are by all means to be avoided; a dose of calomel and jalap at the outset of typhoid fever may kill the patient; salines and all drastic cathartics are to be religiously avoided. If an aperient be from exceptional conditions imperatively called for, a small dose of castor-oil will be the best and safest medicament. It will be more often necessary and desirable to check the diarrhœa; for this purpose, mild doses of chalk and catechu, or sulphuric acid and opium, will suffice. Acetate of lead and opium is a good formula; or one tenth grain of sulphate of copper may be given to a child five or six years old, or a starch-and-opium enema may be employed, three or four drops of Battley to an ounce of decoction of starch.

Then the abdomen may be covered with a moist warm flannel well sprinkled with turpentine, or with a bran poultice. For symptoms of cerebral congestion and excitement the head must be shaved and cold cloths or ice applied. Bleeding in any form is inadmissible. Turpentine stupes or an enema containing turpentine will be the best remedies for tympanites. If hæmorrhage occur, the case is not necessarily fatal, as such hæmorrhage may be slight; and if promptly treated even when very severe, it may be checked. For this a lead-and-opium injection, and internally gallic acid, or Ferri Perchlor. may be useful, or an injection of Ferri Perchlor. may be used (ɱxv—℥iv), in an extreme case, and a bag of ice should be placed over the abdomen. The patient must keep absolutely still, even the urine should be drawn off—no movement, in fact, at all permitted. Should symptoms of perforation occur, the bowels must be immediately locked up with starch and opium, or lead-and-opium enemata, and opiates

in full doses by the mouth. In such and similar cases the form of opiate is often a question; the best are Battley, Nepenthe, and Liq. Morphiæ Acetat. as liquids, or solid opium, as pill. When one is not borne another should be tried, and when it is desirable that the patient be kept under the influence of opium for some days, the form should be varied, as one loses its effect. It must be remembered that children do not bear narcotics well, and the effect produced must be narrowly watched. Mustard epithems, turpentine stupes, and even a blister may be called for if symptoms of intermittent pneumonia arise. Bronchitis will require an expectorant mixture of ipecacuanha, squill, and senega, or if the phlegm be very tenacious and ropy, Ammon. Carb. will be useful.

During convalescence the diet must be carefully attended to. The physician who remembers the tender condition of the lately ulcerated glands will not suffer his patients to imperil their lives by eating hard indigestible matters. Light puddings, rice, tapioca, custards, boiled fish, beef-tea, light broths, such should be the diet of the typhoid convalescent. A *single error of diet* will not only bring back the diarrhœa, but may prove fatal. This cannot be too well considered and impressed upon friends and the patient himself if old enough, as friends especially are very slow to believe it. By and bye cod-liver oil, strong soups, and change of air, will re-establish the strength.

4. Typhus Fever.

An acute, specific, contagious disease, lasting twenty-one days, characterised by a peculiar eruption, appearing between the fifth and eighth day, of which each spot is persistent.

This disease is stated to be more common in adults than in children. Such statement is probably erroneous; the disease, however, is generally milder in character in children.

Filth, overcrowding, bad ventilation, and all unhygienic conditions, favour the rapid spread of typhus, but none of these can generate the disease *de novo;* its essential propagator appears to be contagion. Like other acute specifics one attack usually confers immunity from future attacks.

The period of incubation is short—the exact time has not been ascertained; probably it seldom exceeds a week. The invasion is marked by headache, not necessarily frontal, with general uneasiness, feverishness, and, often in children, vomiting. Occasionally there are marked rigors. These symptoms increase in severity, and are accompanied by sleeplessness, thirst, high pulse, loaded tongue, and great prostration. The temperature rises at once, and attains a maximum of commonly from 104° to 105° F., though it may go a degree or two higher. The exacerbations are marked in the morning and still more so in the evening. About the seventh day remission often occurs, especially in favorable cases. The pulse in children commonly attains 140 or 150. A sudden fall in the pulse is a prognostic of death, or of some grave complications; in the latter case it rises again rapidly. The characteristic eruption which appears between the fifth and eighth day is often seen first on the back of the hand, in the form of mulberry-coloured maculæ, at first somewhat elevated, but in a day or two not so. In children, the maculæ are fewer and less distinct, while a general mottling irregular dusky red, and looking as if it were below the skin, and hence called subcuticular, is more general. The eruption in children often covers the whole

body like measles; each macula is persistent, and fresh spots do not appear as in typhoid. The spots become ecchymotic, and the eruption may be out from two to three days, to twelve or fourteen days, or even till the twenty-first day in the severest cases. There is no subsequent desquamation of the cuticle. As the disease advances, the mouth and tongue become dry, brown, and cracked, sordes form, and the breath has a distinct ammoniacal smell. Thirst is marked throughout. Diarrhœa may occur, but not so frequently, and not during the invasion period as in typhoid; oftener there is constipation. Bronchitis and pneumonia are common complications during the second week, and their symptoms should be watched for. Restlessness, sleeplessness, and delirium, are constant symptoms; the last especially marked in children. Convulsions occasionally occur, and are very fatal; they often accompany albuminous urine, and are followed by coma and death.

The sequelæ of typhus are few and of rare occurrence as compared with typhoid, or still more with scarlet fever. Lung consolidation, weak heart, swelling of the salivary glands, and very rarely erysipelas, are among the chief. Diagnosis from typhoid may be made by noting the points which are embraced in the following table:

Typhoid.	*Typhus.*
Diarrhœa—the rule.	Rare.
Stools—pultaceous, alkaline, and albuminous.	Less consistent, acid, and non-albuminous.
Intestinal hæmorrhage—common.	Rare.
Abdominal pain constant.	Rare.
Tympanites almost always present.	Rare.

Typhoid.	*Typhus.*
Tongue — dry, cracked, thin.	Thick, dry, brown, not cracked, tremulous.
Epistaxis—comparatively common.	Very rare.
Eruption — well-defined margin, pink and papular, vanishing under pressure. Each spot lasts three days, and successive crops appear.	Less defined, irregular, mulberry coloured; never papular; less elevated for the first day or two, disappearing on pressure, not so when the efflorescence has become hæmorrhagic. Each spot persistent—no crops.
Peritonitis — from perforated bowel.	Never.
Retention of urine—rare.	Sometimes.
Œdema glottidis—rare.	More common.
General convulsions — very rare.	Less rare.
Bronchitis occurs intercurrently very frequently.	Not so commonly.
Heart failure, uncommon.	Common.

The most remarkable post-mortem appearances are the changes in the cardiac tissues, which are soft and flabby, and often in a state of fatty degeneration. The blood is particularly liquid. There is also some effusion of serum in the ventricles of the brain. The spleen is often large, pulpy, and softened. The true maculæ, but not the mottling are persistent after death.

Of children under ten the mortality is about 5 per cent.; between ten and twenty 8 per cent.; and the mortality increases with each decade.

Treatment.—Much will depend on the diet and judicious

use of stimulants. The diet must be light and nourishing. As the appetite fails the skill of the nurse is manifested in judicious relays of beef-tea, chicken broth, eggs beaten up with wine or milk, arrowroot and corn flour blanc manges, jellies, clear soups; food in some form is to be given little and often. For drinks, lemonade, tamarind, and black-currant water, orgeat, barley water with a little fruit essence in it, milk and soda water, are all useful.

The use of alcohol is one of the nice points of treatment; its judicious employment when required will save life, its employment when not needed will only do mischief. As a rule, children do *not* require wine; still the best rule for typhus is, when in doubt give wine, whereas in typhoid the reverse is the rule. Great prostration, rapid pulse, solidification of lung, are especial indications for stimulants. It is bad practice to give wine *early* in the disease; the judicious physician will remember and count the days, and will hold his hand for a state of things at the seventh day which at the fourteenth he might meet readily by administration of wine; for wine in these continued fevers is a sheet anchor, and if our sheet anchor is over and the ship still drifts, there is no more hope; but if with our other anchors we bring her fairly under hand, we have a resource for any sudden blast which may help us to ride out the storm. As to the form of stimulant for children, port wine or brandy are best, and the exact quantity should be noted as well as the time of exhibition. It is good practice in extreme cases to support the strength by enemata of wine and beef-tea. For other treatment, cold to the head, careful regulation of the bowels according to their state, *e.g.* enemas of one ounce of barley water with a few drops of laudanum for obstinate diarrhœa and tenesmus. By the mouth a combination of citrate and chlorate of potash; the latter in good doses is often useful.

Carbolic acid is recommended by some writers. The weak mineral acids, sulphuric or hydrochloric, well sweetened and diluted, are serviceable; or hydrochlorate of ammonia, and if great prostration occur, and the heart evidently flags, carbonate of ammonia. Bronchitis and pneumonia will call for a sinapism or turpentine stupe to the front or back of the chest as occasion may require. It is rarely necessary in children to empty the bladder by catheter, but the possibility of being so obliged should not be forgotten, and the urinary secretion should be watched. Citrate of potash in good doses is useful if the urine be diminished or very high-coloured. General hygienic conditions must be observed throughout as to the heating, lighting, and ventilation of the room—removing discharges, which should always be passed into vessels containing copperas or chloride of lime. Carbolic acid or Condy's fluid may be added to the water with which the body is sponged. Sulphur pastilles are useful fumigants. It is important not to attend fever patients on an empty stomach.

5. Intermittent Fever—Ague.

This disease occurs but rarely in children, more rarely still in children under five, and as far as London is concerned a case is scarcely ever seen; a brief notice, therefore, will suffice. The disease in children assumes a very different aspect to its common condition in adults, for the paroxysms are not regular. Moreover, the immunity from suffering enjoyed by adults between the fits, in children scarcely exists; they are feverish, restless, and poorly all the time. Then, again, in children, the hot stage is greatly prolonged, and the sweating stage very imperfectly marked;

and the rigors or cold stage may be altogether absent and replaced by great nervous depression, or even by convulsions. Hence the disease resembles genuine ague in very few points; perhaps, scarcely enough for the identification of the disease. In children above seven or eight the true type usually manifests itself. Of the different forms of ague young children usually suffer from an irregular quotidian, and older children from tertian; the cause of the disease in children, as in adults, is the exposure to marsh miasma and to malaria. The disease is also commonest in spring and autumn. The cold stage is ushered in with coldness, shivering, the so-called 'cutis anserina,' or goose skin, blueness of the lips, diminished secretions, thirst, anxiety, hurried respiration, and small weak pulse. This may last from half an hour to four hours; from what has been said it will be understood that in children this stage is very imperfectly marked. The child is weak, low, restless, seems dull and heavy, or may have an actual and violent fit of convulsions. Then comes the hot stage, in which the skin becomes hot and dry; the temperature of the blood rises from 105°, which it usually presents during the whole of the cold stage (notwithstanding the feelings of the patient to the contrary), up to 107° or 108°. Now he feels hot, the clothes are thrown off, the skin becomes red, swollen, and there is thirst, headache, and often vomiting; the pulse quick, full, and hard; respiration more regular. This stage in the adult lasts from two to eight or ten hours, and in the child is well marked and prolonged, with burning fever, suppressed secretions, flushed face and hot skin. Lastly in the adult comes the sweating stage, in which perspiration breaks out at first on the face and forehead, afterwards over the whole body. The temperature falls; the pulse becomes normal, and the respiration tranquil. The intervals, however, in the child are so

feebly marked that it is often restless and poorly between the paroxysms. The splenic enlargement is well marked in children, and it is apt to be more permanent in character than in the adult.

Treatment.—Quinine fortunately exercises the same specific power in the ague of children which it exhibits in that of the adult. With its administration must be coupled a removal from the malarious spot to healthy air. Nor should the child be again suffered to reside in ague districts, as the tendency to recurrence is stronger in the child than in the adult. Warm clothing and generous diet will be needed after an attack of ague. Salicine, arsenic, and other antiperiodics are resorted to chiefly when quinine cannot be procured, or from some idiosyncracy cannot be tolerated. Treatment is best commenced by a free purge, followed by the use of quinine in appropriate doses every three or four hours during the period of intermission. The body may be sponged with tepid water during the hot stage, and warm drinks allowed during the sweating stage. For the cold stage, warmth to the feet by a hot bottle, blankets, or hot air bath. The quinine will require to be given for some time after the attack to prevent recurrence. Bromide of potassium has been recommended for the so-called 'ague cake' or enlargement of the spleen.

6. Variola (Smallpox).

An inoculable, contagious, and infectious disease, characterised by an acute febrile onset, followed by an eruption which is first papular, afterwards vesicular and pustular in the course of from eight to ten days.

Variola Discreta.—The period of incubation of this disease is twelve days, poorliness and malaise being

its leading features; at its expiration come the symptoms of the eruptive fever. These are rigors, often very severe, vomiting and pain in the back, thirst and heat of skin. Pulse frequent; tongue furred; of these, *pain in the back and vomiting* are exceedingly characteristic, in young children the pains in the back are not much complained of, and the judgment must be formed on the cerebral disturbance, which is generally considerable. There may be some sore throat at this stage, or delirium, or actual convulsions; hence the diagnosis may be still uncertain of the coming mischief. At the end of forty-eight hours from the occurrence of the rigor (but occasionally both earlier and later) the eruption appears, first on the face and spreads downwards in another twenty-four hours. The febrile condition is *abated* on the breaking out of the eruption. The eruption itself appears first as small, red, slightly raised, points which enlarge and become papular, they feel hard like small shots; in three or four days a little lymph appears at the summit of each papule; by the fourth day, this continuing to enlarge, flattens at the top, and becomes umbilicated. The eruptive fever has by this time disappeared. There is an inflamed areola on which the vesicle stands. The lymph becomes purulent, and as the pustule enlarges the umbilication disappears. The pustule attains its maturity by the eighth day; a dark spot may now be seen in the centre of each pustule, the inflamed areola subsides, and the pustules break and let out a liquid which forms a yellowish-brown crust and scab. If the pustules do not break they fall off as furfuraceous scales.

To return to the general symptoms that accompany the gradual maturation of the eruption; the face swells, the scalp becomes puffy. There is tension and burning in the face. A peculiar odour is emitted characteristic of the

disease; there is much itching and tingling of the skin. The saliva becomes ropy, and there is often on the sixth day some swelling of the throat, hoarseness, and dysphagia. This indicates that the eruption has attacked the mucous membrane of the fauces, where, in fact, it may be seen in the form of round white spots. Similarly the eyelids, prepuce, and vulva become affected; this eruption is a day or two later in time than the general eruption and less pustular in character. About the eighth day, what is called secondary fever sets in, which is manifested by extreme jactitation, sleeplessness, quick pulse, scanty and high-coloured urine, and delirium, especially at night.

In *Variola confluens* not only is the eruption confluent, as the name implies, but the primary and secondary fevers are both more intense. The primary fever does not abate during the appearance and maturation of the rash, and the secondary fever is severe and often typhoid in character. The pustules run into one another, so that large patches of pus may exist on the face or forehead. Various complications are also common in this form of the disease, as boils, abscesses, erysipelas, diffuse suppurations on the limbs and elsewhere, and blindness from affections of the conjunctivæ.

In the variety called *nigra* or *maligna*, the type of disease is lower still; there is more utter adynamia and prostration with delirium early passing into coma. The eruption often retrogrades or is associated with petechiæ. It is dark, even purple in colour. In this form hæmorrhages are common from the bowel, from the kidneys, and from the womb. In such cases the fever occasionally destroys life before the eruption appears.

The disease is contagious, inoculable, and infectious. It is important to remember that the patient is infectious until desquamation has taken place, and it is certain that

clothes, &c., will retain the virus for years. It is a non-recurring disease. It is also important to remember that, as in all acute specific diseases, the severest form may be caught from the mildest.

Varioloid or modified smallpox is the disease occurring in those who have been vaccinated, or who have had a previous attack of genuine variola. In this disease the primary fever, though often very severe, does not last above one day, and may be followed by but a single pustule, or a few about the wrist and alæ of the nose; then the whole course of the disease is milder and less regular; the spots may appear in all their stages at the same time; the scars are slight; the odour is slight; and the secondary fever is generally wanting altogether.

Prognosis.—In variola discreta, perhaps one in four or five die. The disease is unfavorable in direct ratio to the amount of confluence. Children from nine to fifteen as a rule do well. Unfavorable signs are, the fever being typhoid in character, sudden retrogression of the eruption, many petechiæ, convulsions, and delirium, or complications with brain, throat, or lung affections. In infancy, the disease is dangerous, 50 per cent. under 5 die.

If death occur it is usually from the eighth to the thirteenth day.

Sequelæ are numerous and troublesome, besides the pitting and scarring of the skin, which varies with the quantity and nature of the eruption: these are often ulcers, boils, suppurating glands, erysipelas, deafness from suppuration of the internal ear, pleurisy running on to empyema, hæmoptysis, and hæmaturia, menorrhagia, &c. In the modified disease these never occur.

Post-mortem.—The skin presents the characteristic appearance already described. If the air-passages have been affected, and death occurs on the eighth or ninth

day, the mucous membrane will be congested and inflamed, and covered with a brown viscid mucous secretion; below this the mucous membrane is often ulcerated. If pleurisy or pneumonia have occurred their anatomical characteristics will be present. It is doubtful if the pustules of variola are ever seen in the gastro-intestinal mucous membrane.

Treatment.—The room in which the child is should be large and well ventilated, the temperature cool and diet low; and gentle saline aperients are to be administered. It may happen that at the outset of the disease the cerebral congestion is so severe as to demand the application of leeches to the scalp. If this seem desirable a good number applied at once is better than a few repeated, and the bleeding should be stopped when the leeches fall off; in this way the quantity of blood taken can be more exactly determined, reckoning each leech to draw ʒij. If, on the other hand, the disease at once assumes the typhoid character, no time must be lost in the exhibition of stimulants and support. The hot bath will then prove useful to maintain the temperature and promote the throwing out of the eruption. In any case the course and progress of the disease will require to be closely watched, and the physician must be ready with his wine and nourishment the moment he perceives the powers of life to flag. As in all fevers guidance to a successful course is to be accomplished by careful watching and prompt responses to the symptoms as they arise, rather than by attention to any preconceived rules and prescribed order of events. Cool drinks are, as a rule, to be allowed, and tepid sponging of the surface. The hair is to be cut off.

For the sore throat, if the child be old enough, a mild gargle may be allowed, such as infusion of roses, or the mouth may be frequently washed out and cleansed by a

syringe if necessary. If diarrhœa come on it must be checked. If abscesses form on the forehead or scalp, they must be freely and early opened, while full diet, wine, and quinine will be called for. If the skin is very irritable, and there is troublesome itching, sweet oil or sperm ointment may be gently rubbed in. It is a good plan to tie children's hands in a cloth to prevent their tearing and scratching, as they are sure to do. Sometimes a dry powder, as powdered starch or common flour, relieves the itching well. Pleurisy and pneumonia are very alarming complications; the former is almost always fatal. Blistering fluid should be painted on the side, and iodide of potassium given in good doses; wine and support should on no account be withheld. Pneumonia calls for sinapisms and the exhibition of Ammon. Sesquicarb. and Senega with Hydrarg. cum Cretâ night and morning, and rather less stimulating diet. For ophthalmia, no diminution in the amount of support is needed, a lotion of Zinc and Vin. Opii is useful, and the Ung. Hydrarg. Nitratis Mitius smeared between the lids at night. A weak lotion of nitrate of silver may be advantageously used if the conjunctivæ get inflamed, with a small blister at the mastoid process, or on the temple. Strumous inflammation occurs especially in children, causing great photophobia; weak lotions of Zinc and Vin. Opii, with steel and cod-liver oil internally, are the remedies.

To prevent Pitting.—It has been recommended to touch each pustule with nitrate of silver or camphor, or to bathe the face with a solution of four scruples of nitrate of silver to ℥i water. A mercurial plaster formed of—

Ung. Hydrarg.	25 parts,
Yellow wax	10 „
Black pitch	6 „

has a good effect. Dr. Aitken gives this as the formula used at the Children's Hospital in Paris.

Carron oil is a good application, till the scabs begin to loosen; they should always be removed when dry, or they stain the skin permanently. Mr. Marson recommends cold cream and oxide of zinc, or if the discharge be thin and excoriating, calamine mixed with olive oil.

7. Vaccinia—Cow-pox—Vaccination.

By Act of Parliament it is now ordered that every infant shall be vaccinated within three months of its birth, unless the state of its health should render the operation objectionable. On the introduction of the vaccine lymph into the arm of the infant no effect is noticed for a day or two, beyond the trifling blush occasioned by the punctures. At the end of the second day a small papule becomes perceptible; by the fifth or sixth this becomes vesicular and umbilicated; by the eighth day the vesicle is complete, no longer umbilicated, but full and round, of a clear pearl colour. At this time, also, an areola or ring of inflammation surrounding the vesicle, and, spreading for the next two days, shows that the matter has affected the constitution, and is no longer a mere local disease. Slight constitutional symptoms are often manifested at the same time, as restlessness, slight feverishness, sometimes diarrhœa or sickness, or even swelling of the axillary glands. By the tenth day the areola fades, and the vesicle dries; by the fourteenth day it becomes a mere scab, which contracts and gets darker, and ultimately falls off about the twentieth day, leaving a permanent depressed cicatrix of variable shape. Vaccination, properly performed, affords protection against variola for a period of about ten years,

when it is desirable that it should be reperformed, though it will constantly happen that no second cow-pox can be caused, or a mere papule may form, or occasionally the constitutional symptoms on revaccination are severe.

A child about to be vaccinated should be in good health, free from skin diseases, especially Lichen strophulus and herpes. If special reason exist, an infant may be vaccinated directly after birth; but about a month or six weeks old is the common and best time. The lymph about to be used should be taken from vesicles between the fifth and eighth day; perhaps the eighth is, on the whole, the best.

Cases are occasionally met with, in which there seems to an insusceptibility to the vaccine virus. I know a child in whom vaccination has been most carefully performed once a year for seven years, and she has never taken cow-pox; but such cases are rare, and failure is far more often from the operation not having been performed with sufficient skill.

8. Varicella—Chicken-pox,

Is a non-recurring contagious disease, accompanied with slight fever, and attended with a characteristic eruption of vesicles. Chicken-pox commonly occurs before the period of the first dentition. It is generally held that the disease is absolutely distinct and separate from smallpox, for it has been established beyond doubt that the occurrence of the one is no prophylactic against the occurrence of the other. The prodromata of varicella, usually slight, may be smartly febrile in character, accompanied with drowsiness, and even coryza, so that the coming event cannot be certainly prognosticated; but in twenty-four hours (sometimes as late as thirty-six or even forty-eight hours) the

characteristic eruption appears in the form of little rose spots, acuminated, and from fifteen to twenty-eight in number, irregularly distributed, and even when abundantly present, rarely confluent. On the second day a fresh crop appears, considerably more numerous, while the first spots have become filled with a clear serum. After twenty-four hours the contents of the vesicle become milky. The eruption is often attended with itching, so that the vesicle may be scratched open. By the fourth or fifth day it shrivels into a dry scab, and by the eighth or ninth the scab falls off, usually without leaving any scar. The diagnosis from variola and varioloid is made, not only by attention to the general symptoms, which are milder, but also the vesicles of varicella present no central depression as in smallpox, and the peculiar, hard, shot-like feeling of the variolous pustule is absent. Moreover, the variolous pustule is multilocular; the chicken-pox vesicle is unilocular, and collapses when pricked.

The disease is usually so mild, and is attended so rarely with serious complications or sequelæ, as to leave little to be said of treatment. Gentle saline aperients, avoidance of exposure to cold, and a warm bath towards the close of the affection, are the principal points to be attended to.

CHAPTER V.—DISEASES OF THE BRAIN AND NERVOUS SYSTEM.

1. Idiocy and Mental Disorder.

An idiot is one who, in consequence of some cerebral abnormality originating before the brain has reached its full size, and the mind its full capacity, becomes irrecoverably deficient in mental power, and lacks the capacity to co-ordinate his brain functions.

Such brain abnormalities may be—

1. Arrest of development. } Both of which may be se-
2. Arrest of growth. } condary to some disease.
3. Disease, *e. g.* chronic hæmorrhage into the meninges.

Mere backwardness must be distinguished from idiocy. This may be done by observing that there is no unusual size or shape of head, no fits, no paralysis, no spastic rigidity.

An excessive development of some normal attribute, *e. g.* obstinacy of firmness, must not be mistaken for idiocy. Such cases require tact and great forbearance in their management. The child should not be curbed and threatened, but led into a better frame of mind.

So, again, mere idleness and inertness are not idiocy; but there is some danger lest they become such, because the brain is not duly exercised.

There is sometimes observed a temporary deficiency from nervous exhaustion and general debility, *e. g.* on recovery after the acute specific diseases. This condition

may last a long time, but it consoles the parents to know that it is always eventually recovered from.

Chorea is apt to degenerate into idiocy when very long continued; the stupidity which often exists during an ordinary attack of chorea is recovered from.

The question often arises, how shall an opinion be formed as to the state of the child's brain before it can talk? &c. Attention to the following points will generally solve the difficulty.

1. The child's eyes should follow a bright light or bright object in two weeks from birth; it should begin to smile about the same time. It should be remembered that squinting when objects are brought near them is natural and proper to children under one month old, but not afterwards; and because the child cannot at that age adjust its eyes, it is no sign of cerebral disease.

2. A child should begin to use its hands and take hold at three months; to know familiar faces at three to four months; to know objects by name at eight to nine months.

The tongue should be kept within the mouth from the earliest age. The child should support its head at three months. Idiots always fail in this. The anterior fontanelle should close at from eighteen to twenty-four months.

3. A child should begin to talk at nine to sixteen months; to walk at ten to eighteen months; should feel its feet when held out to walk at nine months.

The child's brain should weigh at birth $\frac{2}{3}$ lb., at the end of five years 1·5 lbs.; by the seventh year it should have acquired its full size.

A small brain may be due to—

1. Deficient supply of blood.
2. Inflammation of the meninges.

3. Effusion of blood on the surface of the meninges in large quantities.

A large head may be due to—

1. Mere thickening of bone, as in idiocy and rickets. This is not a cause of idiocy, but secondary to it.

2. Pure hypertrophy. This does not cause idiocy, nor any symptoms until compression occurs.

3. Albuminosis of brain merely causes defective power, not idiocy.

4. Hydrocephalus, often accompanied by idiocy.

Idiocy may be congenital or acquired; and whenever there is idiocy, whatever the cause, there is often some bodily defect, *e. g.* arrest of development, fits, heart disease, spastic rigidity, and shortening of some muscles.

Hence the idiot cannot walk or talk properly; he is often deaf, cannot take hold of objects, and is also often deformed. His manners are childish or offensive; his expression is vacant: his ideas few. There is often much obstinacy, brutality, and dirty habits, the appetite greedy, the passions strong.

Treatment.—Much may be effected even in education and training of idiots; in fact, it is surprising how wonderfully, under those who have the necessary patience, long-suffering, and experience, the poor idiot will develop into a being with some intelligence, and with trained and disciplined habits. This is not the place to enter into any details in the matter; it is sufficient to say that even congenital cases are not to be abandoned as hopeless, and to refer those who would see and know more to the excellent establishment at Earlswood, Redhill.

2. Convulsions.

M. Bouchut states that convulsions in children may

occur in a state of health, and in the course of acute disease, and are then analogous to delirium; and there is no relation between such convulsions and lesion in the nervous centres; further, convulsions may, but more rarely, be symptomatic of genuine morbid conditions in the brain or spinal cord. At any rate, convulsions are of such frequent occurrence, and under such diverse conditions in children, that a careful inquiry into the various relations they present is most important for a due understanding of many of the commonest affections of children. The reason of their frequency in children as compared with adults is the predominance of the spinal over the cerebral system in early life. As the brain increases in size and power, convulsions become of rarer and rarer occurrence. Suppose a child actually in a fit, to which we are, as often happens, hastily summoned—a child that we have never seen before—what is to be done? and how is our diagnosis to be formed? In the first place it is well for one's own comfort, as well as for that of the friends, to remember that children do not usually die in convulsions, especially if we find the parents and friends alarmed, as they get used to the really dangerous forms, which are the ever-recurring ones; so we may reassure and comfort them. It is an excellent plan immediately to order a warm bath to be got ready, and to see also that the windows are open, or the door, so that the room is well ventilated, and to get the child removed from in front of a blazing fire, where it will often be found with its head within a few inches of the bars. Its nurse has thought that it felt so cold, so she proceeds to half roast it. Pass one hand quietly and carefully over the child's head, while the pulse is felt with the other. Fulness or weakness of the pulse will be a guide to diagnosis, so, also, if the head be really hot or cold; if the fontanelle be tense and protruding, or

sunk and retracted; if the face be flushed or pale. Then order the child to be stripped, and observe if it draws its legs up to its belly; if so, and the head be hot and the fontanelle prominent, there is congestion, which may be the cause or the consequence of the convulsions. But in either case the immediate treatment will be to put its feet into a bath, into which may be thrown a handful of mustard, and at the same time apply vinegar and water or spirit and water lotion to the child's head. It is a good plan, also, to wring out a piece of flannel in the hot mustard-and-water bath, and to sprinkle a little more mustard on the surface of the flannel, and then wind it round each leg and foot.

If, on the contrary, the head be cold or the fontanelle depressed, it will be a good plan to pop the child altogether, except its head, into the mustard-and-water bath, and then employ friction to arouse the action of the skin. A little sal volatile may be held to the nose, and a few drops of brandy in a teaspoonful of water, to moisten the lips. Sometimes such a case is merely a syncope, and no convulsion has occurred. This must be remembered as possible, and looked for. It will be highly important during these proceedings to ascertain the previous health of the child. If this be the first fit it has had or not? Which of the acute specifics has it had? Is it teething? Pass the finger along the gums, and if swollen scarify them freely; and it is well to remember that convulsions sometimes occur in children with the *second* dentition as well as, very commonly, with the first. Another very important question is, What has the child had? If some unwholesome diet has been given, this is the cause of the fit, and a good purgative will cure it. Calomel and sugar is the best, as it can be put on the back of the tongue, and is sucked down without difficulty. Has the child vomited?

If so, what has it brought up? and also the stools, if passed, should be looked at. The possibility of scarlatina, rubeola, or variola, is not to be forgotten, in all of which the invasion may be by convulsions. Sometimes mere flatus is the cause of the fit; then the belly will be tumid, and gentle friction, with the warm bath will dispel it. Having ascertained something of the previous history of the child, the knowledge may then be applied. If there has been diarrhœa, and the head is cool and the fontanelle depressed, there is no congestion, and brandy may be given. If the child be emaciated, and the head hot, and diarrhœa have preceded, brandy may still be given, but cooling lotions may be required for the head. If the child has been irritable, and has had twitchings or "inward fits," the fontanelle being prominent, there is some abnormal condition of the nervous system. Calomel will be required at once, a few leeches, or perhaps a blister behind the ear or on the vertex. If there has been headache and vomiting and some feverishness, the pulse will be a most valuable guide; for while such symptoms, with a pulse of 130, would, in all probability (as has been before mentioned), mean sweets or plum cake, with a pulse at 40, they would be the earliest manifestation of tubercular meningitis. Should tubercular meningitis be the diagnosis, ice will be required to the head, calomel and jalap, &c. (See that disease.) Perhaps the child is recently convalescent of scarlatina, and has had some anasarca and a little albuminuria; if so, this fit of convulsions points to uræmic poisoning. The treatment will then be a hydragogue cathartic purge, such as one twelfth of a grain to one sixth of a grain of elaterium, or twenty grains of jalap powder with a little scammony, to a child five years old, repeated every two or three hours. The loins should be dry-cupped, or a few leeches (to draw two or three ounces of blood) applied.

Again, the paroxysm may have come on in the course of pertussis. There is then general congestion, and such convulsions are often rapidly fatal. The treatment will be ice or cold to the head, free purgation, a counter-irritant, and the pertussis mixture should be a decided sedative to control the violence of the paroxysms. If these be very severe, hypodermic injection may be tried. If the physical signs of pneumonia be present, the case is also very serious. (See Pneumonia.) In measles, scarlatina, and variola, a convulsion at the outset is not a grave prodroma; in the course of the disease it is more serious, and it then represents the delirium of the adult, as before mentioned. Lastly, the convulsions may be caused by chronic hydrocephalus or hypertrophy (which see).

Death in cases of convulsions, when it occurs, may be from spasm of the glottis, asthenia, intense cerebral congestion, and coma.

Dr. Gee in a valuable paper published in the Bartholomew's Hospital 'Reports' for the year 1867, gives statistics and details of 102 cases of convulsions; of these he refers 24 to local causes, *i. e.* disease in or near the cerebrum, 73 to general causes, and of 61 children suffering from essential or eclamptic convulsions, he found 50 were rickety; and lastly, 5 cases he enters as of uncertain origin. Dr. Gee, in fact, seeks to prove the almost constant coincidence of the spasmodic with the rickety diathesis.

A baby is often said to suffer from inward fits; this is when it lies as if asleep, but moves the eyelids, and the muscles of the face twitch slightly, and there is the so-called sardonic smile; the condition is generally due to flatulence, and is easily relieved by gently rubbing the stomach and giving a few drops of tincture of cardamoms in some sweetened dill water. A worse prognosis must be

formed, however, when the hands and feet are drawn in by the so-called carpo-pedal twitchings, the eyes half closed, the child waking with a sudden start, the face flushed; then we have reason to fear an attack of general convulsions. The actual symptoms of such an attack are a terror-stricken look, twitchings of the face, rollings of the eyes, perhaps a squint or other deviation from the natural condition which gives a dreadful expression to the face, frothing at the mouth, the head and neck are drawn backwards or to one side, the muscles of the back are rigid, and the extremities violently thrown about. These movements may be limited to one side, and it is important to remember that such limitation *per se* does not imply organic lesion of the nervous centres. Consciousness and sensation are lost, the face becomes flushed, the eye insensible, and the pupils dilated or contracted, but in either case immovable; the breathing hurried and laboured; the pulse quickened, small, hard, and often irregular. The urine and fæces are discharged unconsciously, and a clammy moisture breaks out over the whole body. This condition may last from a minute or two to an hour or more, when the child falls asleep or lies in a sort of stupor, or cries loudly, and returns slowly to consciousness, or sinks into coma. Except in pertussis, and laryngismus stridulus, and apoplexy, or after long exhausting diseases, a child rarely dies in a fit.

The above is a general sketch from which endless variations and deviations will be met with. There may be prodromata or none, the fit may be long or short, slight or severe, partial or general, recurring constantly or at rare intervals, all of which points will require careful notice in the individual case.

3. Night Terrors.

This is a fruitful source of anxiety and distress to parents. I have certainly noticed that this condition seems to run in families, child after child of the same family becoming subject to it, whilst other children living in the same street or square, or even in the same house, brought up under conditions almost precisely similar, remain completely exempt. The child goes to bed quite well to all appearances, but in two or three hours after it has been asleep, it suddenly awakes in great alarm and gives utterance to loud and terror-stricken cries. For a few minutes it may fail to recognise its nurse or mother; it will point to the bottom of the bed or under the clothes with an expression of great alarm, and will often imagine some object hanging near, as, for instance, a part of a dress or shawl, to be some animal about to attack it. Presently it gets more composed, bursts into tears, and sobs itself to sleep in its mother's arms, and the attack may not return for some nights, or it may recur with wonderful periodicity night after night about the same hour. I have known children thus affected weeks at a time, when intervals of quietness would take place, perhaps to be again broken into after the lapse of a month or two. Fortunately, this condition, alarming and distressing as it is, does not usually, if ever, depend on cerebral disease, but seems to be entirely of gastric origin. Sometimes pale urine, like the urine of hysterical women, is voided freely after an attack. Often dentition is present, and sometimes there is great constipation.

The treatment of these cases will comprise in the first place, kindness and forbearance towards the little sufferer. These terrors will but be increased by harshness, while

soothing and gentleness will do much to dispel them. The child should by no means sleep alone, its cot should be beside the bed of its nurse or mother. A light should be left in the room, and when the fit occurs it should be soothed and encouraged. The gums, if swollen and tender, should be freely lanced, but it is mere cruelty to lance gums which do not require it. A combination of tonics and aperients will be found valuable, as tending to correct the condition of gastric and intestinal disturbance which almost always co-exists. The diet should be carefully regulated, simple, nourishing, and easy of digestion. Iodide of Potassium is often useful when combined with an aperient; and I have also seen great good from the compound syrup of the Phosphate of Iron.

4. Congestion of the Brain.

This condition is of such frequent occurrence in early infancy and childhood, and its consequences are so important, that it behoves the practitioner to watch carefully for its symptoms, and to be ever ready to meet them when they arise. There are two kinds of congestion: 1. Active congestion, which is that in which the vessels of the brain become overloaded from an increased flow of blood to them. 2. Passive congestion, in which some mechanical or other impediment exists to the return of the flow of blood from the brain.

1. *Active congestion.*—This condition may result from any of the following causes: The onset of one of the eruptive fevers. The irritation of dentition. Exposure to the direct rays of the sun, or, what is more common, the foolish plan that many mothers adopt of sitting to wash and dress their children almost in the fire, with the

head of the unfortunate child as near the bars as a joint is in roasting, and this to avoid risk of cold.

Gastric disorder is another source of active congestion.

Symptoms.—The onset may be sudden or gradual, general uneasiness, restlessness, sleeplessness, with some amount of fever, and generally constipation, may exist for a few days; or suddenly, perhaps, the child awakes from sleep with a scream, his head is noticed to be hot, the face flushed, he vomits. If old enough he complains of his head; if younger, the anterior fontanelle is seen to be prominent, and on feeling it, it pulsates strongly. The pulse is quick, the muscles of the face work and twitch. There is jactitation, often some delirium, or in a few hours an attack of convulsions passing into stupor. This condition of congestion at the onset of the eruptive fevers, say scarlatina, for example, may be so severe as to kill the child within twenty-four hours before the appearance of any rash, and it may only be discovered that such was the fatal cause by the simultaneous outbreak of scarlatina, after similar but less violent prodromata in another child of the same family. Or the attack may be less severe, and in a day or two out comes the rash, or the tooth comes through, or, in other words, the cause passes away and the head symptoms cease. Here, then, is a condition alarming, rapidly tending to get worse, but relieved almost as rapidly when the exciting cause has passed away. Such cases tax the judgment and coolness of the physician, who must determine upon his treatment at once, and act calmly and decisively when all around are excited and anxious, proposing all sorts of remedies and expedients, and questioning him again and again as to his opinion respecting the termination of the attack. The first thing to be done is to ascertain if possible the cause, and the finger should be passed along the gums; if swollen and tender they should

be lanced freely. It is well to cause a warm bath to be got ready, as during its preparation, time is gained to ask a few questions of the circumstances immediately preceding the attack. Has the child been out? If so, was the sun hot? What has it had to eat? and when? And this question must be pressed on the nurse and servants as well as on the mother. While out, nurses constantly give children sweets and trash of which these attacks are often the revealers. It is well, therefore, to assure the nurse that the child's life depends on the correctness of the information given to guide us, and she will generally disclose the truth. It would be dreadful to be leeching and blistering the head for fancied hydrocephalus or inflammation, when an emetic and a dose of calomel and jalap would clear away the mischief in the form of plum cake. If no tangible cause can be ascertained, the eruptive fevers should be borne in mind—which of these has the child had? Has it been exposed to infection? If *no* clue can be got, and the congestion be very violent, and the child strong and healthy, six leeches should be applied over the scalp. It is always wise, in cerebral affection more particularly, to determine the quantity of blood to be drawn, to reckon each leech at ʒij, and then when the leeches fall off, to stop the bleeding. A purge of calomel and jalap will be useful in unloading the intestinal canal. A blister behind the ears or on the vertex is sometimes useful (it should be made with the blistering fluid). Ice to the head and cold affusion are also valuable measures. It is of the greatest importance, whatever line of treatment be adopted, to darken the room, to leave the windows and door open to allow cold fresh air freely to enter, and to enforce absolute and complete silence and quietness. In cases of milder nature, and in delicate children, a gentle purgative, a warm bath, and mustard pediluvium will be

advantageous. When the immediate danger is passed, treatment will generally be required for a few days to complete the cure and prevent a relapse. Salines with an occasional grey powder are suitable remedies.

5. Passive Congestion.

This occurs in the progress of such diseases as pertussis and laryngismus stridulus, in hypertrophy of the liver and spleen, from an enlarged thymus, and in children dying from asthenia.

Symptoms.—A soft but weak pulse, puffiness, and blueness of the face, moist cool skin, cold hands and feet, uneasiness, or pain in the head. With these symptoms there are often conjoined clayey stools, very offensive in character, perhaps some diarrhœa, with occasional vomiting and general loss of appetite. During a paroxysm of pertussis such a child not unfrequently dies of coma. In such a case the vessels of the brain and its membranes are found loaded with black blood quite fluid, the choroid plexuses are highly congested, and on a section of the brain being made more bloody points than are natural appear.

Treatment.—If the cause be pertussis or laryngismus stridulus, no treatment will be of use which does not cure or relieve them, which should be the first consideration. Depletion in any form, even a few leeches, are very badly borne in such cases as these; temporary good may result, to be followed only by worse weakness and exhaustion. In a severe case counter-irritation is of value, such as a small blister behind the ears. More often the best treatment will be the daily use of a warm bath, containing a little mustard and some Tidman's sea-salt, while cold is applied

to the head. Alterative aperients alone will often work wonders. Grey powder, which is given too often "usque ad nauseam" for the diseases of children, is in this disease a valuable remedy, a small powder containing Hyd. cum Cretâ and a few grains of rhubarb, and P. Jalap. Co., if necessary, should be given every night, and some of the Syr. Ferri Iodidi three times a day. This plan will be beneficial, even when clayey diarrhœa coexists, as it restores healthy action of the intestinal canal, and at the same time gives tone to the system. The diet must be carefully regulated. As a rule it will be found that beef tea, mutton and veal broth, all increase the diarrhœa, while arrowroot and corn-flour are not properly digested. The best foods will be milk, rice-milk, raw meat shredded fine in small quantities, light puddings, and no wine. If stimulant is required, it may be given in the form of medicine or brandy. The child should be warmly clad, and should have plenty of fresh air.

6. Hæmorrhage.

Cerebral apoplexy, or effusion of blood into the substance of the brain, is in children a rare disease. The symptoms are similar to those observed in the adult—heaviness, drowsiness, and headache, passing slowly into stupor, or the attack may be sudden and appear as coma, convulsions, or paralysis. *Post-mortem.*—A clot may be found in the brain, most commonly about the corpora striata and optic thalami. There is sometimes a certain amount of softening around the clot, as a consequence of the effusion. *Meningeal apoplexy* is the more common affection, and, according to Cruveilhier, constitutes one third of the cases of death in still-born children. The effusion is into the

cavity of the arachnoid; it is very rare to find hæmorrhage into the ventricles. This form of apoplexy is seldom accompanied by paralysis.

The onset is often in an attack of convulsions, which frequently return, and there is also spasmodic contraction of the feet and hands, strabismus, vomiting, great thirst, fever, and duskiness of the face. The convulsions continue to recur with increasing frequency, and soon close the scene. Sometimes the attack may be more sudden—drowsiness, followed at once by stupor, coma, and convulsions. The two forms depend on the relative amounts of effusion; when this has been great, death takes place very rapidly. It is well to bear in mind that passive hæmorrhage may take place into the cavity of the arachnoid from long-continued and exhausting illness; in such cases the symptoms are very insidious. *Post-mortem.*—The blood effused undergoes certain changes, according to the time elapsed since its effusion. At first it is fluid, by the fourth or fifth day coagulated, the serum is absorbed, and the clot becomes adherent to the parietal serous membrane. The colour fades, and the clot at last becomes a thin, fibrinous lamella, looking like a false membrane. It is generally impossible to detect any opening through which the blood escaped. In children with tubercle of the brain it is not uncommon to find limited apoplexy, consisting of innumerable bloody points. This has been called "capillary apoplexy." The *prognosis* of the disease, in any form, is most unfavorable. The *diagnosis* of meningeal apoplexy from acute meningitis is mainly to be made by observing that the symptoms are less inflammatory, the invasion more sudden, and the loss of voluntary power more complete. Chronic hydrocephalus is slower of development, and is accompanied by prodromata before effusion, while in meningeal apoplexy effusive symptoms

are the first observed. Paralysis will aid in diagnosing the cerebral form.

Treatment.—This, of course, will vary with the cause and kind of apoplexy; if the symptoms be those of congestion, leeches over the scalp, and perhaps blisters behind the ears, followed by calomel and enemata; but if, as more often happens, effusion has already taken place, such measures will be hurtful, and we must trust to enemata, ice to the head, and sinapisms to the feet. If the condition of the child be that of great exhaustion, with feeble pulse and clammy skin, a warm bath, a mustard poultice to the chest, gentle friction to the body, and the careful use of stimulants, afford the only chance. Alarming symptoms are often relieved at the period of dentition by free scarification of the gums, with a brisk purge and an occasional application of blistering fluid.

7. Tubercular Meningitis (Acute Hydrocephalus).

This dire disease most frequently attacks children under five years old. The symptoms are, for purposes of convenience, divisible into three stages.

The *first* or precursory stage is ushered in by some or other of the following group of symptoms:—Irritability and capriciousness, headache and fulness, shown by the child frequently putting its hand to its head, or by the head hanging down, sleepiness and drowsiness, occasional dragging of one leg, disordered appetite, vomiting, constipation, and disturbed sleep; the stools pale, clayey, and offensive; the tongue moist, red at tip and edges, and furred in the centre; the pulse quickened, seldom, however, above 120, and often irregular, photophobia. The child during sleep does not close its eyes, grinds its teeth,

and often wakes in alarm; a peculiar irritative cough is a common and significant precursor. The recognition of this stage of the disease, the duration of which is usually from four to five days, is of the utmost importance; during it only has treatment any reasonable hope of success.*

The supervention of the *second* stage is marked by increased moroseness of the child; it wishes to be left alone; at night there is often considerable delirium; the pulse is slower, falls, perhaps, to 80 or even 40, is more irregular, and even intermitting, slight exertions, however, materially quicken it for a time; there is more stupor and insensibility; the child frowns almost constantly; the face is flushed; there is much heat of head and pulsation of the anterior fontanelle; there is heard the peculiar, piercing cry called the "cri hydrocéphalique." The pupils are often unequally dilated, or there may be strabismus. This stage passes by insensible gradations into the *third*, which is marked by increase in the stupor, often broken into, however, by convulsions. The convulsions may leave paralysis, usually of the same, sometimes of the opposite, side. The pulse becomes small, rapid, scarcely to be numbered. There are clammy sweats. The pupils are widely dilated and motionless. The aspect of the little sufferer is piteous to behold, with shrunken face and form, eyes staring and sunk deep in their sockets. Convulsions constantly recur, and soon put an end to the scene. It happens, however, sometimes that an im-

* To M. Bouchut belongs the credit of first employing the ophthalmoscope in the detection of the earliest stages of this disease. The test is not infallible, as optic neuritis does not invariably occur. When, however, the following appearances can be detected, they are characteristic. 1. Congestion around the papilla, with patches of congestion on the retina and choroid. 2. Changes in the retinal veins around the papilla, as dilatation, tortuousness, varicosity, thrombosis, and patches of hæmorrhage from rupture.

provement takes place for some days before death. This is a significant fact in the course of many chronic as well as acute diseases. Just before death a remission of, perhaps, the very worst symptoms takes place. The pain, which has been agonising, vanishes; the breathing, which has been so laboured, gets easier; the purging, which has been so uncontrollable, ceases; and the patient's friends delude themselves with false hopes. The physician must ever bear this in mind; it is remarkably conspicuous in many diseases of children, and in none more, perhaps, than in tubercular meningitis. Ourselves undeceived by it, we must caution the friends from expecting permanent amendment; such second disappointments sicken the heart.

Exceptional conditions.—The symptoms of tubercular meningitis are exceedingly variable, both in character and sequence; and while the above may be considered a correct sketch of the true type, almost every case will vary from it in some particular. Thus cases have been recorded in which convulsions set in from the very first, or others in which they occurred only at the last. In some, while pain in the head is the earliest and most conspicuous feature, in others it may be absent altogether; and so with vomiting, the dilated pupil, and strabismus; and yet there is a general resemblance in the course of the different classes of cases which experience recognises at once, and the symptoms never fail to point to the brain as the organ at fault. The onset of tubercular meningitis is often most insidious, and will require careful attention to the premonitory symptoms to detect its probable approach.

Diagnosis.—From typhoid fever. In the latter disease the following points contrast with the ordinary course of tubercular meningitis. It is common in children above five years old. There is often no vomiting. The bowels are relaxed. There is tenderness and gurgling, especially

in the right iliac fossa, with a tumid abdomen, and abundance of flatus. The tongue is dry. There is more heat of skin, and no irregularity of the pulse. Convulsions and paralysis are rare. From simple acute meningitis M. Rilliet draws the following distinctions; it must, however, be admitted that in most cases the two affections are almost indistinguishable:

1. Tubercular meningitis occurs in weak, precocious children, and in those subject to glandular enlargements and skin diseases, whereas in simple meningitis the subjects are vigorous and healthy.

2. Tubercular meningitis is always sporadic.

3. The child previously pines away, and suffers from gastro-intestinal irritation.

4. Tubercular meningitis does not commence by convulsions.

5. Headache is more intense; vomiting not so urgent; constipation obstinate; fever moderate.

6. The progress is slow; and

7. The duration more prolonged.

Prognosis extremely unfavorable; few cases recover in which the first stage is passed. The duration of the disease is from ten to twenty days.

Post-mortem.—Traces of inflammation of the membranes of the brain are found with the results of such, viz. serum, lymph, and pus. The dura mater may be healthy or injected. The arachnoid is injected and often opaque, dry, and sticky; there is also effusion of a clear fluid between the pia mater and arachnoid, or more rarely pus. At the base of the brain there is also opacity of the pia mater and arachnoid, and effusion of fluid between them and in the meshes of the pia mater, but in addition in the membranes, the arachnoid especially, are found minute tubercular granular deposits, yellowish and friable,

or grey, opaque, and firm. The central portions of the brain are softened and often contain tubercular deposits. These granulations are found to be identical in microscopical appearance and chemical composition with ordinary tubercle. Lastly, there is, besides the softening (which may be even to a mere creamy consistence) of the central portions of the brain, an effusion of watery serum into the lateral ventricles; this fluid often amounts to several ounces. The lining membrane of the ventricles is also thickened and opaque, and its vessels full and turgid; occasionally it presents a granular appearance. Tubercular deposits are also generally found in other organs of the body, especially in the lungs and bronchial glands, less often in the liver, spleen, and mesenteric glands.

It is convenient here to mention the form of hydrocephalus called by Gölis "water-stroke," which consists in sudden effusion of fluid into the brain, which occurs either idiopathically, or as a result of obstructed secretion from some other organ, or as a secondary affection in the course of one of the acute specific diseases. In such cases death is too rapid for the employment of remedies.

Treatment.—1. Prophylactic. When one child of a family has died of hydrocephalus, the mother should in future not be permitted to suckle, but the infants must be reared by a good wet-nurse. Besides this, every hygienic condition should be brought to bear upon such an infant. His food, his clothing, his exercise, must all be carefully considered and adapted to his growing necessities. Sea air will always be beneficial, and baths in salt and water as soon as the child is old enough. The diet must be plain, simple, and nourishing; stimulants are undesirable. Such a child must be allowed to be backward in his lessons; all attempts at forcing his intellect must be discouraged, his health must be the first and only

consideration. The parents must be made to understand the importance of things apparently trifling in his case, such as a little vomiting or constipation. Such a child should never have 'home medicines' administered to him. The Cetraria Islandica moss is a valuable adjunct in diet, and the Syr. Ferri Iodid., or compound syrup of the phosphate of iron with cod-liver oil the best medicines. The bowels must be most carefully regulated, and every tendency to any disorder narrowly watched; this will be done by a wise mother without allowing her child to perceive that it is an object of undue solicitude, with quiet undemonstrative attention, without any fussy, foolish interference. Great tact, great forbearance, and firmness will be needed in the education and management of such a child. 2. If the disease be actually established, the treatment becomes an anxious and much disputed question. I do not believe that bleeding in any form can be beneficial in the vast majority of cases. The object of depletion is merely to relieve congestion, and this may be effected far more satisfactorily by applying cold to the head, an evaporating lotion, wet rags, ice—all are beneficial. The hair should be cut off.

In a case of simple acute meningitis it is possible that leeches may be called for, they are, indeed, recommended, and have been used by Rilliet and other good physicians. In the tubercular form I am quite sure that bleeding and lowering measures are very badly borne; counter-irritation is the means by which we must seek to give relief, this may be accomplished in many ways. A couple of blisters behind the ears applied *early*, before the effusion stage, sinapisms to the feet and legs, and small flying blisters, are useful and better than one or two large ones, large blistered surfaces being often very slow to heal. Calomel is another remedy on which we are usually taught

to rely. I am quite satisfied that in many cases calomel and all forms of mercury do positive harm. No class of patients bear the effects of mercury so badly as scrofulous subjects. I prefer to administer such purgatives as secure a copious watery secretion from the intestines—one of the best is compound jalap powder, it may be combined with a few grains of P. Scammon. Co., this, however, is not to be pushed too far, but the constipation naturally existing is often obstinate and will require careful and well-regulated doses of the aperients to overcome it; emetics are in my opinion quite inadmissible. Any one who has taken an emetic knows the fulness of the head which retching occasions, and will perceive that such a condition cannot fail to increase the cerebral congestion already existing, besides vomiting and nausea are amongst the most prominent and troublesome natural symptoms, and no good can be done by still further exciting them. If much febrile disturbance coexist I am in the habit of combining with the compound jalap powder, Pulv. Jacobi ver. in moderate doses. I am quite sure that it exercises a beneficial effect, but the medicine in which I am disposed to place the greatest reliance, and which I have seen to be often exceedingly beneficial, is iodide of potassium. I believe that the reason that many practitioners have failed to obtain benefit from its use is because they have been giving calomel and grey powder in various doses two or three times a day, which does as much and more harm than the iodide of potassium can do good.

There remain one or two remedies which have been employed and require brief notice. Digitalis, for example, of which I have no experience, has been found useful by some physicians. Opium, the value of which is much disputed, and the chief use of which appears to be to tranquillise in cases of unusual cerebral excitement. To

sum up the general course of treatment it seems, on the whole, that the best results are obtained from moderate counter-irritation, active purging, and the internal administration of iodide of potassium in doses of two or three grains thrice daily (for a child three or four years old). The diet is to be nourishing, certainly not too low; stimulants are, I think, uncalled for in the earlier stages of the disease at any rate. The food is best given in small quantities and often. Free purgation often checks the vomiting which otherwise is a serious hindrance to the administration of food. Ice may be sucked when the vomiting is very obstinate, or sinapisms over the stomach may be tried. In extremely obstinate vomiting the hypodermic injection of small quantities of morphia over the stomach is, in my opinion, very valuable. The room in which the child is should be darkened, but well ventilated. Quietness is to be strictly enjoined; emphatically, such a child must be prohibited all excitement, soothing and judicious nursing being of the utmost importance.

7*. Hydrocephaloid Disease.

This is a disease which it is simply of vital importance not to confound with true hydrocephalus. It is essentially a disease not of inflammation, but of debility, from loss of blood and other causes. Dr. Marshall Hall, who was the first to point out the nature of this condition, divides it into two stages. First, that of irritability; second, that of stupor. In the first stage the infant becomes irritable, restless, peevish; the face flushed, the surface hot, the pulse frequent; there is an undue sensitiveness of the nerves of feeling, so that the child starts and cries at a noise or on being touched; there are sighing, moaning, and even screaming during sleep. The

bowels are flatulent and loose, and the stools offensive. If, through any erroneous diagnosis, stimulants and support are withheld, or if diarrhœa supervene, the exhaustion developed leads into a yet worse train of symptoms. The face becomes pale and cool, the eyelids half closed, the eyes wandering, the pupils insensible to light, the breathing becomes irregular and sighing, the voice husky, often with short cough. The stools are green; the feet cold. These symptoms especially supervene in newly weaned infants, fed with improper food, and also in the enfeebled condition left after exhausting treatment, and also in infantile diarrhœa. The practical matter is to ascertain in all cases of doubtful head symptoms in young infants the previous history; whether any other children of the family have had hydrocephalus or are tubercular. Whether the child has been lately losing flesh, if it has been lately weaned, and, if so, on what it is fed. Also, if diarrhœa has existed, and if it vomits, and when,—that is, if only after it takes food,—or at other times when the stomach is empty. A common source of error is admitted by all writers, and that is when real congestion has been over-leeched and blistered, and this form of disease sets in as the result. This even may be guarded against by observing that in spurious hydrocephalus the face is pale and cool, and the anterior fontanelle sunk instead of protruding and pulsating.

Treatment.—When this condition is discovered, the child must at once be put on good diet. Exhausting treatment, if such were being employed, immediately suspended and stimulants supplied. If the stomach be very irritable, small quantities of asses' milk with a little lime water in it will be found the most useful food for an infant, and veal tea or chicken broth without fat for an older one. If the child be very low, a mustard bath may

serve to rouse the system, and enable it to swallow a little brandy and other stimulants.

Opiates are of valuc in quieting the nervous irritability as well as the diarrhœa that often coexists. It is hardly necessary to say that opium must be given with caution. The state of the pupil affords, according to Dr. Churchill, the best guide. When it is dilated, opium enough to overcome the dilatation and make the child sleep should be given; smaller doses merely increase the excitement. Dr. Churchill also mentions a very severe case in which, after the failure of anodynes, he had recourse to the inhalation of ether (thirty drops in a handkerchief) with marked success, quiet sleep supervening, and the child doing well after. Tonics are often serviceable, steel and quinine are best.

8. Simple Encephalitis

is a very rare disease in children except as the result of direct injury. It is less frequent in infancy than in childhood. The disease may set in suddenly with an attack of convulsions, which may be partial or general, and followed by some loss in the power of articulation,—the face and eyes being distorted, and considerable stupor supervening. This is broken into by a fresh attack of convulsions, followed perhaps by complete hemiplegia, strabismus, and insensibility. In a few days death supervenes. Sometimes the course is not so rapid, and somewhat different; the disease may set in with disordered health, loss of appetite, deranged bowels, with frequent vomiting, some confusion and stupor, the eyes are heavy, the pupil dilated; a convulsion may not take place for some days, to be followed, however, on its appearance by fatal coma. Sir Thomas Watson considers that nausea

and vomiting at the commencement point to the cerebral mass as the part affected; while convulsions indicate meningeal mischief.

Post-mortem.—There is found congestion of the vessels of the brain and general vascularity of its substance. The pia mater is especially vascular; there is also serous effusion into the ventricles, and beneath the pia mater; sometimes flakes of lymph are contained in the serum and the membranes may be coated with lymph and pus, the membranes are thickened, and there is softening of the cerebral substance. The sinuses are full of coagulated blood.

Treatment.—The great method of relief will be early and free depletion; but to be satisfactory in its result it is essential that the bleeding should be performed at the onset of the disease; if delayed it will but serve to lower the patient, in whom irreparable mischief has already taken place. Seen, then, at the commencement of the attack, a dozen or more leeches should be at once applied to the scalp, and calomel and jalap given both as a derivative and purgative. The diet must be moderate and unstimulating, cautiously improving as the cerebral mischief appears diminished. Ice and cold to the head are measures very valuable in the less severe forms of the disease, and in other cases good adjuncts after depletion. The continued exhibition of small doses of calomel and hyd. c. cretâ will be required throughout the disease. Blisters are often of service. Convalescence in such cases will require the greatest care and watching to prevent a relapse, all sources of excitement must be carefully avoided.

9. Hypertrophy of the Brain.

This is usually met with in the rickety and scrofulous, and in infants six or eight months old. It is important

that this disease should be recognised from hydrocephalus, to which it bears some similarity. This may be done by careful attention to the following points. The symptoms of chronic hydrocephalus come on earlier, and earlier grow more serious, especially in cerebral disturbances. Again, in hypertrophy neither is the head so large as in hydrocephalus, nor are the fontanelles and sutures so widely open; and, moreover, the enlargement in hypertrophy is mainly occipital. The downward expression of the eye, so characteristic of hydrocephalus, is wanting in hypertrophy; and instead of being tense and prominent, as in hydrocephalus, the anterior fontanelle and sutures rather sink and show depression in hypertrophy. Again, in hypertrophy the child lies horizontally, or throws back the head, with which, especially with the occiput, it bores into the pillow. In hydrocephalus the posture is commonly prone, and the head lower than the rest of the body and buried in the pillow. Dyspnœa is a prominent symptom in hypertrophy, not so in hydrocephalus, in which cerebral disturbance is the earliest sign of functional derangement. In hypertrophy the child is often fat, while in hydrocephalus it is thin and aged-looking. In hypertrophy the child's head is almost constantly in a state of profuse perspiration.

Post-mortem.—The brain is found free from fluid in the ventricles, the grey matter is but little altered, and the general appearance of the brain is pale and anæmic (unless some cerebral congestive attack has been the immediate cause of death); the white matter is pale and firmer than natural and increased in size, according to Rokitansky, by an albuminoid infiltration into the granular matter between the nerve-fibres. These changes are noticed in the hemispheres especially, and do not affect either the cerebellum or the base of the

brain. The thymus gland is often enlarged, and the dyspnœa has been referred by some writers to thymic asthma.

The disease is not necessarily fatal, though it may be so especially if the sutures are ossified from compression, and a fit of spasmodic convulsions may terminate life; or the child may recover and grow up an idiot, which is happily rare. Dr. West points out that cretinism and hypertrophy of the brain are often associated. The child is frequently carried off by some intercurrent disease, *e.g.*, pertussis, scarlatina, &c., in most of which cases the cerebral congestion will be found to have been unduly increased. MM. Rilliet and Barthez mention an extraordinary effect of lead preparations in producing this disease.

Treatment will be directed chiefly to maintaining and improving the general health; remembering the pallid condition of the brain bleeding is out of the question. Again, these children being either rickety or scrofulous are bad subjects for calomel. Counter-irritation, as in Dr. Churchill's plan of painting the head with tincture of iodine, will probably be of benefit. The hair should be shaved before the paint is applied; others recommend issues and setons; with more questionable propriety. Iodide of potassium should be given in fair doses. Dr. Elsässer employs a small horsehair cushion for the child's head to rest upon, a hole being cut for the occiput; this contrivance is said to cause the boring movements of the occiput to cease, and to afford the child some quiet sleep. Remembering the profuse perspiration of the head, it should be covered at night with a thin cap to prevent risk of cold; by day the scalp may be sponged with cold water. As the disease seems checked more tonic treatment may be ventured on, such as quinine and steel. The child's

diet should be moderate, and such as it can readily digest. Free purgation should be directed against any symptoms of cerebral congestion that may arise.

10. Chronic Hydrocephalus

may be congenital or acquired, in either case the indications of cerebral mischief are plainly perceptible; the head may or may not be found enlarged, and if not enlarged at birth it soon becomes so. Convulsions constantly recur. The child presents a pitiable aspect; it loses flesh daily, although it may suck heartily; the cry is harsh and hoarse; the eyes roll frequently; there is strabismus; the legs are doubled up on the belly and the feet obstinately crossed. Moreover the feet and hands are cold. The fontanelles and sutures are widely open. The cause of death is often an attack of convulsions.

In the acquired form, at first the symptoms may not be very striking; in fact, it sometimes happens that the various functions are but little altered and impaired, and that even the mental powers are not greatly weakened until a short time before death; while in other cases the constitutional symptoms were urgent, and complete idiocy exists.

Perhaps the first noticeable signs are loss of muscular power, drowsiness, and some dulling of the intellectual powers; the child does not notice as he was wont, and he "always seems for sleep." By-and-bye this is increased to moroseness, evident headache, photophobia, great fretfulness, emaciation, the limbs twitch and there may be actual convulsions in infants; in older children these are rarer, but there is in them a constant and peculiar frown, grinding of the teeth at night, obstinate constipation and scanty urine, with dilated pupils, squinting, or the sight may be altogether lost; the state of the mind varies from

complete idiocy up to a condition in which it seems but little affected. The most remarkable feature of the disease is the cranial enlargement. In infants this is rapid, owing to the ready separation of the sutures, but enlargement takes place even when the sutures are ossified. It is the vault of the cranium that enlarges, the base remains always unaltered. The face does not in any way participate in the enlargement; the bones of the skull, viz., the frontal, parietal, and superior part of the occipital, with a small part of the squamous portion of the temporal, become expanded and thinned; sometimes they are like pieces of parchment, and the fluctuation of the water within can be distinctly felt. By the change of the angle of the superior with the orbital portion of the frontal bone, the eye is driven down and half concealed by the lower lid; this gives a peculiar and characteristic appearance to the face.

As the head enlarges so its weight becomes more insupportable, and hence it rolls from side to side, and hangs down on the child's shoulders for support. There is generally loss of all power of locomotion, and often paralysis. The organs of respiration, circulation, and digestion are the last to be affected, for, though occasional vomiting may take place, the child is generally voracious, but after a time these too fail; the breathing becomes laboured, there is distaste for food, and the child may die after a year or two, or, in rare cases, a sort of living death may be prolonged into many years. If the attack have come on after ossification of the sutures, death is more rapid, because the brain is more compressed. Hydrocephalic children are also often carried off by some intercurrent disease. The irritation of teething is again a very fatal time with them.

Post-mortem.—The fluid may be found, according to M. Breschet, between the dura mater and the cranium;

between the dura mater and the arachnoid; in the cavity of the arachnoid; in the meshes of the pia mater; and, lastly, and most commonly, in the ventricles. The site of the fluid will, of course, materially affect the other morbid conditions, compression from without would reduce the brain to a small size, and it has been found the size of a large nut; or, again, distension from within will render it a thin membranous bag, as it has also been found. It is often difficult to recognise the difference between the white and the grey portions. The membranes are found either quite free from change, or showing signs of inflammation, especially that lining the ventricles has been found thickened and covered with granulations. The disease is attributed by some writers, as, for example by Dr. Battersby, to an arrest of development. Dr. West, on the other hand, regards it as the result of slow inflammation of the arachnoid, and especially of that lining the ventricles.

Treatment.—The plan of Gölis is perhaps the one that has been most frequently adopted. It consists in the administration of calomel in one quarter to half-grain doses twice a day, together with the inunction of one or two drachms of mercurial ointment into the shaven scalp once in the day; at the same time a flannel cap is to be worn to prevent chill. If no improvement take place at the end of six or eight weeks, diuretics are to be given, and an issue inserted in the neck or shoulders.

Of course it is necessary to remember that some cases, especially congenital ones, and cases depending on malformation, are not susceptible of cure.

Another plan is that of bandaging the head with flannel bands or strips of diachylon plaster; releasing it of course if symptoms of compression arise, which they sometimes do.

A third plan is that of puncturing and evacuating the

fluid. This is performed at the coronal suture with a small trocar and canula about an inch and a half from the anterior fontanelle, care being taken to avoid the longitudinal sinus—a portion of the fluid only is removed at a time, and pressure carefully maintained between the tappings. It is, however, evident that this method is not applicable to the ventricular form of the disease, but only to those of the so-called external hydrocephalus. Legendre gives a sign by which external hydrocephalus can be diagnosed—" that it is never congenital, but begins usually about the tenth month, or about the period of the first dentition. The head enlarges gradually and does not attain the size it does in the ventricular disease, and it is, morever, preceded by repeated convulsions and other forms of cerebral disturbance." There are also other points against the operation, as, for example, whether the fluid will not collect again, as in other dropsies; whether even if it did not, the state of the brain is such as to allow of reasonable hope of its recovering its functions. There is also danger of wounding some vessel of the brain, and, moreover, inflammation may be set up as a consequence of its performance.

Dr. Churchill gives a long list of unsuccessful cases, and also points out how frequently unsuccessful cases are not recorded. Still the fact remains that the operation has been occasionally successful, perhaps one case in fourteen has been thus cured. At any rate it should not be tried till other methods have failed, and then only in carefully-selected cases. My own practice consists in the employment of blistering fluid, applied sometimes behind the ears, sometimes on the scalp, or upper portion of the spine. With these I administer the iodide of potassium in large doses, and very frequently I combine it with the Syr. Ferri Phosphat. Co.

Several patients of mine at the Victoria Hospital have improved remarkably under this treatment. Iodide of iron is also very efficacious. The expediency of employing mercury is much disputed. No doubt its use is occasionally attended with excellent results, but probably, in the majority of cases, it is better avoided. Sir Thomas Watson records two cases in which ten grains of crude mercury were rubbed down with ℥j of manna and five grains of fresh squills, and given every eight hours, and this treatment proved successful in both instances when other means had failed. It was continued for three or four weeks and caused copious diuresis, emaciation, and debility, but no ptyalism. When the hydrocephalus disappeared, the strength was restored under the use of Griffiths' mixture.

11. Tubercle in the Brain.

Very rare in adults, is not a very rare affection in children. MM. Rilliet and Barthez found tubercle in the brains of 37 out of 312 children between the ages of 1 and 15, in some organ or other of whose body tubercle was also deposited. The tubercular masses vary in size from a millet seed, to a large walnut; in number, from a single mass to 40 or 50; the tubercle is sometimes crude; sometimes softened in the centre; generally globular; often very firm and less friable than in the lungs or lymphatic glands. The brain substance around crude tubercle is usually unchanged. It is common for the tumours to be attached to the pia mater; but they may be found quite unconnected with the membranes. The hemispheres, the cerebellum, and the pons varolii, are all frequent sites of their occurrence. These tubercular deposits are often associated with evidences of meningitis,

as, for example, a granular condition of the membranes, an effusion of hyaline matter into the pia mater at the base of the skull, and the ventricles are also often distended with serum. It has been suggested that mechanical obstructions offered to the circulation by the pressure of the tubercular masses, is the explanation of this. It is rare for tubercle to be confined to the brain, it almost always coexists in other viscera, all the depositions being equally evidences of the diathesis, *i. e.*, the tubercular.

Symptoms.—Unfortunately, these are very obscure, sometimes there are none at all, and tubercle in the brain is only discovered after death. At other times, headache is the only symptom, it may be expressed in the young child by drowsiness and listlessness, it is not uncommon for the headache to be of acute, intense, lancinating character, at times, or at others to be completely absent, such attacks combined with vomiting are exceedingly suspicious. Deafness, and discharges from the ears are very common. Amaurosis is not rare. Convulsions occur especially when the tubercles are in the central portion of the cerebral mass. Rigidity, or contraction of one or other extremity, is not uncommon. Dr. West points out that convulsions may occur on one side only and yet, the tubercle be found on both sides of the brain; or the convulsions may be general, and the tubercle only on one side. In a ward, no disease presents symptoms more variable, because of the many secondary affections excited, *e. g.* encephalitis, tubercular meningitis, &c., and also because of the variety produced by the different position and condition of the tubercular matter which may be crude, softening, or cretaceous. The following summary will afford the best clue to diagnosis.

1. The age: the disease being commonest before three years.

2. The general history, if tubercular or otherwise.

3. Headache, irregularity of the pulse, and coincident otorrhœa.

4. Tubercular infiltration of other organs.

5. The chronic course of the disease as contrasted with the acute course of other cerebral affections in childhood.

The prognosis is grave, but not wholly hopeless, remembering the cretaceous state in which tubercle is sometimes found after death.

Treatment.—Improving the general health and treating symptoms as they arise, are the two chief indications, for instance, gastro-intestinal irritation must be checked by gentle aperients, regulated diet, &c.; and attacks of cerebral congestion call for purgation, cold to the head, and moderate counter-irritation. These cases are, in fact, more susceptible of improvement by treatment than might be supposed, but it would be impossible in a disease of such protean manifestations to lay down exact rules. Setons and issues are highly spoken of—so also is Tartar-emetic ointment. Cod-liver oil and steel are of course valuable. Iodide of iron with an occasional aperient, moderate counter-irritation, and well-regulated diet, is the proper treatment of many cases. Bromide of potassium is valuable when there are convulsions or general irritability. Cocoa, chocolate, and Iceland moss are highly nutritious substances, of much value in the diet of these difficult and trying cases, in which a change often seems so beneficial to the child when sickened of its ordinary food.

12. Chorea, or St. Vitus's Dance.

This disease is not absolutely limited to childhood, but it is commonest between the ages of seven and fifteen

years. The disease may either set in suddenly, or with some gastro-intestinal disorder and irritability of temper. This is followed by slight twitching, convulsive movements of the face or one of the lower extremities; these gradually increase in severity, extending to the other limbs and even to the tongue. This condition of course disturbs all the voluntary movements, such a child cannot walk without a jerking movement and staggering; he cannot protrude his tongue without great effort, when it is suddenly shot out; he cannot stand still, but fidgets perpetually; he cannot take hold properly of anything, he misses his aim, and makes his efforts with the most strange grimaces.

As a rule (to which, however, there are many exceptions) the movements stop in sleep. In long persistent cases the intellect is apt to be seriously affected, and it is generally dulled during the progress of even an ordinary case. The general health is often but slightly impaired, but there is almost always *constipation,* and sometimes loss of appetite, and other gastro-intestinal derangements. The disease is commonest in girls, and is often observed about the period of puberty, when it may be connected with retarded or disordered menstruation.

The specific gravity of the urine is notably increased at the height of an attack of chorea, and declines as the disease declines. There is a real and very remarkable connection between chorea and rheumatism. Children who have had rheumatic fever are eminently prone to be attacked by chorea. The exact proportion of the cases so complicated has not yet been fully determined, nor is any assignable cause known for the connection. M. Sée states that of 109 cases of rheumatism admitted into the Hôpital des Enfans, 61 were complicated with chorea. Other writers have not noted so large a proportion. Dr.

Hillier states that of 37 cases, he found 15 who had themselves been rheumatic, and 7 others, one of whose parents was said to be rheumatic.

My own experience would lead me to believe that M. Sée's figures indicate by no means too great a proportion. At the same time, in some districts and countries the relationship seems not to exist; for instance, M. Rilliet says that rheumatism is very common at Geneva, and chorea exceedingly rare. M. Lombard says that, in a practice of twenty years, he saw but one case of such complication. Dr. West says that, whereas his opinion was formerly against such a complication, the returns of the Registrar of the Children's Hospital, in Ormond Street, in which of 33 children affected with chorea, 11 presented a rheumatic history, his views have changed in the matter, and he admits the relationship is a very real one. But more remarkable, pathologically, than rheumatism, is the cardiac complication that so frequently attends chorea, this is oftenest manifested by a systolic murmur at the heart's apex, sometimes associated with considerable irregularity of the rhythm, and greatly disordered and tumultuous action of the heart. This murmur is described as dynamic, and attributed by Dr. Walshe, not to inflammation, nor to any organic change of the mitral valve. "Neither have such murmurs the usual accompaniments of hæmic murmurs, but they do seem plausibly attributable to the disordered action of the muscular apparatus connected with the valve." With regard to the frequency of cardiac complication in chorea, Dr. Hillier states that of 37 cases in his note-book, there was probably organic disease of the heart in 25; in 4 others, evidence of functional derangement, and in 8 only no signs of cardiac disturbance. Dr. Hillier considers that dynamic apex murmurs in chorea are rare. He rather attributes the choreic murmurs

to organic change, because in his experience their subsequent disappearance has been rare. I have, however, had recently under my care two remarkable cases in which most distinct mitral murmurs completely passed away, on recovery from the chorea.

Dr. West observes that he has known cases in which a cardiac murmur so arising during the course of chorea became persistent, and remained as a permanent condition, and, moreover, was followed by obvious dilatation of the heart, proving rapidly fatal. The usual termination of idiopathic chorea is in recovery, but it may prove fatal either by exhaustion or coma. It occasionally gives rise to some organic change in the brain, leading to convulsions, palsy, hydrocephalus, and apoplexy, these are, however, very rare. Relapses are apt to take place, and the disease frequently recurs even several times. It is not uncommon for chorea to be complicated with hysteria.

Post-mortem.—The appearances found are rather those of the secondary affection, which caused death, than of the chorea itself, in fact, death has occurred in cases of chorea without any discoverable organic lesion. It is usual for the vessels of the cord to be congested, and there is sometimes an effusion of blood around the theca.

The membranes of the brain also are frequently affected, and there may be evidence of exudation, or serous effusion; occasionally softening of the brain and cord has been found. Dr. Russell Reynolds regards chorea as a brain disease rather than an affection of the spinal cord, because (1) tonic spasm, rather than choreic clonic spasm, is the result of spinal irritation; (2) The choreic movements are in some degree under the power of the will; (3) The movements cease in sleep, whilst excito-motor actions are increased by the withdrawal of the will; (4) On the other hand, efforts of will specially increase the choreic movements.

Causes.—The disease is commonest in girls; three girls suffer to one boy. Children of nervous and hysterical women are more prone to suffer from it. The disease has been stated to occcur epidemically, but the influence of imitation must be remembered as in the case of hysteria. The exciting causes are a blow, fright, worms, dentition, mental excitement, and any irritation of the nervous system. The duration of the disease is from two to three weeks to as many months. It has been supposed that some cases of stuttering, and persistent winking in adult life are in reality choreic, that is "local chorea."

Treatment.—The various plans of treatment consist in the administration of tonics, aperients, and antispasmodics. Remembering how common is constipation in this disease, the value of aperients is on no account to be lost sight of. Steel has been generally recommended as one of the best tonics. In my hands the Syr. Ferri Phosphat. Co. has often proved most valuable, subduing the worst features of the disease in about two weeks. I have also found the bromides of potassium and ammonium very useful. They should be given in fairly large doses, *e.g.* gr. v—x, for a child ten years old. In severe cases the child should be kept in bed. Probably the best plan is to commence with a good compound jalap powder, and repeat it two or three times a week, to keep up a free action of the bowels. On the day after the first powder commence with ʒss of the Syr. Ferri Phosphat. Comp., giving it thrice daily, and increasing the dose up to ʒj. If in two or three weeks no amendment takes place, or if for some reason steel is inadvisable, bromide of potassium, belladonna, Liq. Arsenicalis, Succus Conii, or strychnia may be tried. Dr. West gives Liquor Strychniæ (B. P.) ♏v 6tis horis to a child seven years old, and gradually increases the dose to ♏x. Other remedies much extolled are valerian

(especially the ammoniated tincture), oxide of zinc, antimony in cases attended with febrile excitement, and nitrate of silver. Opium and stramonium have been used, and cimicifugin is recommended by American writers.

Dr. Copland recommends a cold shower-bath, the child the while standing in warm water. The late M. Baudeloque used warm sulphur baths—such are made by adding sulphuret of potash to the ordinary bath heated to 90° F. The child should remain in half an hour daily. Gymnastic exercises, counter-irritants, and electricity have also been recommended. In a disease which occasionally proves extremely obstinate it is well to have a wide range of weapons with which to combat it. When obviously dependent on worms, dentition, or amenorrhœa, it is hardly necessary to say that these points must receive most careful attention, and be cured before we can hope for the abatement of the chorea.

13. Eclampsia Nutans, or Salaam Convulsion.

This disease occasionally affects the mind permanently. Its distinguishing character is the peculiar bowing forward and downward of the head so as nearly to touch the knees, this movement, at first slow, increases in speed, and may be repeated 50 to a 100 times in succession. The attack often occurs on awakening from sleep. Sooner or later other convulsive movements occur, and the attack may end in paralysis or idiocy. Mr. Newnham inclines to the belief that this disease is of a strumous inflammatory character, the membranes investing the medulla oblongata being especially affected. The treatment will consist in careful attention to the general health in the administration of sedatives, especially the bromide of potassium, and also of tonics, especially zinc and quinine.

14. Epilepsy.

In a good proportion of cases hereditary tendency to this disease may be traced. The exciting causes are fright, injuries, gastro-intestinal disturbances, dentition, &c.; dentition is probably the commonest cause. It should be remembered that the mind in children being undeveloped, is more likely to be permanently affected than in adults. In the female the occurrence before menstruation more usually tends to cause insanity than its occurrence after that function has been established. The disease is more common in females after the age of seven years than in males. The disease, so far as the symptoms in the actual fit are concerned, do not materially differ from those observed in the adult. There may or may not be premonitory warnings, of course the child is often too young to interpret them even when they are present—the convulsive movements, the bitten tongue, and the subsequent coma, the flushed face, and the fixed pupil, and the laboured breathing, all occur in the child as in the adult. The duration of the fit may be from five to eight minutes, up to half an hour or more. In children the character of the seizure is that of the 'petit mal.'

Post-mortem.—In children, as in adults, nothing characteristic is met with. Congestion is often present; occasionally the bones of the skull are thickened or diseased. Induration or softening of the brain is sometimes found in long-standing cases.

The prognosis will be founded, not on the violence of the fits, nor even on their quick return during a certain limited time, but on their recurrence when dentition and other palpable sources of irritation have ceased, and when the child is otherwise in good health.

Treatment during the fit consists in loosening everything round the neck, freely admitting fresh air, raising the head, and putting a piece of cork between the teeth; cold affusion to the head may sometimes be useful. In the intervals the diet must be plain and nourishing; meat must be rather sparingly given. Exercise in the fresh air should be freely encouraged, and we may administer and hope something from the salts of silver and iron. Belladonna is highly spoken of by Dr. West and by Brown-Séquard; Trousseau recommends that it should be persevered with for two, three, or more years, if good results. The bromides of ammonium and potassium in large doses, three, five, and ten grains, thrice daily, are of undoubted value in many cases. Children, indeed, often improve remarkably under their use. Steel, quinine, and cod-liver oil are useful, when decided improvement has been manifested, in strengthening the constitution.

15. Paralysis

in childhood is not the same formidable affection as when it attacks the adult, for while its effects may indeed be permanent, *quoad*—the limb or part affected—yet it rarely threatens life, and more frequently under judicious treatment the child is completely restored. Paralysis is occasionally congenital however, in which case it is of course not susceptible of relief. The causes of paralysis in the child are far more often comparatively slight, *e. g.*, dentition, constipation, cold, slight pyrexial attacks, &c.; it is commonest for one leg to be affected, sometimes both are, and sometimes one arm and a leg; one arm is seldom affected alone. Sometimes the mischief is confined to a single muscle, *e. g.* the sterno-mastoid. Occasionally

attacks of paralysis occur which are dependent on very serious organic lesions, *e.g.*, chronic hydrocephalus, brain abscess, tubercular meningitis, and various tumours of the brain and spinal marrow; one remarkable feature in such attacks is the suddeness of the invasion. Dr. West points out that cases occur in which the paralysis is not complete, and in which hyperæsthesia exists for a time, to be followed by more complete loss of motor power afterwards. In such cases the child stands on the healthy limb, turns the foot of the affected side inwards when walking, and stands with the toes of that foot on the dorsum of the foot of the sound side. Hence arises a question of diagnosis from hip-joint disease, which may be solved by noting the hyperæsthesia of the paralysed limb varies greatly at different times, while the pain in the knee is absent, and no acute pain is caused by striking the head of the femur against the acetabulum by a blow on the heel. Moreover, the temperature over the joint supposed to be affected will aid in the diagnosis, such temperature being increased on inflammation (Hilton).

The milder forms of paralysis may be diagnosed from the more severe forms by attention to the history of the case, the presence or absence of nervous tremor, twitchings or contraction of the fingers and toes. If convulsions have preceded the attack, simple paralysis is usually preceded by one fit, while brain mischief causes a succession, during which the limb to be palsied suffers peculiar movements, or may be the only part in which movement occurs. The duration of simple paralysis in the child varies greatly, some cases recover in a few weeks, while others last for years. When the duration is long the paralysed limb wastes and declines in temperature, and its growth is also retarded.

Treatment.—The treatment will depend in a great

degree on the cause of the attack; in fact the first efforts, if the child be seen early, should always be directed against the supposed cause, the relief of which often materially relieves the paralysis which was secondary to it. Thus dentition, worms, constipation, &c., must be inquired for and attended to. Purgatives will almost always be needed, as constipation commonly exists in all classes of cases; some tonic must also be given, steel answers very well in many cases. Dr. West gives the eighth part of a grain of spirituous extract of nux vomica to a child four years old, three times a day, increasing the dose till it reaches the third of a grain. A combination of quinine and steel is often useful. It is very important that the limbs affected should be exercised every day by a baby jumper, go-cart, or other such means; friction ought also to be employed. I have found the bay-salt water-bath followed by friction with a rough towel very valuable, but the remedy which has in my hands always succeeded best is magneto-electricity, the current being passed at first two or three times a week and gradually more frequently along the course of the nerves. It should be done for ten minutes or a quarter of an hour at a time, and the current may be strengthened gradually as improvement takes place. Messrs. Maw and Son, of Aldersgate Street, have an excellent and very reasonable magneto-electric machine which answers every purpose.

Facial paralysis, or that of the portio dura, also occurs during dentition, it generally proves but temporary, and it involves no danger.

Facial hemiplegia sometimes occurs in infants soon after birth. It is possibly caused by some injury to the seventh pair by the forceps, or pressure of the head in delivery. It usually rapidly diminishes and requires no treatment.

16. Otorrhœa.

A discharge from the ears is exceedingly common in children; it proceeds from subacute catarrhal inflammation either of the external meatus, or of the membrana tympani, or of the mucous membrane lining the tympanum. The last condition is often complicated with rupture of the membrana tympani, through which the matter has made a way of egress, and, indeed, this accident is in the direction of safety, inasmuch as if the matter can find no outward way of escape it will burrow inwardly and lead to disease of the brain or its membranes. Abscess in the cerebrum is caused occasionally by disease originating in the mastoid cells, when the matter has been unable from some cause to find outlet. Earache, discharge from the ears, and deafness, are symptoms always requiring attention, lest the brain should become affected; sudden cessation of the discharge is often the immediate prodroma of such an occurrence. Should such occur warm fomentations and perhaps a leech or two will aid in reducing the inflammatory action. When the disease is strumous and chronic the treatment has already been given under the head of scrofulosis. Acute symptoms, such as convulsions, vomiting, delirium, or strabismus, indicate only too surely that actual cerebral mischief has taken place; the case is then very serious, but something may be hoped from counter-irritation behind the mastoid process. A few leeches over the side of the head if there be much pain and tenderness to the touch, warm applications, especially steam, poppy fomentations, light diet, and a darkened and silent room, for great excitability and intolerance of light are not uncommon features in such

cases. The bowels will of course require attention, and opiates are indicated if the pain and restlessness are very great.

17. Cephalhæmatoma

is a sanguineous tumour developed under the scalp, under the pericranium,—or within the skull; of these the subcranial is the rarest and most intractable.

These tumours may vary in size from a walnut to an apple. They are often the result of pressure from protracted labour. The swelling is circumscribed, soft, and fluctuating, and generally disappears by absorption in a few days. It can, therefore, rarely be necessary to lay it open unless inflammation and suppuration occur, when it should be treated on general principles.

There can be no harm in the use of a lotion of hydrochlorate of ammonia as recommended by some writers; others prefer spirit lotion.

Setons have been successfully used in a few cases.

18. Diseases of the Spinal Cord.

Irritation and congestion are not altogether uncommon. Some years ago I saw a child whose gait had become tottering and unsteady, and who walked with shuffling, dragging movement of the legs, who showed, moreover, great listlessness and unwillingness to walk, but who was fat, and ate and drank heartily. This child was addicted to the practice of masturbation to a frightful extent. Blistering the penis broke the habit considerably

and by unremitting vigilance the child was at length cured of it, and when I again saw him, two years subsequently, he was quite well and able to walk and run properly.

Inflammation of the cord is rare in this country; it has, however, prevailed epidemically, especially in Ireland and France. Boys of about twelve years of age were commonly attacked by it. The invasion of the disease was sudden, with abdominal pain, purging, and collapse, followed in a few hours by burning heat, stiffness of the muscles, retraction of the head, convulsions, coma, and death. The spinal arachnoid was the part chiefly affected, but the brain membranes were also involved. There was generally considerable effusion of lymph between the membranes of the cord, the cord substance itself being healthy or a little congested.

The ordinary sporadic cases of inflammation of the membranes of the cord are rare, and a very brief description will suffice. The bowels are constipated; often obstinately so. There is slight headache and vomiting, often shooting pains about the limbs and back. Then all degrees of loss of motor power may be present from a mere dragging or weakness of the legs up to complete paralysis; stiffness and spasm are regarded as especially indicating spinal meningitis, and paralysis as pointing to inflammation of the cord substance.

Usually tenderness is felt on making pressure at some portion of the spinal cord. There is often freedom from delirium and intolerance of light; but the vomiting and pains in the back persist; sometimes severe convulsions come on, the head retracted, and a condition of opisthotonos produced. The vomiting is then more urgent, the pulse becomes very rapid, and convulsions soon end the sufferings.

The treatment in these cases is cupping to the extent of three or four ounces of blood over the most painful part of the cord, and the administration of calomel in small doses so as to affect the system. Blisters, setons, and issues will prove secondarily useful, and assist in controlling the inflammation.

Chronic inflammation of the substance of the cord is generally due to caries of some of the vertebræ, or to mechanical injury from blows, strains, &c., without absolute disease in the bones. Strumous children are the usual subjects of it. In either case paralysis is the result, but in caries this is due not only to the inflammatory action, but also to the spinal distortion and the pressure on the cord from displacement.

19. Trismus.

Infantile trismus, or tetanus neonatorum, or nine-day fits, is a disease hardly, if ever, seen in this country; it was once common, but has vanished before cleanliness and improved hygienic conditions. It is common still in the West Indies, Germany, Minorca, Ireland, &c.; it may come on within twelve hours after birth, or not for some days; it is rare after the week. The child is observed not to take the breast, it cries, and the mouth is found to be somewhat fixed; the infant is seized with violent irregular convulsions, with foaming at the mouth, thumbs riveted into the palms of the hands, the jaws locked, the face and even the whole body becomes livid, and the disease may be fatal in from eight to forty hours.

Post-mortem.—There is generally found an effusion of blood, fluid or coagulated, into the cellular tissue sur-

rounding the theca of the cord; the vessels of the spinal arachnoid are usually congested, and sometimes there is an effusion of blood or serum into its cavity. Different writers have attributed trismus to a great variety of causes. Probably Dr. Joseph Clarke is right in attributing it to impure air, to neglect in keeping the infant clean and dry, and to the abuse of spirituous liquors on the part of the mother; and these views are confirmed by the variety of places widely apart as the poles where it occurs, under every variety of climate, under every different method of dressing and treating the umbilical cord, and in fact where the only conditions in common are improper diet, bad smells, and neglectful management. For instance, in the year 1782 one sixth of the children born in the Dublin Lying-in Hospital died within a fortnight of birth, and nineteen twentieths of their deaths were caused by trismus. But out of 16,654 infants born during Dr. Collins's mastership, only thirty-seven died of trismus since the improved ventilation and other hygienic conditions. While prophylaxis is thus successful, treatment is unfortunately quite the reverse, every description having been tried and found useless. Leeches, blistering, and hot baths, opium, dressing the cord with turpentine, Indian hemp, enemas of tobacco, calomel, musk, and ambergris, tincture of iodine and assafœtida; all have been tried, all have their advocates, and all seem to be useless in the majority of cases. Whether or not the umbilicus is ever the cause of the disease by taking on unhealthy ulceration is also a moot point. Dr. Colles maintains this to be the essential cause of trismus. Dr. Labatt and Dr. Breen entirely contradict this view. It is probable, however, that more than one factor may give rise to the disease, some conditions being more prevalent in one class of cases, and others in others. At least only in such a way can we reconcile the opposite

opinions and observations of conscientious and competent authorities.

20. Hydrorachis, or Spina bifida,

Is a congenital malformation, consisting of one or more tumours in the spinal column in its lumbar, dorsal, or cervical portions, which communicate with the spinal canal. These tumours vary considerably in size; they are sometimes semi-transparent, and the skin covering them may be natural in appearance or inflamed or bluish, almost livid. The disease is caused either by an arrest of development in some portion of the spinal canal, or by an excessive production of the cerebro-spinal fluid, which by pressure causes absorption of the bone and ultimately protrudes in the manner described. The commonest site is over the lower lumbar vertebræ. There is usually an absence of a greater or less portion of the lateral arches of the vertebræ, the spinous processes being divided or absent. It happens sometimes that the outer covering of the tumour is not skin, but dura mater, pia mater, and arachnoid only. Cases have been recorded in which the dura mater was absent, and the other membranes formed the only covering.

The fluid contained in the tumour is generally clear serum; it is sometimes, however, sanguinolent and even purulent. The quantity varies from one to seven pints. The spinal cord traversing the tumour is often unaltered; sometimes, however, it is lengthened, or flattened, or destroyed, into shreds or filaments.

Pressure on the tumour causes general uneasiness, and, if persisted in, convulsions and coma. The symptoms produced by this disease are want of power in the lower

extremities, often the limbs are atrophied and paralysed. Sometimes no abnormal conditions exist. These differences doubtless depend on the amount of pressure exerted on the cord. The tumour sometimes bursts before birth, without necessarily killing the child. More often, however, inflammation and ulceration take place and the tumour bursts, ending rapidly in convulsions and death. The bursting of the tumour generally takes place before the third year is attained.

Treatment is far from being satisfactory; in fact, many writers have come to the conclusion that the more the tumour is let alone the better. Various operations have, however, been proposed and practised; probably the best is puncturing with a fine trocar well at the side of the tumour to avoid the spinal cord, and afterwards maintaining equable pressure to promote absorption. Iodine injections have been also employed, and in one or two cases with success. Pressure alone has also been tried. In any case the general health should be attended to; the child must be strengthened as much as possible, and instances have occurred in which persons have grown up and attained considerable ages without any accident occurring to the tumour.

CHAP. VI.—DISEASES OF THE AIR-PASSAGES AND THORACIC ORGANS.

1. Coryza

Is an affection singularly common and of great importance during the first two months of existence. The vulgar name for it is the snuffles. It is ushered in with slight feverishness and a snuffling sound in breathing, and sneezing. At first there is but little discharge from the nostrils, afterwards this becomes abundant, sometimes acrid and even muco-purulent. It then dries and forms a crust about the nostril which greatly impedes the child's respiration, and causes it to breathe through the mouth. If the nasal breathing is completely obstructed the child will be unable to suck, because were it to do so, it must be suffocated. It will then require to be fed with the spoon. The possibility of snuffles consequent upon syphilitic disease is always to be borne in mind (see Syphilis). Occasionally a common cold is but the prelude to some severe attack of disease, *e. g.*, measles, &c. Cold in young infants is often caught by imprudent washing, undue exposure, &c. The treatment will comprise mild diaphoretics, aperients, warmth, and the removal of the crusts. The formation of crusts is best prevented by smearing the nostrils with a little weak bismuth ointment and using great cleanliness. Chronic coryza is almost always syphilitic.

2. Diphtheria

Is an acute, specific, and contagious disease, the essential characteristic of which is a spreading inflammation of the mucous membrane of the pharynx attended by exudation of lymph, and the child may die of the general or of the local disease. The primary seat of the disease may be the mucous membrane of the tonsils, palate, uvula, or nares. At first there appears redness, then white or grey patches are seen from layers of lymph. Sometimes two or three centres of lymph may be seen from the very first. The disease may spread to the posterior nares, anterior nares, epiglottis, larynx, trachea, bronchi, œsophagus, and stomach; so wounds and excoriations, and even the vagina and anus, may be covered with patches of false membrane. If the lymph is removed the surface beneath is seen to be red and bleeding, and in a few hours becomes covered with a fresh layer of lymph. This effused lymph may be granular and creamy, or very tough, like washed-leather; it is elastic, and sometimes as much as one eighth of an inch in thickness. The lymph consists of pus and granular corpuscles, and also of fibres.

Diphtheria varies much in its general characters. Sometimes the general and local symptoms are trifling, attended with little fever, little soreness of the throat, slight dysphagia, and no nervous symptoms, nor yet any albumen in the urine. Sometimes again the disease is terribly severe, the mucous membrane may be vivid red or livid, the dysphagia extreme, the fever great, but of low adynamic type, intense muscular weakness, the urine loaded with lithates, albumen, and granular casts. Again, the general symptoms may be slight, the laryngeal symptoms severe, insidious, and even fatal in a few hours. In

children who have had scarlatina, there is often noticed a sanious discharge from the nose, some tenderness and swelling at the angle of the jaw, and on examination diphtheritic exudation is found on the fauces. Death may occur from apnœa or asthenia, or by pyæmia. The mind is usually clear; vomiting and delirium if long continued are very fatal symptoms. So also is great scantiness or actual suppression of urine.

Sequelæ. — Great depression of the pulse; nervous debility; paralysis, especially about the soft palate and the pharynx, but occurring also elsewhere, and affecting sometimes the limbs.

These paralytic symptoms are not apparently predisposed to by the gravity of the preceding attack, but, like the dropsy following scarlet fever, may come on after cases so slight as scarcely to attract attention. Nor is the presence, absence, or quantity of albumen in the urine a better guide. The paralytic symptoms may come on shortly, or several weeks after, the cessation of the primary disease.

The following are the chief diagnostic points between diphtheria and scarlatina:

1. An attack of either disease confers no immunity from an attack of the other.

2. The peculiar rash of scarlatina is absent in diphtheria, though there may be in the latter an erythematous blush, evanescent and occurring in patches, but this is by no means a constant symptom.

3. The sequelæ are totally different in the two diseases.

Treatment.—The most important indication is to support the strength in every way, the disease being of perhaps more lowering character than any other with which we are acquainted; and the other indication is to control, and if possible prevent, the formation and spread of the

false membrane. Three remedies have been especially commended in the general treatment of this disease—Chlorate of Potash, Hydrochloric acid, and Tincture of Steel. Probably a combination such as

℞ Potassæ Chloratis, gr. x;
Tinct. Ferri Perchlor., ♏v;
Syrupus Aurantii, ʒss;
Aquæ, ʒij. Ft. Mist.

is the best. At the same time, beef tea, soups, wine, and every form of light nutriment may be given with advantage. The quantity of wine and brandy absolutely needed is sometimes very large, and, indeed, can hardly be overdone. When dysphagia renders swallowing impossible, enemata of port wine and beef tea must be resorted to. In obstinate vomiting, which is so dangerous a symptom, ice may be sucked, while the strength is supported by the rectum, and if the sickness does not pass away, the hypodermic injection of a little morphia over the stomach may be tried. When albuminuria is a primary symptom the Tincture of Steel may be omitted, and Iodide of Potassium substituted; and the child should, when practicable, drink freely of barley-water and other diluents. Locally a solution of Argent. Nit. (℈j.—ʒss.), or perhaps better of Chlorinated soda, applied by a camel-hair brush (Liq. Sodæ Chlorinat. ʒss.—Aq. ʒvj.), or this solution may be syringed into the throat, as of course young children cannot gargle; or the Tinct. Ferri Perchloridi may be applied locally, or the weak hydrochloric or nitric acids, diluted with equal portions of glycerine. Ice is always valuable and may be freely sucked. The inhalation of iodine is also advocated. All attempts at bleeding, blistering, or indeed any form of counter-irritation, are worse than useless. The disease being contagious, the secretions and expectorations should be received in vessels containing

chloride of lime; cleanliness should be scrupulously observed, and those in attendance should gargle their throats with a solution of chlorinated soda, or Condy's fluid, or Carbolic acid. Carbolic acid and glycerine is an application to the exudation of which I have no experience, but which would probably be valuable. Strychnine is the tonic from the use of which much may be hoped in the prevention and cure of the subsequent paralysis, and galvanism is the most useful local agency in these cases. Change of air is also desirable in restoring the enfeebled heart and nerves.

3. Croup (Cynanche Trachealis).

This disease is very alarming in its symptoms, contagious, and very fatal; it therefore deserves a careful consideration. It is most common during the second year of life, rare after the fifth. It is more common in boys than in girls. It is rare for genuine croup to recur in the same individual; the attacks of so-called croup from which some children are stated to suffer year after year are not real croup at all. When it does so recur, the second attack is usually milder than the first. The invasion of the disease is sometimes sudden, more often it is preceded by a cold—some feverishness, thirst, hoarseness, and running at the nose; slight sore throat is also complained of, or if the child be too young to speak, it puts its hand roughly to its throat or rubs it. This, the so-called first stage, may last from twenty-four to thirty-six hours, when it passes into the second stage, which is especially marked by the cough becoming "brassy," or "clangey." The act of inspiration being prolonged, the breathing is hard and attended with a peculiar sound, which, like the cough, is characteristic of

the disease. This sound is crowing or barking in character, and once heard will be remembered. The paroxysms of cough and dyspnœa get always worse (as is the case with most of the severe symptoms in all diseases of children) towards night; in the morning there is remission which is natural, and which must not deceive the physician as to the real state of the child. By this time the fever has increased, the thirst is greater, the tongue is furred; the child is restless, and, in fact, as the disease proceeds, is constantly fighting for breath. At first, between the paroxysms, he would drop into an unquiet sleep from sheer exhaustion; but later on there is no time for this. The fits are almost incessant, the face is most anxious, the eyes glassy, the lips livid, and clammy perspirations begin to break out. The child throws back its head to increase the size and capacity of the trachea to receive air. The child, if able to speak, says little from the pain of speaking, but swallowing is usually well performed. The case may now go on from bad to worse, suffocation becoming more and more imminent, until the patient sinks in coma, or convulsions come on and end the struggle.

More often, however, the end is not just yet; the child seems better, perhaps it has been relieved by treatment. Many of the worst symptoms may seem less urgent; some expectoration may take place, and the child appear altogether better. But in a few hours the former troubles may return, like armed men who have been but resting themselves for a final effort, which then ends rapidly in death; or the child may pass by slower and more imperceptible stages into a comatose state from which his nurse and attendants find suddenly that it is impossible to rouse him.

The auscultatory signs in the second and third stages are chiefly a weak respiratory murmur in the chest, which

nevertheless sounds well on percussion. Moreover, there is a concave state of the intercostal spaces at each inspiration. Sometimes from the first there is a diffuse sonorous *râle* indicative of bronchitis. Should pneumonia set in, there will be the small crepitation belonging to it, with distinct dulness on percussion over the inflamed portion of lung. This pneumonia is usually double. These sounds will be, of course, masked to some degree by the croupy noise in the trachea.

The duration of an attack of croup varies with the strength of the patient, and the intensity of the inflammation; the average is from two to five days. Sometimes the disease terminates in fourteen hours from the commencement. Dr. Cheyne says that it usually proves fatal on the third, fourth, or fifth day.

Post-mortem.—The mucous membrane of the larynx and trachea is usually inflamed, red, vascular, thickened, and peels off easily; the characteristic materies morbi is the false membrane which lines the air passages. It is a layer of lymph of variable thickness, white, yellow, or ash-coloured, lining the larynx and trachea, and extending down even into the bronchi. This false membrane may be in patches or in cylindrical pieces, or present perfect moulds of the tubes. It is thinner in the larynx than in the trachea, and thinnest in the bronchial tubes. Its free surface is smooth and often glazed with mucopuriform matter; the other surface is more or less adherent to the mucous membrane. The bronchi show traces of inflammation throughout their extent. Lobar and lobular pneumonia not unfrequently exist, and vesicular emphysema is generally present at some portion of the lung. The right side of the heart is generally gorged with dark blood. Congestion more or less may exist in the brain, liver, spleen, and kidneys. Enlarged lymphatic

glands are generally found beneath the thyroid, on either side of the trachea. Occasionally the right auricle is filled with a fibrinous concretion formed during life, and marked with the currents of blood passing over it; in such cases death has taken place from the heart.

Prognosis.—Generally unfavorable, though even severe cases may and do recover; it is probable that half the children attacked die. Favorable symptoms are early and free expectoration, the breathing remaining free, the voice being little changed or recovering its natural tones, the pyrexia moderate. But if, on the other hand, there is great difficulty in breathing, high fever, much clanging noise, and no expectoration, the case will probably die.

Diagnosis from laryngismus stridulus, by the absence of fever and the freedom of breathing in the interval of the attacks. Children are apt to suffer from a form of catarrh, with so-called croupy cough, and these attacks are frequently spoken of as croup; but they may be readily distinguished by the absence of fever, the tranquil respiration, and the ready subsidence of the symptoms before simple treatment.

From laryngitis by the fact that that disease is far more common in adults, and causes a fixed pain in the larynx, and there is no exudation of false membrane.

Pathology.—The inflammation of croup has its seat in the mucous membrane, the vessels of which tissue secrete the fibro-albuminoid material which forms the false membrane. This croupal exudation obstructs the breathing, which is also hindered by spasmodic contraction of the larynx. A very small amount of exudation added to the swelling and spasm of the larynx may prove fatal by suffocation, though death may also occur from exhaustion, or a clot in the heart, or from the secondary affections—bronchitis and pneumonia.

Treatment.—This should be antiphlogistic at the outset of the disease. The child must be placed in bed in a room well warmed; a warm bath will be useful at the outset, after which emetics must be given; the antimonial wine is the best; it may or may not be combined with ipecacuanha. The air of the room is to be kept moist as well as warm; in a severe case a blanket tent round the bed will be needed, and the spout of a vessel in which water is boiling should send its steam into the enclosure. In milder cases it will suffice to have a kettle boiling in the room, with some contrivance to prevent its steam going up the chimney. It is a good plan to wring out sponges in hot water and to apply them near the child's throat. In severe idiopathic croup general bleeding is usually recommended. I confess to having a great aversion to the practice, and prefer applying leeches to the seat of mischief. Even the strongest advocates of general bleeding naïvely admit that unless followed up by other treatment its result will be fruitless. It is, therefore, better, as far as my experience goes, to deplete locally, and to give antimonial wine in emetic doses. Calomel will also be required, and should be repeated in small doses till the bowels become disturbed, when it may be discontinued. Mercurial inunction is another valuable remedial measure in checking the formation of false membranes. A piece about the size of a nut of Unguent. Hydrarg. should be rubbed in every six hours over the abdomen; external warmth to the neck is very valuable; hot fomentations or a piece of spongio-piline wrung out of hot water and covered with oil silk to prevent evaporation. Counter-irritation by blistering is seldom called for, even if lung complications arise. The tincture of iodine is a useful pigment over the throat during convalescence. Throughout the disease it will be necessary carefully to support the strength with

judicious diet; if there be much difficulty in getting down the food, or if spasmodic fits be excited the food must be given per rectum.

It will be often advisable to administer a stimulant expectorant, especially when bronchitis supervenes late in the course of the disease. Such would be a combination of Ammon. Sesquicarb. and Senega, or the Ammoniated Tincture of Valerian and Ipecacuanha. The occurrences of periods of improvement must not lead to too early a withdrawal of the antiphlogistic remedies. Such improvements are often deceptive, and require the physician to be doubly on the alert. So during convalescence care will be needed and exposure to cold should be rigorously avoided.

Lastly, the question of tracheotomy arises, and may be reduced to a few simple propositions.

1. It is not a curative measure, but a means adopted to prevent imminent suffocation.

2. It removes the mechanical obstacle to the entrance of air into the lungs, and diminishes the spasm of the glottis, which also interferes with respiration.

3. The operation itself is not a serious one, and may be performed with the loss of about two drachms of blood.

4. The operation possibly accelerates or causes intercurrent bronchitis; this, therefore, should be carefully guarded against.

5. The operation should be undertaken early in the course of the disease, as soon as ordinary treatment has failed and suffocation is imminent; but ordinary treatment is to be persevered with after tracheotomy has been performed.

6. Cases in which the operation is performed should be well selected; chest complications in particular should be ascertained, and if of serious nature the operation should not be performed.

4. Tracheotomy.

The following are a few important points about this operation :—Chloroform may be used with safety when required, which is chiefly when struggling is going on, and when the dyspnœa is recent and spasmodic, and the child vigorous. Hæmorrhage is to be avoided by operating with deliberation; feeling for and avoiding large vessels. The operation through the crico-thyroid membrane (laryngotomy) is easier, and in some cases preferable, otherwise it is unsatisfactory, because

1. The opening is too small to admit of breathing being well performed.

2. The integrity of the larynx and vocal apparatus is destroyed.

3. The tube rests against the mucous membrane, which is highly sensitive, and gives rise to irritation.

4. This irritation may lead to inflammation and ulceration within the larynx, and even cause necrosis of the cartilages.

It should be remembered in the tracheal operation that the third and fourth rings of the trachea are covered by the thyroid isthmus, which may, however, be cut with impunity, but is better avoided.

Instruments required are a canula,* a small sharp scalpel, a blunt scalpel, two pairs of dissecting forceps, a pair of artery forceps, a common tenaculum, two blunt hooks, and a double blunt hook. Mr. Durham has recently recom-

* These are of all sizes:

No. 1.—$\frac{8}{40}$th of an inch for a child 1 to 4 years.
2.—$\frac{11}{40}$th „ „ 5 to 8 „
3.—$\frac{12}{40}$th „ „ 9 to 12 „
4.—$\frac{14}{40}$th „ „ 14 to 16 „

mended a form of canula of which the curved portion is jointed like the tail of a lobster; and he lays particular stress on the value of a blunt exploring trocar on which to pass the canula.

In the operation itself the operator stands on the right of the pillow on which the child is. After chloroform has been given, pillows should be placed under the shoulders and lower part of the neck so as to throw the trachea well forward. A long outer incision is then to be made (the forefinger and thumb of the left hand steadying the trachea, and restraining the violent up and down movement which often seriously embarrasses the operator); this incision should be from immediately above the cricoid cartilage down towards the sternum, for one inch or one inch and a half. The sterno-hyoid muscles here lie side by side, and should be separated by assistants. The cellular tissue should be broken down with the blunt scalpel. The trachea is next to be searched for with the finger, and four rings of it exposed. The sharp hook holds the ring next above the one to be cut; this cut should be exactly in the middle line. When the trachea is opened there is a boisterous outrush of air and mucus. The tube should then be immediately inserted, a process which may be facilitated, says Mr. Heath, "by placing the handle of the scalpel at the upper end of the opening, and turning it at right angles with the trachea." To dress the wound, no sutures of any kind are required; a piece of lint soaked in oil and covered with oiled silk should be placed beneath the collar of the canula, and a piece of muslin should be fixed to act as a respirator. A blanket tent must be made over the bed—the air kept at 65° Fahr. day and night, and moistened. The tube must be removed and cleansed three times a day at least, sometimes every three or four hours. The earlier the tube can be taken out the better;

a cork should be put in to try the respiration, and withdrawn if difficulty of breathing is caused. This should be done daily, and left in longer and longer until the tube can evidently be safely removed.

5. Acute Laryngitis

Is a disease far commoner in adults than in children; still it does occur in children, and requires a brief notice. After rigors and some feverishness, as prodromata, the symptoms are hoarseness, varying from mere soreness up to burning pain referred to the larynx, a sense of constriction, and the child, too young to express itself, pulls at its throat, and gasps for breath; the voice, as the disease progresses, becomes a mere whisper, the child avoids speaking even if it can, as the effort is painful. The breathing is laboured, and there is also difficulty in swallowing. Cough when it occurs is spasmodic and violent. The type of fever, which at first runs high, causing hot skin, scanty urine, and quick pulse, soon turns into the asthenic type, from the deficient oxygenization of the blood. The disease ends in convulsions or coma; it may last from four to six days.

Post-mortem.—The mucous membrane is found inflamed and thickened, sometimes abraded, the follicles swelled, the epiglottis stiffened. Sometimes the disease assumes a still severer type, and the submucous tissue of the larynx is œdematous, and the glottis and epiglottis contain serum or pus.

The causes of laryngitis are, exposure to cold and wet, swallowing scalding fluids, extension of inflammation in erysipelas, scarlatina, smallpox, and measles.

Diagnosis from laryngismus stridulus, by the presence

of fever and the general symptoms. From croup, by the absence of the peculiar croupy noise and breathing, and by the absence of false membrane.

The prognosis is very unfavorable; the more imminent the suffocation the worse the prognosis; while decrease in dyspnœa, free expectoration, and less difficulty in swallowing are hopeful signs.

Treatment.—In this disease, as in croup, antiphlogistic measures to be of use must be resorted to early. Leeches should be freely applied to the throat, and calomel and James' powder administered every two hours. At the same time it is good practice to use the mercurial ointment, to get the system more rapidly under mercurial influence, and, if possible, prevent effusion. If, however, effusion take place, blisters and other counter-irritants will be of great service. This treatment refers, of course, to the acute idiopathic sthenic type of laryngitis. When the disease is secondary and the system already too low to admit of antiphlogistic measures, counter-irritation will still be of service over the site of the disease, and something may be hoped for from the use of iodide of potassium, the strength being supported by fair but not generous diet. But the best means of treatment in laryngitis, especially in those forms of œdema of the glottis produced by scalding water and swallowing corrosive fluids, is an early resort to tracheotomy. But if this measure is determined upon, it cannot too often be repeated that it should be performed *early* in the disease, before the system is worn out. The result of the operation is to give the diseased part rest, and to give it time to yield to moderate remedies, such as small doses of calomel and James's powder, which should be persevered in, in addition to the tracheotomy. It also prevents congestion and engorgement of the lungs. (For an account of the operation see Tracheotomy.) The

larynx is subject, but in children very rarely, to chronic disease, such as chronic inflammation, syphilitic thickening of the membranes lining the cartilages, and polypi, &c. These will require the laryngoscope for their recognition. Coins swallowed generally go into the right bronchus. Tracheotomy is the remedy.

6. Bronchitis, or Bronchial Catarrh,

Is inflammation of the mucous membrane of the bronchial tubes accompanied with increased secretion of mucus. Bronchitis may be acute or chronic, idiopathic or intercurrent.

Acute Bronchitis commences with rigors and feverishness, cough, and some pain and tightness in the throat; the cough, at first hard, after a day or two is looser, and in infants especially this materially increases dyspnœa.

The amount of dyspnœa varies; whether the bronchitis be limited to the large tubes (when it is trifling in amount), or if capillary in character, when it is often most urgent. The pulse is quick, the face is flushed, there is considerable anxiety and restlessness, the countenance may be livid from defective aëration in urgent cases. The disease is very liable to complication with pneumonia; but if it progress favorably, in a few days the fever subsides, the cough is better, and the child progresses to convalescence.

Physical signs.—Percussion is clear, except pneumonia be also present. Auscultation reveals râles, sonorous mucous, and sibilant; the moist sounds, of course, after the mucous secretion is poured out; large crepitation is heard most frequently at the posterior and inferior portions of the chest. Occasionally a plug of viscid mucus chokes up one of the smaller bronchi, inducing a condition called

pulmonary collapse; this accident is manifested by increased dyspnœa *without increased fever*, and the percussion note becomes dull instead of clear, with bronchial respiration. It is important to distinguish this condition from pneumonia, as its treatment is diametrically opposite. In capillary bronchitis, again, the percussion is clear, while on auscultation is heard subcrepitant râle, a moist sound between large and small crepitation in character; with it are often associated both sibilus and rhonchus. Its site is the posterior bases of the lungs, and as the disease advances, it is replaced by large crepitation.

Prognosis.—Bronchitis is dangerous in children at the breast, and under five years of age. Capillary bronchitis, broncho-pneumonia, and collapse of the lung are all very fatal.

Broncho-pneumonia.—Rare during the first year of life; is common after that period up to the fifth or sixth year, when its frequency diminishes. It is a sequela of capillary bronchitis, and also of pertussis, measles, and collapse of the lung. It is more acute in character when supervening on capillary bronchitis; less so when occurring as a sequela of pertussis. The onset—say in the course of capillary bronchitis—is marked by an accession of fever, increased frequency of pulse, and respiration; elevated temperature and orthopnœa. Cough is extremely painful, the face becomes livid, and restlessness and excitability, which are, in fact, a struggle for breath, are soon succeeded by indifference and apathy, passing into coma and death. The disease is very fatal; stimulants, emetics, and stimulating embrocations afford the only hope of success. The physical signs are those of slowly occurring consolidation, dulness, increasing in character, increase in vocal fremitus and fine crepitation, first heard at the bases and spreading over the chest.

Post-mortem.—The mucous membrane of the bronchi is unnaturally red; there is generally some thickening and softening of the mucous membrane; it is covered with thick, grumous, muco-purulent secretion. The tubes are further greatly dilated. There is generally some congestion of the lungs, and traces of lobular pneumonia are common. Portions of lung affected with pulmonary collapse sink in water, are heavy, solid, and deep purple colour; on inflation the parts are readily restored to their normal condition. The margins of the lobes are the parts most readily affected by this condition, which is purely mechanical in origin. Lobular pneumonia presents solid, reddish, scattered patches, forming elevations on the surface of the lung. Inflation has no effect on such patches. Frothy or purulent fluid exudes on pressure.

Treatment.—A large sinapism or turpentine stupe, followed by linseed-meal poultices or a piece of spongiopiline soaked in warm water, are good external applications. Internally in acute cases, calomel and James' powder may be given in small and repeated doses, and expectoration should be assisted by ipecacuanha, squill, citrate of potash, senega, and similar remedies; when the secretion becomes abundant, it should be removed from the loaded bronchi by emetics. Mucous and subcrepitant râles are in young children the best indications for emetics, according to Bouchut. Powdered ipecacuanha, mustard, or sulphate of zinc are best; Vin. Ipecac. repeatedly fails even in large doses. A warm bath towards evening is good practice, and the child often sleeps after it. If there be much restlessness, small doses of Dover's powder at bedtime are valuable. Should pulmonary collapse take place, stimulants, especially Ammon. Sesquicarb., will be needed, with wine and rubefacient liniments. The diet, at first low, must be improved as the disease progresses, care being taken to

eliminate all heavy and indigestible things from what is sanctioned. In chronic bronchitis, where there is less fever, and when the child is already exhausted by illness, no calomel or James' powder is to be thought of. The cough in these cases will require controlling by such drugs as bromide of potassium, belladonna, morphia, &c. Antispasmodics and anodynes, in fact, in place of expectorants and stimulants. Sinapisms are still useful, and so are stimulating embrocations. Inhalations, too, of steam or medicated vapours (especially that of krcosote) are serviceable. The diet must be light and nourishing, and calculated to restrain rather than promote secretion, and therefore especially limited and defined in the matter of fluids.

It is convenient here to mention another plan of treatment now much in vogue in America and on the Continent, and which is applicable not only to bronchitis, but to most, if not all, acute inflammations, viz. the treatment by the great vascular sedatives, aconite and veratrum viride.

This treatment, according to the evidence of those who have most largely employed it, is most suitable for children over three years of age, whose previous health has been good, and in whom the inflammation is acute and primary. It is a remark of Bouchut's that in the first stage of childhood the material lesions are less purely inflammatory than in the second stage, and the suppuration of the tissues is both less frequent and of a less laudable quality. It is accordingly found that these powerful antiphlogistics are of less service during the earliest years of life. Besides the age of the child, the period of the administration of these drugs is an important point; they should be given *as early as possible* in the course of the disease, in small and frequently repeated doses, until the activity of the inflammation begins to

subside, the pulse lowers, the temperature falls, and moisture appears upon the skin. Beyond this point it is unwise to push the remedy, as the depression so induced may be very considerable. Dr. Lewis Smith, of New York, recommends the following prescription for a child five years old in the first stage of acute bronchitis:

℞ Tinct. Verat. Virid., ♏xij;
Syrupi Scillæ Comp., ʒij;
Syrupi Bals. Tolutan., ʒxiv.

Misce.—One teaspoonful every two to four hours; the medicine to be omitted, or given at a longer interval, if the frequency of the pulse is reduced.

I have no experience at present of green hellebore, but I am satisfied that aconite is a most valuable agent when similarly employed. The dose of the tincture of the Ph. B. may be half a drop, repeated every hour until the effect described is manifested. This dose is suitable for a child five years old. When the inflammatory symptoms have abated, the ordinary treatment of the special inflammation and its sequelæ is to be resumed; for example, in bronchitis, expectorant mixtures; in tonsillitis, astringent gargles, and so forth. In fact, aconite and hellebore thus employed may be regarded as in a measure replacing the depletions and blisterings of days gone by.

7. Pertussis.—Hooping-Cough

Is a specific contagious form of bronchial irritation and reflex spasm of the air-tubes, but especially of the glottis. The usual preliminary symptoms of hooping-cough are: coryza, slight cough, poorliness, pyrexia — sometimes pretty sharp—great nervous excitability, even delirium at night; and these prodromata may last from two to

ten days, or may be entirely absent. The cough soon becomes spasmodic, each fit abrupt, and the expiratory efforts may go on to the verge of asphyxia, the veins of the head and neck be swollen, the eyes starting, the nose bleeding, and occasionally the contents of the bladder and rectum are involuntarily discharged. When the spasm relaxes the air rushes in with a full inspiration, which gives rise to the sound called the whoop. The paroxysms end in expectoration of ropy gelatinous phlegm like albumen, or often in vomiting, when it is common for the child to ask for something to eat directly, or sometimes in pure exhaustion. In the intervals of the paroxysms, the child plays about and appears well. The fits vary in frequency, from one or two in the twenty-four hours, to one or two in the course of an hour, and are brought on either without apparent cause, or by reflex mechanism as in anger, a draught of cold air, the act of swallowing, and such like.

The prognosis is more grave the more paroxysms occur by night. If the case tends to recovery, the cough becomes less spasmodic, the expectoration less glairy, and the disease gradually disappears. It is rare for an attack of hooping-cough to recur in the same individual. It is eminently contagious.

Physical signs of the uncomplicated disease are not very abundant, there is increased dulness on percussion at both bases, and auscultation reveals sonorous and sibilant rhonchi.

Post-mortem.—The disease presents no genuine anatomical character, but there is often found lobular collapse, *i. e.* the lung is depressed in certain points, in patches from the size of a fourpenny piece to a florin. Section tough and airless, it sinks in water, the grumous fluid of hepatization is wanting, and the lobules may be inflated.

Emphysema is not uncommon. The average duration is about twelve weeks. The disease is generally most severe at the end of the fourth and fifth week. Complications: bronchitis, pneumonia, croup, convulsions, the exanthemata, especially measles, tubercular meningitis, vomiting, diarrhœa. Death occurs from asphyxia, extreme exhaustion, cerebral congestion, extreme lobular collapse, or capillary bronchitis, or one or other of the complications.

Prognosis—The most danger is in the youngest children, it is more serious when epidemic, and when it seizes upon an unhealthy child.

Probably there is no disease for which so many specifics have been vaunted with such unsatisfactory results. For the early stage (called sometimes the catarrhal stage, and the first stage) the child should by all means be kept to the house; the day and night nursery should be of equable warmth, and well ventilated; the child's diet should be light, and if it has been taking stimulants they should be discontinued. For medicine, an ordinary expectorant mixture will suffice. Such means mitigate decidedly the severity of the second or pronounced stage of the disease. For this I am accustomed to rely on the administration of bromide of potassium, or bromide of ammonium, and in cases of especially spasmodic character, I combine one of these with extract of belladonna, Commencing with a grain of either bromide every four hours, it is gradually increased to four or five grains, as the severity of the attack may require. One twelfth of a grain of extract of belladonna is sufficient at first for a child under twelve months, and it may also be increased cautiously to $\frac{1}{2}$ grain and even grain doses with great advantage. Acidum Hydrocyan. dil., Succus Conii, alum, nitric acid, valerian, morphia, have all their advocates; and formulæ

for the administration of most of them will be found. In my own pratice I seldom deviate from the bromides and belladonna, because I am satisfied with the results obtained. Counter-irritation, or, as some would have us call it, counter-stimulation, is useful in many cases. Roche's embrocation (olive oil one part, and half a part of oil of cloves and oil of amber) is a popular remedy, and an occasional sinapism is of undoubted use. Blisters are an unnecessary method of torture. If the cough be exceedingly severe at night (a grave prognostic) a small quantity of Dover's powder at bedtime is useful. For the latter stages of the disease, when the child is much worn down and harassed by the long struggle, change of air often works like a charm. Cod-liver oil at bedtime is then of service, particularly in delicate children. Complications must be treated as they arise. Pulmonary collapse (known instantly by the sudden general adynamia, urgent dyspnœa, clammy skin, and anxious face, with dulness on percussion) requires wine and carbonate of ammonia, ether or other diffusible stimulants.

Trousseau has pointed out that an acute disease coming on during hooping-cough diminishes its intensity and causes its disappearance either for a short time or in a definite manner. Dr. Ringer speaks very highly of the use of lobelia inflata in hooping-cough, particularly in uncomplicated cases. He gives ten drops of the tincture every hour for a child two years old, and states that the unpleasant effects of lobelia in the adult are not produced in the child. Dr. Ringer further states that the cough is rendered less paroxysmal, and the disease therefore milder and less dangerous. He is more uncertain as to whether its duration is shortened.

8. Laryngismus Stridulus—Child Crowing.

The invasion of this disease is generally sudden—without warning, and often comes on during sleep. Sometimes certain prodromata may be observed, as the twitching of the thumb into the palm, a peculiar movement of the muscles of the mouth called "sardonic smile," and slight general facial twitches. Then comes the paroxysm, in which the head is thrown back, the nostrils and mouth are dilated, the veins of the head and neck generally distended, turgid, and swollen; the eyes staring, and convulsive movements occur of the muscles of inspiration; this may last for three quarters of a minute, during which asphyxia seems imminent, when suddenly the closed glottis relaxes and inspiration takes place with a loud crowing sound, which gives its name to the disease. The attack may end in evidence of cerebral congestion which may be more or less permanent; or it may end in a violent fit of crying, or even sometimes in convulsions, or death may occur from asphyxia or convulsions. The seizures are generally at long intervals, but may be as often as five or six in the day.

This remarkable spasm is undoubtedly of reflex origin, and it may arise from irritation of all kinds; as, for example, that of dentition, gastric and intestinal disorders, fright, passion, cold draught of air, the act of deglutition, &c.

Age.—It may occur up to three years, but is rare after twelve months; six to nine months is the common age.

Diagnosis.—From croup. In laryngismus there is no cough, fever, or sign of inflammation, the attack is sudden, the recovery is sudden and perfect; there is no false

membrane; croup seldom recurs, while laryngismus often does so.

From Acute Laryngitis.—Laryngitis is rare in infants, is gradual in attack, steady in symptoms, and causes fever and quickened respiration.

Treatment.—The great indication is to remove the cause, as to lance the gums when it is dental; to clear the bowels when it is gastric or intestinal. If prodromata occur the child should be gently aroused and its feet put into warm water, and cold applied to the head. In the actual fit, put the child into a warm bath, and pour a cold dash over the head and shoulders, slap the back, and tickle the fauces to cause vomiting. In the interval, tonics, especially nervine tonics; cold salt-water baths, regulated diet, and warm clothing. Bromide of potassium undoubtedly checks the frequency of the attacks. Tincture of lobelia and cannabis Indica have also been employed in this disease with considerable advantage.

9. Pneumonia

May be primary or secondary in character. When idiopathic, the symptoms first observed are usually restlessness and slight feverishness, which increase in severity towards night, then follow cough, rapid breathing, and great heat of skin, often vomiting, loss of appetite, thirst, and a tongue very dry, red at the tip and edges, and white furred in the middle. Headache and constipation are common. The hurried breathing prevents the young infant from sucking properly; it takes the nipple for a few minutes, sucking greedily, and then drops it and gasps for breath. It keeps its mouth open to obtain more air, and hence the remarkable dryness of the tongue.

Sometimes the access of pneumonia is more sudden; the child awakes in the night with a burning skin, a bounding pulse, a flushed face, and a hacking cough. This form is not generally noticed in children at the breast, but in those a few years older; and when pneumonia so arises it is not unfrequently complicated with pleurisy. This stage of pneumonia, which is called that of engorgement, then passes into the second stage, that of hepatization. The cough now ceases to be short and hacking, and becomes urgent and painful, the breathing is yet more rapid, and the peculiar working of the nostrils which is presented is an exceedingly characteristic feature of the disease; the skin is moreover very hot (the average temperature being 104° F.) and dry, although the limbs may be cool, while the body is burning, the face looks puffy, and there is a blueness round the mouth, and urgent thirst. Should the disease pass on unchecked into the third stage (that of purulent infiltration) there will be evidences of exhaustion, irregular respiration, cessation of the cough; the face looks sunken, clammy sweats break out, though the skin keeps hot often to the last. The pulse becomes so rapid and small that it is difficult or impossible to count it; great jactitation, increased lividity, and either life gradually fails, or convulsions followed by coma put an end to the scene. On the other hand, a fall in temperature on the seventh, ninth, or eleventh day is a favorable sign.

The physical signs of pneumonia in the child are, dulness on percussion, especially in the infra-scapular region of the affected side. Dr. West calls attention to a feeling of greater solidity below than above the scapula, and which he says may be perceived before the ear can detect actual dulness on percussion. True pneumonic crepitation is to be heard under the influence of a deep

inspiration, but it is not as readily discoverable as in the adult. But subcrepitant râle (a moist sound which is larger than the small crepitation of pneumonia, and smaller than the large crepitation of simple bronchitis) is heard often associated with bronchial breathing. If the pneumonia be single (*i. e.* confined to one lung) there will be loud puerile respiration on the sound side. Should resolution now take place, the bronchial breathing will disappear, the subcrepitant râle become fainter, and be gradually replaced by vesicular murmur. Should the disease pass into the third stage, the bronchial breathing will be found quite to mask the subcrepitant râle, while, if suppuration of the lung occur, large gurgling crepitation may be heard. If the pneumonia be secondary to bronchitis, then we find that from the first there is more dyspnœa, more lividity, more early distress, the cough is more paroxysmal in character, and the respiration becomes irregular sooner than in the idiopathic disease. Subcrepitant râle is heard very extensively over both lungs; fine crepitation is unusual; the disease runs a quicker course, is more severe altogether, and generally more fatal.

Pneumonia in children is occasionally an insidious disease, its existence is apt to be unsuspected and overlooked. Such is the pneumonia of measles, which affects especially the apex of the inferior lobe, and should be watched and listened for at that spot. Such also is the pneumonia of teething, a disease which being chronic and accompanied with general wasting, but tumid abdomen, and with little cough at first, is often mistaken for phthisis, or mesenteric disease.

The diagnosis of pneumonia is often a matter of some difficulty from the prevalence of cerebral symptoms, and the absence or comparative slightness of pain and cough.

From bronchitis it is to be diagnosed by the more pungent heat of the skin—the comparative freedom of the breathing—by the dulness on percussion over the solidified portions of lung, and in the increased vocal fremitus when that sign can be obtained.

From pleurisy. In this disease the vocal fremitus is diminished, and the area of the dulness on percussion often varies with the position of the child; this is never so in pneumonia. Intercostal bulging and displacement of the thoracic and abdominal viscera, together with the diffused bronchial respiration of pleurisy, will aid the diagnosis.

From broncho-pneumonia, the secondary character, the fact of both lungs being involved, and the fact pointed out by Ziemssen that the whole of the lower lobes are not usually implicated, and that, therefore, dulness is generally confined to the posterior dorsal region, and does not extend so far forward as in lobar pneumonia.

From tubercular meningitis. The pulse is often a valuable guide, being slower in the brain affection than natural, and much quicker in the lung disease. So also the temperature of pneumonia is higher than that of meningitis, and the physical signs will complete the distinction.

From acute tuberculization. The previous history, the more frequent remissions in temperature, the more chronic course, and the absence of such marked working of the nostrils as characterises genuine pneumonia, will be the main points; but from the coexistence of the conditions diagnosis may be impossible.

Treatment.—The treatment of a disease like pneumonia, which has been made a very battle-ground between heroics and expectants, is necessarily a matter of some nicety to discuss. Probably, however, a little common sense may in this, as in so many other hotly-debated questions, assist

towards a solution of the problem. It should first be remembered (as indeed all admit) that there are pneumonias and pneumonias, differing as widely in their symptoms, import, and gravity, as diseases bearing the same name can possibly differ; from sthenic primary pneumonia to asthenic secondary pneumonia the range is wide indeed, and the treatment will of necessity vary in proportion. It is not often in these days we are called upon to treat the acute pneumonia which our forefathers bled and blistered doubtless with advantage; but undoubtedly when we are, the application of a dozen leeches over the chest, followed by a soft warm poultice of bread and linseed meal, is attended with wonderful relief and with the best after consequences. In cases not so acute but still severe, I am accustomed to rely on a powder of calomel and James' powder guarded with a little Dover's powder every four to six hours. Sometimes James' powder, nitre, and sugar may be substituted with advantage; and again occasionally calomel and Dover's powder, the doses varying, of course, with the age of the child. I am no advocate of blisters for children, and am quite certain that far greater relief is obtained with infinitely less suffering and subsequent mischief from the use of a few leeches. When the case is clearly asthenic in character, neither calomel nor antimony are of course admissible. Such cases are often benefited by stimulant embrocations and occasional sinapisms. In very delicate children it is a good plan to envelope the whole chest in cotton wool, and stimulant expectorants are in such cases of the utmost service. So also the diet will vary from the plainest and blandest of food in acute cases, to the most nourishing (yet always light) diet which can be given. In an ordinary moderately acute case, then, of pneumonia occurring say in a child of six years old, if seen at the outset, half a dozen leeches

should be applied over the chest; the bleeding need not be encouraged further than by the application of a large breastplate of bread poultice to be often changed. The following powder may be given:

℞ Calomelanos, gr. ss;
P. Jacobi Ver., gr. j;
Ft. pulvis, quarta quaque horâ.

Si necesse sit—P. Ipecac. co., gr. ½.

Milk, gruel, barley water, and weak beef tea should be the nutriments hitherto. As the pulse lowers and the disease passes into the later stages, an expectorant mixture, with or without Ammon. Sesquicarb., may be given; the diet may be rendered more nutritious by allowing light pudding, stronger beef tea, and yelk of egg beaten up in wine or milk as required by the general state. All exposure to chill to be rigorously avoided, the bowels to be kept in order, and during convalescence the sitting-room and bedroom should be of one temperature, and flannel should be worn next the skin. Veratrum viride has been recently used by American physicians in pneumonia with apparently excellent results (see Veratrum in the Formulary).

10. Atelectasis Pulmonum

occurs in infants *congenitally;* the respiration of such infants is feeble, and even intermitting; they wail, but do not cry; they show difficulty in sucking; they are cold and livid, with weak pulse. The disease is simply a portion of lung uninflated; oftenest it is the inferior and posterior portions of the right lung that are so affected. The lung itself is dark red in colour, without crepitation,

exuding no bubbles, but sanguineous serum; it sinks in water. The cause is defective nerve energy from pressure. The treatment is tappings and frictions before the cord is cut to ensure thorough expansion of the lungs. If, however, the disease be extensive, it often ends fatally. The *acquired* form of the disease is met with oftenest in children about two years old; it is characterised by a hacking cough, dyspnœa, palpitation, epistaxis, melæna, and during inspiration the ribs are drawn inwards and sternum forwards; percussion is dull over the diseased parts. Atelectasis is regarded by many writers as being identical with carnification seen in lungs affected by pneumonia; others consider that it is merely a fœtal condition of the lung remaining for a while undiscovered, and that therefore the disease is never truly acquired. The treatment of such cases demands careful attention to hygiene, especially to ventilation, warmth, clothes, and food. Stimulating expectorants, as ammonia and senega, are useful; so also are stimulating embrocations over the affected surface. It is important that the child should observe a recumbent posture, "to antagonize," says Dr. Rees, "as far as possible the altered movement, and give the best chance for the extended lung again to expand."

11. Pleurisy

as an idiopathic or primary disease is rare during the first five years of life, but it arises secondarily in the course of scarlatina and other acute specific diseases with considerable frequency; moreover, as in the adult it is occasionally latent. The disease is ushered in with depression, loss of appetite, and, if the child be old enough, rigors; next is noticed acute, sharp pain; the well-known stitch of pleurisy

aggravated by inspiration, or coughing, or lying on the affected side, and by pressure.

Sometimes vomiting, fever, and a short cough are the earliest symptoms; the breathing becomes hurried, the tongue white and loaded, the bowels confined, the pulse hard and quick, the skin hot, the face flushed, and the urine scanty and high-coloured.

Dr. West has pointed out that the pain of pleurisy is often referred to the abdomen, and not to the chest, and that it is attended in such cases with bilious vomiting and purging; this is especially the case when the inflammation is on the right ride, and diaphragmatic in origin. The physical signs of pleurisy differ in the child from those usually present in the adult, notably in the absence of friction sound, at any rate during the early stages of the disease. If, however, friction sound becomes audible during the stage of absorption and persists long after the acuter symptoms have passed away, it is a sign that tubercular deposit has probably taken place on the surface of the pleura.

The earliest signs of pleurisy are diminished expansion of the chest, diminution of vocal fremitus, dulness on percussion, and bronchial respiration. MM. Rilliet and Barthez consider bronchial respiration the very earliest audible physical sign.

Bronchophony and ægophony occasionally accompany the pleurisy of children; the latter is ordinarily heard at the lower and hinder portions of the chest. When effusion takes place the degree of bulging of the affected side is, by reason of the comparative elasticity of the chest walls, *far greater* in the child than in the adult. The respiratory movements on the affected side are almost abolished, and there is bulging of the intercostal spaces; meanwhile, having more work to do, the healthy lung hypertrophies,

so that when absorption takes place the affected side is smaller than the other, and flattened at the infraclavicular region. This deformity is, however, to a great extent corrected as air permeates the lung more freely.

If pleurisy is about to end in empyema, it is common for a quasi-convalescence to occur after the more acute symptoms have passed off. Suddenly, however, severe dyspnœa sets in, and the child, instead of as hitherto preferring to lie upon the sound side, now lies upon the affected side. The physical signs now show the respiratory murmur to be diminished. If the quantity of fluid is excessive, so as to bind down the lung against the spinal column, there will be no vesicular breathing audible, but bronchial respiration and bronchophony will exist. Sometimes ægophony is heard at the angle of the scapula. If no air enters even the bronchial tubes, *i. e.* if the lung be completely compressed, no sound will be heard on the affected side, but the percussion will be absolutely dull, and the motions of the chest will be notably diminished. On the healthy side the respirations will be intensely puerile. It is common for the matter to find an exit through the chest walls, though occasionally an empyema has emptied itself into a bronchus, or has even burst through the diaphragm into the peritoneal cavity, causing, of course, fatal peritonitis. Generally, however, the matter is let out through the anterior wall of the chest, very commonly between the fourth and fifth ribs, a little outside the nipple. The opening, whether natural or artificial, is apt to remain fistulous for some time, and to produce by the sudden contraction of the side considerable and even permanent deformity.

The post-mortem appearances are similar to those found in the adult; the pleura is found smooth, pale, and semi-transparent, or sometimes finely injected; adhesion

between the pleuræ; effusion of serum, sometimes transparent, often reddish, sometimes sero-purulent fluid with flakes of lymph floating in it; the costal and pulmonary surfaces both coated with lymph. Often the anatomical characters of pneumonia are superadded, more rarely pus is found.

Diagnosis.—The cases in which the origin of the disease appears abdominal will be best recognised by the dyspnœa, by the cough, and by careful attention to the physical signs. Sometimes in young children more especially, the attacks appear cerebral; here again the dyspnœa and the physical signs will correct the diagnosis.

Lastly, from pneumonia; something must be gathered from the aspect of the child, its breathing laboured, short, and quick, but without the working of the nares so remarkable in pneumonia; the attitude is that of a child dreading to breathe because of the pain, and even holding its chest; but it must be remembered that pleuro-pneumonia is by no means an uncommon condition; on the contrary, that the secondary pneumonia of measles, for instance, is often complicated with pleurisy. A good guide is that given by Dr. West:—"A case is pleurisy which presents sudden and severe symptoms of pneumonia, but in which auscultation fails to detect fine crepitation, and discovers only feeble respiration on one side, and bronchial respiration on the other.

Prognosis.—Intercurrent pleurisy is more serious than the idiopathic disease, and pleuro-pneumonia is the most serious of all. The younger the child generally the greater the danger. Death sometimes occurs suddenly in cases of considerable hydrothorax, especially when the serous effusion has been rapid.

Treatment.—Leeches should be applied to the affected side; a moderate cupping may be resorted to in older

children. The relief of bleeding in these cases, not only to the pain but to the dyspnœa, is often too evident to admit of doubt as to its efficacy. After depletion calomel and James's powder may be given in moderate doses at short intervals. In some cases, especially those of intercurrent pleurisy, the state of the child will put depletion out of the question. Blistering fluid will be a good substitute; and in these cases iodide of potassium is a remedy of marvellous efficacy; it may be combined with an aperient should such be needed, and with a diuretic which should on no account, however, be the Sp. Eth. Nitrosi, for iodide of potassium and spirits of nitre are incompatibles; though from the frequency with which physicians order them together, it would appear that the fact is not generally known. Opium may be freely given for the relief of pain. When effusion has taken place the best methods to procure absorption are the use of a succession of flying blisters, or painting with iodine paint. Should, however, these means prove useless, the symptoms continuing urgent, the child becoming weaker, and the lung, evidently seriously compressed, giving rise to great dyspnœa, the question of paracentesis thoracis arises; and much as has been said on both sides of this important question, the balance of recent opinion is undoubtedly in its favour, when carefully performed in properly selected cases, and not left until the powers of nature are exhausted in seeking to make a natural outlet for the escape of the pus.

It is always advisable when the operation has been determined upon to make a preliminary puncture with a grooved needle; a small trocar and canula may afterwards be used. The place usually recommended, supposing no reasons exist against it, such as adhesion, &c., at the spot, is the intercostal space between the fifth and sixth ribs just behind their angles; the puncture may, however, be made

elsewhere, as, for example, posteriorly between the ninth and tenth ribs. An incision about one inch long is made through the skin and muscle, and the trocar plunged into the pleura; this should be done near the upper margin of the rib because of the intercostal vessels. If a drainage tube be employed to empty the pus as it forms, an eyed probe is passed through the aperture, and made to project at one of the intercostal spaces, as far back and as low down as possible; here it is felt for, and cut upon; and then a piece of silk attached to the eye and drawn through the wound, and by means of the silk the india-rubber tube, the ends of which are tied together and the pus allowed to drain. The result of the drainage tube, however, is by no means uniformly satisfactory, it is apt to render the discharge profuse and exhausting by continual irritation.

A better plan is to employ Bowditch's exhausting syringe; the cavity should be evacuated without the admission of air, and closed. If the pus be fœtid a counter-opening may be made and a drainage tube introduced; injections of iodine have the effect of diminishing the fœtor, it is doubtful if they exert any influence in closing the cavity; one part of Tinct. Iodi to seven of water is a good strength to begin with, gradually increased to one to four, it often averts the secretion of pus and no pain follows its use. During convalescence, cod-liver oil will be of service to prevent the deposition of tubercular deposit and to aid in restoring the nutrition of the child.

12. Phthisis.

The following are the noticeable points of difference between the deposit of tubercle in the young and in the adult as summed up by Dr. West.

1. There is a marked difference in the liability of various organs to the affection in the adult and in the child.

2. Tubercle is usually deposited in a greater number of organs at the same time in the young than in the adult.

The lungs and, in about a quarter of the cases, the bronchial glands, are the organs most usually affected in adult life, and the deposit is most frequently confined to them.

Then the tubercle of childhood differs in kind from the tubercle of the adult.

1. Grey granulations and crude miliary tubercles constantly exist by themselves in the lungs of a child; this is rare in the adult.

2. Yellow infiltration of tubercles, "cheesy tubercle" is very commonly found in childhood, and this is often limited to one lobe, generally the upper; it is, moreover, commonly associated with advanced tubercularization of the bronchial glands.

3. Cavities are rarer in children than in adults.

4. Tubercle in the bronchial glands is not only commoner than in the adult, but it occurs occasionally as a primary affection in the child, so as to outstrip in importance the deposit in the lungs.

Symptoms.—The disease commences insidiously; the child "droops," to use a very expressive word of mothers; is languid, irritable, and complains of pain all over the body. A little cough comes on, there is no expectoration, because children swallow their spittle. There is no hæmoptysis, there is seldom diarrhœa, and only occasionally profuse sweats. There is, however, more dyspnœa than in the adult, more general feverishness, more rapid wasting. The skin soon becomes wrinkled and the face

old-looking; intercurrent bronchitis or pneumonia is common. When the bronchial glands are much affected, the attack is marked by more irritative and spasmodic cough, more catarrh, more dyspnœa, and greater general suffering. Hæmorrhage may occur from the suppuration of a bronchial gland involving a vessel. Very frequently evidence is afforded of tuberculization elsewhere, as in the peritoneum or the brain.

Physical Signs.—Inasmuch as the apices of the lungs are not so frequently specially affected in the child, but the deposit of tubercle is more diffused throughout the lung substance, the physical signs vary in the child from those relied on in the adult. There is usually general, though slight dulness on percussion; some flattening under the clavicles; the expiratory murmur is prolonged, and the breathing interrupted. Vocal fremitus is a sign of less value and reliability in the child than in the adult. When present it affords strong evidence of solidification, but it is frequently absent, and yet solidification may exist. At the commencement of the deposition of the tubercles the breath sound is weak, or bronchial—often with a click at the close of the act of inspiration. Later, moist sounds of various kinds are audible, râles, sibilant, mucous, and subcrepitant, over one or both sides of the chest; and later still, as the tissue breaks up, and cavities form—mucous râle, cavernous respiration, gurgling, and occasionally pectoriloquy. Bronchial breathing is a sign of especial significance when heard away from the interscapular region where it is a normal condition, as at the apex or base. MM. Rilliet and Barthez consider that harsh and prolonged respiration with increase in vocal resonance are the most significant, symptoms of crude tubercle, particularly when heard over the greater part of the lung, or at any rate not confined to the apex. If

harsh breathing persist for several weeks and is then succeeded by weak or interrupted respiration, or that form of inspiration which terminates with a click, the evidence of tubercular deposit is extremely strong.

Bronchial phthisis is especially indicated by dulness on percussion between the scapulæ, if this coexist with resonance and fairly good respiration over the upper portions of the chest, and prominence of the veins of one side of the neck, in particular a full jugular during the act of coughing, the probability of bronchial phthisis is extremely strong. The venous engorgement is due to the pressure of the enlarged glands upon the innominate or superior vena cava. At the same time bronchial and pulmonary phthisis often coexist, and the physical signs may become subject to great variety, and the diagnosis be a matter of much difficulty.

The prognosis is always serious, but seldom hopeless; if the disease runs a course unusually rapid in the young, so, on the other hand, medicines are more powerful and the reparative processes more vigorous than in adult ages.

Causes.—Predisposing causes are: hereditary tendency, cold, damp, deficient food and clothes, vitiated air, and generally bad hygienic conditions. The exciting cause is often an attack of bronchitis or pneumonia, or some eruptive fever. The average duration of the disease is stated at from three to seven months in children.

Treatment.—When hereditary tendency exists the greatest care and attention must be paid to all the minutiæ of food, nursing, &c., which make so much of the difference between healthy and ailing childhood; cold and damp are to be avoided, flannel should be worn next the skin. Contagious disorders, especially pertussis, are greatly to be dreaded and studiously to be avoided; climate must also be studied. The greatest benefit often attends the sending

of tubercular children away for the winter months to Nice, Pau, Mentone, Barcelona, Hyères, and other spots, nice judgment being needed in recommending the climate best suited to the individual case. In this country, Ventnor, Torquay, Penzance, and Bournemouth, with perhaps Hastings, are desirable winter residences when foreign climates are debarred. Again, all digestive disorders in tubercular children require the greatest attention and should be corrected without delay; no diarrhœa should ever be permitted to go on unchecked. As to actual drugs there are five or six on which much reliance is to be placed; foremost among them, of course, cod-liver oil. When this disagrees, as it occasionally will, give it how we please, glycerine or cream may be substituted. The syrup of iodide of iron and of the phosphate of iron are very valuable remedies. Quinine also and bark, in many cases of defective appetite and general nervous debility and depression, are most useful. Iceland moss may be tried as a dietetic. The cough must be checked by anodynes. Small doses of morphia, belladonna, and hydrocyanic acid are the best remedies, with expectorants when needed, for occasional bronchitic attacks. If there be night sweats, the mineral acids should be given with bark. If diarrhœa, the mineral acids or an enema of starch and opium. Painting under the clavicles or on other portions of the chest with iodine is often useful; and the same may be done with stronger paint between the shoulder-blades behind, when there is the irritative cough of bronchial phthisis. Salt-water bathing, warm or cold according to weather and the strength of the patient, is very beneficial. The food must be nourishing yet unstimulating; milk, butter, and fats when willingly taken are useful, but they should not be forced. Local pains may be relieved with occasional sinapisms; blisters

are better avoided. Stimulating embrocations are of good service, and it is often useful to rub the body with cod-liver oil when that medicine cannot be tolerated by the stomach. In such cases cocoa-nut oil has been recommended as a substitute; it may be taken in doses of one or two teaspoonfuls twice a day. The hypophosphites of lime, soda, manganese, and iron have been much employed by Dr. Churchill, of Paris, and other continental physicians. Pepsine and pancreatic juice are of service in the dyspepsia so often incidental to phthisis, and which is so serious an impediment to the due nourishment of the patient, a point, indeed, of vital importance.

13. Cyanosis or Blue Disease

is a bluish discoloration of the skin arising in connection with malformation of the heart, such malformation being usually due to permanence of the foramen ovale, or to abnormal apertures in some part of the auriculo-ventricular septa, or to the origin of the aorta and pulmonary artery from a single ventricle, or to permanence of the ductus arteriosus. When such patients survive they suffer from coldness of the body, palpitations, dyspnœa, syncope, congestion, and dropsies. Of 186 cases collected by Dr. Lewis Smith, 67, or more than one third, died before the close of the first year, 121, or more than three fifths, before the age of ten, only 24 survived the age of twenty, and four the age of forty years.

The mode of death in the majority of cases appears to be a sudden paroxysm of dyspnœa. Convulsions, especially in infants, hæmorrhage, and coma are also common terminations. It is remarkable, as disproving any antagonism between cyanosis and heart diseases generally and tuberculosis (in which antagonism even Rokitansky has

declared himself a believer), that in thirteen per cent. of Dr. Lewis Smith's cases, tuberculosis was present, and in several the lungs actually contained cavities.

Treatment must be, of course, palliative, nourishing diet, warmth of climate and of clothing; avoidance of fatigue and excitement, in addition to which something may be hoped for from posture; that in which dyspnœa is most avoided being adhered to, or instantly resorted to when paroxysms threaten.

14. Pericarditis, Carditis, and Endocarditis.

These diseases are not common in children because rheumatism is not common, nor is renal disease common, nor are the many conditions that offer a mechanical impediment to the onward flow of the blood in mature years common in children. Yet pericarditis intercurrent in rheumatism, in scarlatina (and then probably always connected with slight rheumatism), in measles, and disease of the kidneys, is of sufficiently frequent occurrence to require careful consideration. Under the head of rheumatism will be found an account of the more insidious form of pericarditis occurring with but little pain or uneasiness; but sometimes the disease is manifested by severe pain and much fever, pain in the heart, pain shooting to the shoulders, pain shooting down the arms. Palpitation also occurs, and the heart beats irregularly and with heaving impulse; the breathing is rapid, the face anxious, the head aches, the temples throb, and there may be syncope, paroxysms of impending suffocation, bleeding at the nose, or hæmoptysis.

The physical signs will vary with the portion of membrane or heart substance attacked; in pericarditis there are sensations of friction perceptible to the touch—a rubbing

sound, "to and fro" sound—preternatural dulness over an enlarged area resulting from the effusion of serum. If the endocardium be attacked, "murmurs" will be audible, and these will indicate diverse conditions according to their site. The following table will sufficiently indicate the differences between the more common forms of valvular disease:

Base or Aortic Murmurs.

If Systolic = Constrictive disease } Pulse, regular, jerking, visible.
If Diastolic = Regurgitant disease }

Apex or Mitral.

If Systolic = Regurgitant } Pulse, irregular, soft, intermittent, with peculiar thrill.
If Diastolic = Constrictive }

It is important to distinguish the dulness of pericardial effusion from the dulness of hypertrophy of the heart; this may be done by noting that in

Effusion,

The dulness extends upwards to the second rib, but downwards not much below the natural limit, and changes day by day. There is, moreover, thrill always present.

Hypertrophy.

This dulness extends in all directions, and is stationary, and the disease is characterized by a peculiar heaving impulse.

If the substance of the heart be affected the beat is tumultuous and irregular, and fatal syncope often occurs. Carditis rarely occurs alone, but is usually associated with more or less peri- or endo-carditis, or both. The dulness of endocarditis, which is rare, is distinguished from that of pericarditis, in that the beat appears superficial, while in pericarditis it is remote.

The result of these inflammations is of course more or less damage to the structures of the heart, permanent valvular disease, induration from lymph deposits, saccular dilatation of the heart-walls, rarely abscess, very rarely rupture. General dropsy, cerebral affections, &c., are also among the sequelæ.

Prognosis.—Unfortunately, as a rule, the condition of the injured valves and textures goes on from bad to worse, and the child dies after a few years of increasing suffering. But occasionally the progress of the disease is much slower, or even apparently stationary; and Dr. Latham suggests "that there may be a certain protective power inherent in the growing heart to accommodate its form and manner of increase to material accidents, and so repress or counteract their evil tendencies."

It would indeed appear that the presence of hypertrophy and dilatation of the heart, or of dilatation without hypertrophy, materially affects the prognosis, rendering it more grave, and impressing the necessity for that absolute condition of rest which appears most unfavorable to the production of a dilated condition of the heart. And this is of the more importance inasmuch as dilatation is more readily caused in the heart of the child than of the adult by reason of its greater feebleness, its more rapid circulation, and its proneness to palpitation and excitability.

It will be well, before considering the general treatment of diseases of the heart, to summarise the conditions that may occur, and their diagnosis.

1. Simple hypertrophy, *i. e.* the thickening of one or more of the chambers of the heart without increase in the size of the cavities.

2. Hypertrophy with dilatation, *i. e.* the walls thickened and the cavities enlarged.

3. Concentric hypertrophy, which is congenital, and in which the walls are thickened and the size of the cavities diminished.

The left ventricle is the cavity most commonly hypertrophied. Hypertrophy and dilatation of the right ventricle is usually due to some lung disease, offering mechanical impediment to the onward flow of the blood.

Dilatation is also of three kinds:

1. Active, in which the dilatation is in excess of the hypertrophy.

2. Simple, where the walls of the heart are of natural size.

3. Passive, in which the walls are thinned.

Among the most valuable physical signs of these conditions are two, viz. heaving impulse as indicative of hypertrophy, and increased dulness on percussion as indicative of dilatation. With these will be combined more or less dyspnœa, giddiness, and tumultuous beating of the heart, but in hypertrophy there is increased impulse, and the apex-beat prominently visible, whereas, in dilatation, especially passive dilatation, the impulse is feeble and the apex-beat scarcely to be seen, and, moreover, general dropsy soon supervenes.

Treatment.—The treatment of inflammatory affections of the heart will vary with the conditions under which they are excited. That of rheumatic pericarditis has been already spoken of. When the disease is idiopathic and more acute in character a few leeches over the pericardium will give great relief, and these may be followed, if effusion has taken place, by an application of blistering fluid, and the administration of gentle purgatives and iodide of potassium. Calomel and opium are often valuable substitutes for bleeding and blistering in slight cases, and digitalis, in doses of ♏j—♏ij of the tincture (for a child

one year old), is useful in controlling inordinate action of the heart, which may also be assisted by the external use of belladonna. Too great importance cannot be attached to mental and bodily repose as the condition most favorable to checking the mischief and preventing the occurrence of dilatation. The diet must be light at first, but nourishing, and wine may be given freely when the general condition seems to demand it. Tapping the pericardium and injecting with tincture of iodine has been successfully performed, and might, perhaps, be resorted to in desperate cases of enormous effusion. In endocarditis and valvular disease, I advocate less active treatment, and am disposed to trust more to sedatives, especially belladonna, aconite, digitalis, and henbane, cautiously given, and the use of belladonna extract outwardly, than to blistering and bleeding, though a few leeches, when much pain exists at the outset, are of undoubted value. For the various secondary conditions that may arise—congestion of the lungs, pleurisy, hæmorrhage, congestion of the liver, &c.—special means will be required in individual cases. Mild diuretics and purgatives are most valuable in preventing such complications, and a judicious course of mercury, slightly to affect the gums, is also of great value, particularly in dropsical conditions.

For hypertrophy the diet must be low, and the heart's action must be controlled by the most careful use of sedatives; these are contra-indicated, however, by urgent dyspnœa and great feebleness of pulse, for which stimulants are the appropriate remedies, especially sulphuric ether, chloric ether, and sesquicarbonate of ammonia and valerianated ammonia. Hypertrophy and dilatation may be prevented by enforcing rest; when established, relief may be given by combination of antispasmodics, tonics, and sedatives, but the conditions are, of course, incurable.

Aconite is especially valuable in controlling irregular attacks of palpitation; digitalis in hypertrophy and dilatation, accompanied with urgent dyspnœa and dropsy; belladonna in the irritative cough and troublesome neuralgic pains, often present; and henbane in the sleeplessness and nervous excitability frequently observed in delicate and susceptible children.

15. Epistaxis

May be primary or secondary.

When primary, is never dangerous.

As a secondary condition it occurs in purpura in the course of the acute specific diseases, especially typhoid; in pertussis; in valvular disease of the heart, &c.; it is then a more serious affection.

Should treatment be necessary, ice to the forehead and spine, syringing the nostrils with iced water or a decoction of matico, or, if obstinate, plugging the nostrils with pledgets of lint soaked in perchloride of iron, and pushed back as far towards the pharynx as possible. If this be effectively done, it will seldom be necessary to plug the posterior nares, which, however, may be resorted to as a last resource.

It should, of course, be remembered in secondary epistaxis that, besides local treatment, constitutional remedies will be required, directed to the special condition which may exist.

CHAPTER VII. — DISEASES OF THE FOOD-PASSAGES AND ABDOMINAL ORGANS.

1. The Thrush

Is an affection very common in young infants, more especially in those brought up by hand. It is chiefly of importance as evidencing impaired nutrition. The mucous membrane of the mouth is covered with numerous white specks like small atoms of curd; these are most abundant on the inner surface of the cheeks and on the tongue and fauces. They get larger for a few days, fall off, and are rapidly reproduced. The infant's mouth becomes hot, the lips swollen; there is dribbling of the saliva; moreover, there is generally coincident some gastro-intestinal disorder, often green evacuations. The acridity of these motions causes an erythematous blush around the anus, and it is not uncommon to find aphthous spots upon the edge of the mucous membrane of the bowel. The thrush is then said to have "passed through" the child.

As in adults, an appearance of a crop of thrush is often but one indication amongst many of the general asthenic condition of the child; it is therefore in such cases secondary in character.

Professor Berg, of Stockholm, was the first to discover the *Leptothrix buccalis* and the *Oidium albicans,* cryptogamic growths always present in the white specks. The growth of these plants appears to be favoured by disturbance of digestion, subacute inflammation of the mucous membrane of the mouth, and acid secretions. As the

buccal secretions of the infant for the first six weeks are acid, the prevalence of thrush during that period is thus explained.

Treatment will comprise attention to the general constitutional condition. The bowels are to be regulated, acidity of stomach corrected, great cleanliness observed in all vessels and articles used for feeding the infant, as spoons, bottles, &c. The mouth should be gently cleansed after each feeding with a piece of soft rag. Locally, a solution of borax (ʒss—ʒj) is to be applied with a camel's hair brush two or three times a day. This is better than Mel. Boracis, as it is a question whether the honey undergoing fermentation does not increase the mischief. For very young infants a grain or two of borax with a little loaf sugar may be put on the tongue, where it dissolves and is swallowed. This plan is easy of management and very effectual; the borax may also be used with glycerine, and the mother should bathe the nipples after sucking and anoint them with glycerine of borax. We are indebted to Sir W. Jenner for another and very efficacious remedy in sulphite of soda; the secretions of the mouth being acid, the sulphite is decomposed and sulphurous acid set free, which destroys the cryptogamic plants. The strength of the solution may be ʒj of the sulphite to ʒj of water. Cauterization with nitrate of silver may be resorted to in extreme cases, and when very obstinate, change of air is eminently beneficial.

2. Stomatitis, or Inflammation of the Mouth,

Occurs in three varieties, as it affects respectively the mucous follicles of the mouth, the substance of the gums, or the cheeks.

1. *Follicular or Aphthous Stomatitis* occurs idiopathically from a heated and disordered stomach, or as a sequela of one of the eruptive fevers, especially measles. It is rare after five years of age. The disease manifests itself by a difficulty in sucking and swallowing, increased flow of saliva, and by tenderness in the region of the submaxillary glands. With these symptoms are also feverishness and restlessness, and often feculent diarrhœa. Inside the mouth and on the tongue are seen small semi-transparent vesicles, which burst and leave greyish indolent ulcers. There is no vegetable growth on the surface, as in true thrush.

Occasionally the ulcers coalesce, but more often they die away, fresh ones appearing, and the disease, if unchecked, tends to run a very chronic course. In the majority of cases attention to the stomach and bowels will suffice to cure the disease. Again and again children have been brought to the Victoria Hospital for 'ulcerated mouths,' which, when examined, are found to contain the *fons et origo mali* inside them in the shape of a lump of unripe apple, some trashy sweet, or other stomach-deranging substance, with which the poor are for ever 'quieting' their children. Forbidding such and using the glycerine of borax application (better than Mel. Boracis) soon cures the case; a little rhubarb and soda may be given to assist in the correction of the stomach and bowel disorder. Chlorate of potash is useful in the more severe cases, but its value will be specially considered under the next heading.

2. *Ulcerative Stomatitis, or Noma.*—This is a rapidly spreading ulceration of the gums, therein unlike follicular stomatitis, which spreads but slowly and destroys tissues but rarely. In this disease there is also heat of the mouth,

submaxillary tenderness, restlessness, feverishness, and disordered bowels; the child is always putting its fingers to its mouth and picking at the throat. On examining the mouth irregular patches are seen of a dirty white grumous deposit; when this is removed the gum beneath is very red, raw, and bleeding at the least touch; the gums generally are swollen and spongy. If neglected, large sloughing ulcers form, the tongue becomes swollen and sodden, the saliva horribly offensive and diminished in quantity, and occasionally true gangrene of the mouth sets in, though this is rare. I have seen one case in which such, however, undoubtedly occurred. The causes of the disease are stated to be general cachexia, deficient nourishment, bad hygienic condition, especially damp; it is common in autumn. It also occurs after and in the course of lowering diseases, as the eruptive fevers, inflammations, &c.; occasionally it has prevailed as an epidemic. M. Taupin believes it to be contagious, *i. e.* communicable by using the same spoon in feeding, &c.

Treatment.—These cases are easily cured by the use of chlorate of potash in good doses, and given three times a day, the mouth being rinsed well with a weak solution of the chlorate, or in young children syringed therewith if the child be too young to rinse the mouth; glycerine of borax may be applied after each cleansing. The stomach and bowels must be regulated, and when improvement takes place tincture or decoction of bark will be of great use—in fact, the best form of tonic. Nutritious diet and wine are often necessary when the child is low.

3. *Gangrenous Stomatitis* (Cancrum Oris).—This is a most fatal disease; fortunately it is a rare one. It occurs oftenest in children from two to five years old, and debilitated by foregoing illness, especially fevers. The

disease commences with fœtor of the breath, a discharge of offensive saliva, a hard, red, shining swelling in the one cheek, not painful, but very tense. Inside the mouth at the corresponding point to this swelling will be found an excavated, jagged, unhealthy ulcer, covered with a brown slough; this ulcer is thoroughly phagedænic in character, its discharge is putrid to a degree, it involves the gums, loosens the teeth, destroys the tissues around, making frightful ravages and leaving cavities; if the child live long enough, necrosis of the jaw may occur; the fœtor increases, but deglutition is generally not interfered with, and the child may eat up to the last.

The only method of *treatment* at all attended with hope of success is early and free destruction of the gangrenous parts with strong caustics—nitric acid, for example—an operation for which chloroform is needed; if the gangrene be not destroyed at one application the acid must be re-applied after a few hours. Heroic measures give the only chance of success; the acid must be used thoroughly, applied by a piece of lint tied on a splint of wood, and the sound parts protected as far as practicable from its action. The actual cautery and the acid nitrate of mercury have been successfully used; probably nitric or muriatic acid are the most manageable and effective. The mouth should be washed or syringed out with warm water to which Condy's fluid has been added, or a weak solution of hydrochloric acid in decoction of chamomile or of bark, or chlorate of potash may be so employed dissolved in bark, or the Liquor Sodæ Chlorinatæ (℥j—℥xij). The strength must be supported by liberal diet and wine, and by enemata of beef-tea; carbonate of ammonia, chlorate of potash, and bark, are the best internal remedies. Pneumonia is not an uncommon complication of cancrum oris; its advent should be watched for and carefully

guarded against by avoidance of chills and draughts. The most thorough cleanliness, careful and unremitting attention, will be needed to ensure recovery even in hopeful cases of this terrible disease.

3. Cynanche Parotidea (Mumps)

Is an acute contagious specific inflammation of one or both parotid glands; occurs usually but once in a lifetime, and most frequently in children above five years of age. It is ushered in with a feverish cold, and then pain is felt, and swelling is perceived about the angle of the jaw; the swelling is exceedingly hard and painful, and extends often from beneath the ear along the neck to the chin. There is pain in mastication, in articulation, and in swallowing. The disease occasionally occurs epidemically; it usually reaches a height in three or four days, and then declines in severity and gradually disappears; or metastasis may occur, a remarkable feature in this disease, to be remembered and watched for, and such metastasis may be either to the brain, which is highly dangerous, and exhibits itself either in coma or delirium, and may end fatally in a few hours, or to the mammæ in girls, and the testes in boys. These parts then become painful and swollen. Damp, whether in weather, clothing, or beds, appears to be a favorable factor in the causation of this disease; it is very rare for suppuration to occur.

Treatment.—The swelling should be fomented several times a day with a flannel wrung out of poppy and chamomile lotion, and a linseed-meal poultice applied occasionally. The bowels must be opened by laxatives; a dose of calomel and jalap is useful at the very commencement. Leeches are quite unnecessary, except metastasis to the brain occurs, when a few may be applied to the temples;

the feet must be put into mustard pediluvia, and a brisk aperient given every three or four hours. It is not considered good practice, generally speaking, to solicit the return of the attack to the parotids. Should the testicles or mammæ be attacked, they will require fomentations and the same general treatment in the way of purgatives and derivatives.

4. Tonsillitis, Quinsy, or Inflamed Sore Throat,

Is rare in children under twelve years. When it occurs the first symptoms are those of a cold with rigors, feverishness, flushed face, and a husky voice; by-and-by dysphagia is manifested, but dyspnœa seldom or never; the tongue becomes excessively coated; thirst is great. On examination one or both tonsils are seen to be enlarged, red, and inflamed, the uvula and pharynx generally swollen, and often œdematous; the difficulty in swallowing increases, there is a running of saliva, and expectoration of thick mucus. Pain, darting along the course of the Eustachian tube to the ear, is complained of at each effort of swallowing; the inflammation in children more usually terminates in resolution or hypertrophy of the tonsils than in actual suppuration. If matter does form, it usually discharges inwardly, and is small in quantity. The more common result is a chronic enlargement of the tonsils, which renders the voice thick, and occasions loud snoring in sleep with occasional violent and spasmodic fits of coughing; these are caused by swallowing the elongated uvula, the end of which tickles the mucous membrane of the windpipe and so brings on these convulsive fits of cough. The treatment of acute quinsy is sufficiently simple. It is often possible to avert

an attack by a timely emetic and purgative, an astringent gargle, or, better, an inhalation of some medicated vapour, especially that of sulphurous acid. At the same time a sinapism should be applied to the throat externally. When the inflammation is more advanced, inhalations of steam, impregnated with poppy vapour or other anodyne, will be useful in allaying pain. Linseed-meal poultices should be applied outwardly; the bowels should be kept gently open; washing the mouth with a solution of chlorate of potash, ʒj to ʒviij, to which two or three drachms of Tinct. Kino may be advantageously added, will serve to cleanse away much of the viscid mucoid secretion. Internally two medicines have been much vaunted, the hydrochlorate of ammonia and guaiacum; the latter may be given in the following form:

℞ Acidi Citrici, gr. xv;
Pot. Bicarb., ϑij;
Tinct. Guaiaci, ♏x—ʒss;
Mucilaginis ad ʒj.
Dum effervescend. quârta quâque horâ.

The former in doses of three or four grains in water every four hours.

I prefer to give the chlorate of potash in ten-grain doses, occasionally adding half a grain of iodide of potassium to each dose. Blisters are of little service, and should always be avoided in children's diseases when practicable. When the abscess has broken, warm water must be used to rinse out the mouth; warm poultices, frequently changed, outside; the strength should be well maintained throughout with light nutritious diet, the disease being a very lowering one. Stimulants should not be allowed till the abscess breaks, when port wine is best. Sometimes it may be necessary to open the abscess; generally it is better practice not to do so. The situation, the strength of the

patient, the general character of the case, will be the guides in this matter.

For chronic enlargement of the tonsils I know of no application so valuable as the daily application of tincture of iodine. I have repeatedly used this means in children of all ages, from three upwards, and have rarely found it fail to give relief; at the same time the syrup of the iodide of iron should be administered internally. I have no faith in, and have never seen benefit from, repeated blisterings, application of caustic, or the use of gargles. If the disease will not yield to the iodine application, the removal of a portion of the glands must be thought of; this may be effected either by excision with the guillotine, or with a pair of forceps and a bistoury, or else by the use of potassa fusa in the manner recommended by Mr. W. J. Smith.

5. Retropharyngeal Abscess,

Which is rather a rare disease, is diagnosed by the dyspnœa as well as dysphagia caused by a retracted state of the head, stiff neck, and difficult articulation. The dyspnœa, which is often alarming when the child is lying down, is eased by raising it to a sitting posture. In these cases it is almost always necessary to open the abscess, as spontaneous bursting is slow, and, indeed, rarely occurs. The abscess is readily felt on examination as a firm round tumour just beyond the base of the tongue, and generally in the middle line. This affection occurs not uncommonly in the course of scarlatina.

6. Dyspepsia.

In infancy this is manifested usually by vomiting,

"he is sick, throws up all his food," is a constant trouble with the mothers of poor children, and most frequently such sickness is the result of some error in diet or feeding; for example, the child's stomach is over-filled, or it is weaned carelessly, or improperly fed, or the mother has taken improper food or over-exerted herself. Sometimes the milk returns as it was swallowed, sometimes it returns curdled and sour smelling. Very often the sourness is caused by careless washing of the bottle in children brought up by hand. The bottle should be always cleansed most carefully with hot water, and thoroughly freed from sour and curdled milk. Again, vomiting may be symptomatic of disease elsewhere, as is often seen in the precursory stage of eruptive fevers, acute inflammations, &c., or it may be the result of spasm, as in hooping-cough, or it may be due to gastritis and intestinal disorder. Should prolonged dyspepsia occur, especially with frequent vomiting, the child grows emaciated, and such cases often end fatally, from gradual and increasing exhaustion. It must never be forgotten that vomiting is one of the earliest symptoms of tubercular meningitis; the cause of the affection must therefore be always diligently sought. If the fault lies evidently with the mother, treatment must be directed to her; but if it is clearly the child that is in ill health, inquiries should be made as to dentition, as to the state and regularity of the evacuations, and as to the feeding. Attempts must also be made to restore tone to the stomach, and at the same time to diminish its work. Regular intervals for feeding must be ordered, the food, if objectionable, changed; ass's milk and goat's milk are often useful in such cases. In extreme cases the stomach should be rested altogether by giving only a little iced water; if this is retained, adding to it some isinglass or

milk; in the severest cases of all a milk bath or nutritious enemas may be used to nourish the infant while the stomach is absolutely rested for several hours, when the above method of cautious feeding may be attempted. The bowels will need correcting, and if acidity be present soda with rhubarb will be useful, or if there be much sour diarrhœa, Mist. Cretæ with a grain or two of Pot. Bromid. two or three times a day; a small sinapism to the epigastrium is often useful, or a little chloroform on lint over the stomach, covered with a warm linseed poultice, rapidly produces external redness, and, indeed, requires watching lest it vesicate. In more chronic cases, in older children, similar hygienic conditions must be insisted on as to quantity and quality of food, exercise, &c. In such cases tonics are valuable, especially the mineral acids, and I prefer the nitro-muriatic; a drop of this well sweetened, and with Tinct. Cinchon. co. or Inf. Calumbæ, answers well. Pepsine may be resorted to in obstinate cases, often with great benefit. It may be given in the form of pill or as wine. *Constipation* is a common concomitant of some forms of infantile dyspepsia; this must be met, not by irritant purgatives, but by chosen diet, a soap suppository, a little manna, or syrup of senna. A teaspoonful of olive oil occasionally, or Sodæ Pot. Tart. with Inf. Rhei and an aromatic answers admirably, and has the advantage of being a good stomachic tonic. It can hardly be too often reiterated that such cases are not generally suitable for mercurial treatment, though it would seem by the practice of many that the shrewd remark of Sir W. Jenner should be more widely known amongst practitioners:—"When you see a child, don't always think of grey powders." Not that grey powders and calomel are never to be given, even in dyspepsia; in cases of pale, clayey, offensive stools, nothing does so much good as a

grain or two of calomel followed by some gently alterative aperient; but simply that the plan of always dosing children with mercurials is most reprehensible.

A glass of cold water early in the morning, gentle frictions over the abdomen, and regular exercise, are other methods of relieving habitual constipation. Small doses of Liquor Strychniæ are also of service in this respect, doubtless by giving tone to, and increasing the peristaltic action of, the bowel. I have found strychnia most useful in cases in which the lower bowel appeared to be at fault.

Infants are occasionally brought for vomiting of blood. Such cases are usually caused by the infant having sucked in the blood first from a cracked nipple; occasionally, however, true hæmatemesis occurs, either from general congestion of the abdominal organs, from some irregularity in the establishment of the circulation at birth; and occasionally children having passed or vomited blood recover and do well, and we are left in ignorance as to the cause. The administration of a grain or two of calomel to carry away the blackened motions and an occasional teaspoonful of iced water is, perhaps, the most rational treatment in such cases.

7. Gastritis,

Or inflammation of the stomach, may end in softening, ulceration, or gangrene; the inflammation itself is rare, and its symptoms obscure; vomiting is always present; pain, when present, is paroxysmal. There may be diarrhœa or constipation; there is usually tympanites, with thirst, restlessness, and fever; there is always some degree of tenderness at the epigastrium. Gastritis may, of course, be produced by the swallowing of irritant poisons, otherwise improper feeding seems its principal cause. It may

occur as a secondary affection in the course of fever and inflammation, or as a sequela of stomatitis. There are no symptoms pathognomic of softening.

Subacute gastritis probably exists more frequently than has been supposed; at any rate, it is not rare to find some of its traces after death, in congestion, thickening and hardening of the stomach-walls. The symptoms are those of aggravated dyspepsia—want of appetite, alternating with craving for food, pain after food; more or less epigastric tenderness and uneasiness; occasional vomiting; offensive and disordered motions; a pasty unhealthy look about the face, with often dark rings under the eyes.

Gastric catarrh, or mucous flux, is a common ailment with children; it is apt to be left as a sequela of some diseases, especially measles and hooping-cough; worms, dentition, and, indeed, any irritation of the alimentary canal readily excites this condition; giddiness and sickness, bilious vomiting, and disordered bowels, are prominent symptoms of it. The appetite is variable, generally bad; or craving for food may exist, and the food be rejected shortly after it is taken. The child wastes, looks pale and cachectic; the breath is offensive; the sleep broken, the bowels constipated one week and relaxed the next, the motions slimy, fetid, containing mucus, and sometimes a little blood. Bronchitis and pneumonia often insidiously complicate this condition.

The treatment of gastritis will divide itself into those cases caused by irritant poison and those arising idiopathically or intercurrently. If a child has swallowed poison it should be made sick immediately; next oil and albumen are the best remedies usually to hand; then the special antidotes may be given if time permit. In idiopathic gastritis the feeding must be diligently looked after, and if faulty corrected; if dentition be present the gums

will require attention; if stomatitis, glycerine of borax should be freely used, and chlorate of potash administered. A warm linseed poultice will ease the pain and tenderness over the epigastrium, or poppy stupes may be substituted. Cool drinks with a lump of ice in them, if vomiting be very persistent; a dose of gr. j of calomel with gr. ¼ of P. Ipecac. co. will be useful in a young child, and such may be repeated once or twice a day, according to the general condition; a grain of James's powder might be added if fever run high; a child will often get its first sleep after the administration of the calomel and Dover's powder, and awake refreshed and better in every way. The diet should be thoroughly bland, yet supporting. Liebig's beef-tea is useful, as a small quantity can be given, and it is highly nutritious. Liebig's infants' food may be added to the milk with advantage for infants. Great care will be required as convalescence is becoming established to avoid a relapse.

In chronic or subacute gastritis regulated diet, gentle aperients, avoidance of heating food and excitement of every description, sucking of ice, pepsine in small quantities twice a day before meals. Stomachic tonics with a small dose of alkali, as, for instance, bicarbonate of potash and infusion of gentian. Strychnine is often of essential service in restoring tone when the more acute symptoms are passing off. In gastric catarrh a purge of calomel and jalap is desirable at the commencement of treatment, the more that by it not only is the intestinal canal cleared of the vitiated secretions, mucus, &c., with which it is often loaded, but also worms, if present, are generally passed, and a hint thereby afforded as to further treatment. The next indication is to restrain the mucous flux, which may be done by the use of bismuth, with a bitter infusion. Cascarilla or calumba answers very well. For diet, milk

guarded with lime water or soda water; yolk of egg, good fresh meat, and avoidance of sweets, pastry and the farinacea. Salt-water baths, fresh air and exercise, are by no means to be neglected. An occasional purge will be required during treatment; the best in my opinion is compound jalap powder, with a quarter or half a grain of leptandrin, than which no drug more efficiently carries off the mucus, besides which its action upon the liver is useful, that organ often being sluggish in these cases. Change of air and ferruginous tonics will complete the cure.

8. Diarrhœa

May be simple or inflammatory, acute or chronic, feculent, bilious, mucous, chylous, or lienteric. It is better to consider the disease generally, and to notice the prevalence of special forms in the course of such consideration. In medicine names and varieties are comparatively worthless, as we so seldom meet practically with the typical forms. Diarrhœa is an important affection, because it is the very commonest ailment of infants and children. To recognise its presence we should remember the normal condition of the bowels in infants. A child should have from three to six motions in the twenty-four hours, the colour of these should be deep yellow, the consistence that of thick gruel, and odourless, and much resembling a mess of mustard. From this standard, however, the departure may be considerable, and yet not inconsistent with health, and should not be interfered with. During dentition especially a little diarrhœa is frequently beneficial rather than otherwise. When, however, moderate limits are evidently passed, and especially if there be pain, manifested by the drawing up of the legs towards the abdomen, it will be

time to interfere, and the first thing to do is to remove the cause of the ailment; this will often be found in the feeding. If the milk disagree, the nurse must be changed, or the mother's health corrected if irregular; or if weaned, the quantity and quality of the food must be carefully regulated. Broths are to be absolutely forbidden. I have seen many cases of diarrhœa kept up by the mother persisting in giving a child beef-tea contrary to advice. Rice and arrowroot are the main aliments to be employed in these irritations of the alimentary canal. Occasionally raw meat chopped small and finely shredded will be extremely beneficial. When resorted to it should be the only food given; it renders the fæcal discharges extremely fetid, but the benefit is undoubted; in many cases it has saved life. Milk should be diluted with lime water; yolk of egg is unobjectionable. Sometimes a few drops of brandy may be added with advantage to equal portions of milk and lime water.

If the gums be tumid and tender they must be lanced, but not otherwise; it is folly to lance a child's gums on every provocation. If the diarrhœa be feculent a small dose of castor oil often carries off the mischief; if, on the other hand, it is watery and griping in character, chalk mixture, or aromatic confection, or small doses of Dover's powder, are the remedies. Decoction of logwood is a good medicine, but stains the linen; this should be remembered, as mothers often protest. Catechu and Tinct. Kino are valuable astringents in obstinate cases. In bilious diarrhœa a little grey powder will be needed instead of castor oil, and then the chalk mixture may be given, and it will be useful to add a little bicarbonate of soda in such cases. In mucous diarrhœa, when the stools are like chopped spinach, and occasionally have a little blood in them, P. Ipecac. co. is useful, as tending to soothe the tenesmus

commonly present. When the discharges are white and milky looking, or containing apparent particles of fat (so-called chylous diarrhœa), small doses of calomel and opium will be required. Raw meat finely shredded is especially useful in these cases, as the child gets rapidly emaciated. Enemas containing a few drops of some anodyne are also of value. In lienteric diarrhœa, in which the food passes through unchanged, it is evident that the stomach is mainly at fault, and our efforts must be directed to correct its condition ; the amount and quality of the food must be carefully regulated, the mineral acids, or Syr. Ferri Phosph. co., or reduced iron with pepsine, may be given. The child should have salt-water baths and be well rubbed after with a Turkish towel, and should sleep in a large well-ventilated room ; it should have an abundance of fresh air, and moderate exercise. In chronic diarrhœa, especially of the feculent variety, I have found the greatest benefit from the use of carbolic acid (Calvert's) internally in doses of gr. $\frac{1}{4}$ to gr. $\frac{3}{4}$ in well-sweetened water for children about two years old. I have sometimes combined with this a little of the Syr. Ferri Phosph. co. with great advantage. The intertrigo which occurs from acrid diarrhœa will be best treated with copious warm-water ablutions, and subsequent dusting with pure oxide of zinc or lycopodium, which in bad cases is preferable, as water glides over its surface as if over oiled silk. The following aphorisms of Bouchut are eminently practical comments on the varieties of diarrhœa in childhood :

1. Yellowish homogeneous diarrhœa is generally of little importance.

2. Yellowish diarrhœa becoming green on exposure to the air under the influence of the action of the urine is unimportant.

3. Yellowish-green diarrhœa, or that sprinkled with

specks of curd, indicates considerable intestinal irritation.

4. Abundant serous diarrhœa is always an unfavorable phenomenon.

5. Catarrhal diarrhœa sometimes engenders inflammation of the intestines.

6. Diarrhœa leads to enlarged belly amongst children.

In the Formulary, under the head of astringents and elsewhere, will be found a variety of prescriptions suited to the different conditions under which diarrhœa is caused. Obstinate cases are best managed by varying the medicines from time to time, as they appear to lose efficacy, but in all cases attention to the diet and general health will be of the first importance.

9. Dysentery, or Inflammatory Diarrhœa,

Is a condition so important and so much more fatal than the ordinary form of diarrhœa as to require separate and careful consideration. Dysentery may arise idiopathically or as a sequela of protracted diarrhœa. It is usually preceded by vomiting accompanied with frequent purging, sometimes almost incessant, till the stools, at first natural, become slimy, and then streaked with blood; their expulsion is accompanied with straining and tenesmus more or less severe. After a while no relief is obtained by the passage of the stools; on the contrary, the pain and tenesmus are increased; the abdomen now swells, is tender and burning, there is general fever and restlessness, rapid emaciation, the discharge increases in offensiveness, the parts round the anus becoming excoriated; aphthæ and cancrum oris, bronchitis and cerebral irritation, are common complications towards the close of the disorder.

The causes of dysentery, when the disease is not intercurrent in the course of fever, appear to be especially damp, heat, and foul air; to these bad feeding, insufficient clothing, and dentition may be added. It is a common epidemic in hot climates, and occasionally it prevails as such in northern latitudes. The disease being essentially inflammation and ulceration of the colon, it is usual to find the evidences of these processes after death. The mesenteric glands are often enlarged, but otherwise unaltered in colour or texture. The small intestines are generally healthy, the liver is often gorged, and it is common to find the mucous membrane near the ilio-cæcal valve congested and thickened. It is also common to find the mucous membrane on the rugæ destroyed, especially in the sigmoid flexure of the colon and in the rectum. It is always necessary to examine the rectum carefully for evidences of ulceration, as such are frequently confined to that portion of the bowel. The prognosis of dysentery, even when idiopathic, should be guarded. It is eminently a dangerous disease.

Treatment.—The child should have a warm bath, and subsequently a bran or linseed poultice should be applied over the abdomen. It is a good plan to make such a poultice with strong decoction of poppies instead of water. If the vomiting will permit of the administration of medicine, the treatment recommended by Dr. West is most beneficial, viz.—

℞ Ol. Ricini, ʒj;
Pulv. Acaciæ, ℈j;
Syrupi, ʒj;
Tinct. Opii, ♏iv;
Aquæ Flor. Aurant., ʒvj. Misce.

A teaspoonful every four hours for a child one year old.

If such, however, be rejected, an enema consisting of

half an ounce of mucilage with three or four drops of Tinct. Opii should be carefully injected, which frequently relieves the tenesmus very speedily. Mucilage and chalk mixture, with opium or P. Ipecac. co., in small doses, are also useful. Throughout the strength must be well supported, and brandy is of all stimulants the best; its need must be judged of from the general circumstances of the case. Raw meat finely shredded will prove of the utmost use in supporting the strength, and small quantities of strong extract of meat may be given from time to time if the strength flag.

Milk, arrowroot, and rice may be freely given. When the more acute symptoms pass away is the time for astringents, the aromatic sulphuric acid, with tincture of bark, Tinct. Kino, hæmatoxylum, catechu, red gum or lead, will be of service. The child will require care and watching for some time after all apparent danger is over, from the tendency of slight causes to bring on a recurrence of the symptoms. Minute doses of nitrate of silver are recommended by Trousseau when the disease shows a tendency to become chronic. Sulphate of copper, tannin, and iron baths may also be used under such circumstances.

10. Worms.

We infer that a child suffers from worms when we hear that it picks its nose, grinds its teeth at night, has a voracious and capricious appetite, looks pinched and thin at the bridge of the nose and dark round the mouth, has a tumid belly, dark rings round the eyes, is often sick, and complaining of itching at the anus. But none of these symptoms are actually diagnostic; *seeing* the worms or parts of them pass away is the only infallible

indication of their presence. The varieties of worms are—

I. Cœlelmintha, or hollow worms (having an abdominal cavity).

1. *Trichocephalus dispar* (long thread-worm), two inches long, slender. Habitat, cæcum and large intestines.

2. *Ascaris lumbricoides* (round worm), like a common garden worm; light yellow, three to nine inches. Habitat, small intestines; is occasionally vomited up from the stomach, into which it has crawled.

3. *Ascaris* or *Oxyuris vermicularis* (thread-worm), quarter of an inch long; very common. Habitat, rectum; often comes away in masses.

II. Sterelmintha (solid worms), having no abdominal cavity.

1. *Tænia solium* (tape-worm), five to ten feet in length; common. Habitat, small intestines; white and flat; the head small, armed with four suckers, between which is the mouth surrounded with five hooks.

2. *Bothriocephalus latus* (broad tape-worm), twenty to one hundred feet. Habitat, small intestines; its segments are broader and shorter than those of the common tape-worm; it is almost confined to the inhabitants of Switzerland, Poland, and Russia.

Treatment.—1. Of the worms which infest the lower bowel.

Ascarides.—Injections of salt and water, of quassia, of santonine, gr. iv—gr. viij to ʒiv lime water, or lime water ʒiv to which ʒj or ʒiss of Tinct. Ferri Perchlor. has been added. With such an enema should be combined an aperient powder of calomel and scammony or jalap. Or a few grains (2—4) of santonine may be given at night, followed by an aperient in the morning. The child should also take some Tinct. Ferri Perchlor. in

quassia infusion for a while, and be directed to have its food well cooked and eaten with plenty of salt.

Trichocephalus dispar, or long thread-worms, must be treated on precisely similar principles.

2. Treatment of those worms which infest the small intestines.

Round Worms.—Santonine in dose of from two to four grains may be given at night (the child having no supper, the better to expose the worms to the action of the drug), followed by a teaspoonful or two of castor oil the next morning before breakfast. The process may be repeated for a night or two until the canal seems cleared. Santonine occasionally produces giddiness, sickness, and disordered vision; it is often given in the form of a lozenge or worm-cake.

Spigelia or Carolina Pink may be thus given:

℞ Pulv. Spigeliæ, gr. x;
Pulv. Stanni, ʒij;
Syrup. Zingiberis, ʒj;
Mellis, q. s. (*Neligan.*)

This makes a paste or bolus, which may be taken at bedtime and followed in the morning by a purge.

Mucuna Pruriens, or cowhage, acts only as a mechanical irritant; it is seldom used. The dose is a drachm with honey before breakfast, followed by castor oil.

Tape-worms.—Against these we have many remedies. Oil of male fern, thirty to sixty drops of the liquid extract (Ph. B.) in mucilage, fasting. Of the old ethereal oil, ten to thirty drops. A purgative should be administered before and after the male fern. This drug is occasionally successful against round worms.

Turpentine combined with castor oil in rather large doses is a good remedy; the dose varies from ʒss to ʒij. This drug also expels round worms.

Decoction of pomegranate root bark, in ounce doses, is an effectual but bulky and unpleasant remedy.

Kousso in ʒj—ʒij doses, is also efficacious; it requires an aperient subsequently.

Kamala, twenty to sixty grains of the powder, or in the form of tincture:

℞ Tinct. Kamalæ, ʒss—ʒj;
Syr. Aurantii, ʒj;
Mucil. Acaciæ, ʒss. Ft. haustus.

To be followed, as in the case of most anthelmintics, by a purge.

After any worm expulsion ferruginous and bitter tonics should be administered for a few weeks.

11. Jaundice.

Icterus neonatorum is jaundice occurring within a few days of birth, and disappearing, usually spontaneously, in a week or so. It occurs most commonly in infants prematurely born and feeble in constitution, and seems to be dependent on defective respiration and impaired performance of the functions of the skin, to which the hepatic disorder is but secondary (West). The treatment of these cases is most simple; careful avoidance of chill, a mild aperient, mercurial if necessary, and keeping the infant rigorously to the breast, suffice for their cure. Occasionally the jaundice of infants is more serious in origin; it may depend on congenital absence of the hepatic or cystic bile-ducts; in such cases bleeding readily occurs from the umbilicus, and, being destitute of coagulative properties, it is controlled neither by styptics nor ligature, but a constant oozing goes on from the granulating surface of the navel. When the bleeding, however, is

controlled (*e.g.* by transfixing the integument at the root of the navel by a couple of hair-pins, and twisting round them a strong silk ligature), death still usually occurs from atrophy or exhausting diarrhœa in a week or two. Jaundice in older children is caused, as in adults, by some temporary impediment to the flow of bile into the duodenum, and by defective secretion on the part of the blood. In both cases biliary matters, not being separated from the blood, get into the general circulation. The ducts may be obstructed by gall-stones, which are very rare in children; by cancer of the liver or pancreas, by inflammation, spasm, and even by constipation, the loaded bowel pressing on the ducts. On the other hand, the elimination of bile may be checked by congestion and inflammation of the liver, by mental emotions, and by gastric disorders.

When jaundice is established the skin is saffron yellow, so are the conjunctivæ; the motions are pale, the urine dark, and there is usually pain or weight in the liver region. The skin is often dry, there is bilious vomiting, headache, and vertigo, restlessness, sleeplessness, and morose or uncertain temper. Such cases yield readily to small doses of grey powder at bedtime, a little liquid extract of taraxacum with a small quantity of Epsom salts by day, and when recovery is progressing small doses of nitro-muriatic acid will complete the cure. Leptandrin and nitro-muriatic acid are remedies most valuable in the more chronic disorders of the liver in young children. Such have often been well dosed with calomel and grey powder, and it is then, by all means, desirable to avoid irritating the liver and damaging the general health further by their exhibition. If purgatives be required, it will be better in such cases to give a small dose of Leptandrin, gr. $\frac{1}{12}$—$\frac{1}{6}$ with podophyllin gr. $\frac{1}{6}$, which for

a child three or four years old will act admirably; these powders may be repeated twice or three times a week, when necessary, to promote the proper secretion of bile, and with their use it will scarcely be necessary to employ mercury in any shape. Nitro-muriatic acid baths are also serviceable in chronic cases.

12. Acute Peritonitis,

Rare idiopathically in the adult, is rarer still in the child; our notice of it, therefore, need be but brief. It is known to occur occasionally before birth, and to cause the death of the fœtus; such cases are probably syphilitic in origin.

The most prominent symptoms of peritonitis are pain aggravated by pressure and movement; even the weight of the clothes is unbearable; the child lies on its back, with its knees drawn up, with acute suffering stamped on its features; the abdomen is swollen, often tympanitic; there is restlessness and fever, diarrhœa oftener than constipation, and sometimes nausea and vomiting; a thready, rapid, jerking pulse. When effusion of serum takes place the belly ceases to be tympanitic, but may again become enormously so, shortly before death. The symptoms of secondary peritonitis are precisely similar, though perhaps less intense; it occurs secondarily in the course of ascites, typhoid, from perforation of the bowel, scarlatina, erysipelas, &c. The prognosis is always grave. Dr. Churchill says "there is no more mortal disease."

Treatment.—This should consist in relieving the pain by anodyne fomentations, or covering the stomach with extract of belladonna made soft with a little glycerine, then calomel and opium should be administered to touch the gums

slightly, and anodyne enemas may be resorted to, to procure sleep. If there be much diarrhœa the quantity of calomel must be lessened, and the quantity of opium increased. It is well in a child two years old to begin with half a grain of calomel and one grain of P. Cretæ cum Opio every two hours; in no case can good result from cathartic purging. Blisters are also inadmissible, and in my opinion bleeding in any form. If constipation happens to be present a lavement will relieve it.

The diet should be low at first, but the child must be seen every four hours, and the indications for improved nourishment and even stimulants narrowly watched for.

Ice is useful in controlling vomiting when present. Some practitioners recommend the use of mercurial ointment rubbed into the thighs to hasten salivation; ʒij of Ung. Hydrarg. may be spread on lint or muslin and laid on the abdomen, or rubbed into the thighs. The attack may degenerate into *chronic peritonitis*, which disease, however, when it occurs, more often arises independently; it is almost always associated with tubercle (and is hence called *tubercular peritonitis*). The attack is insidious; usually there is diarrhœa, painful or painless; the child seems fairly well otherwise. Later come pain and sensation of tightness in the abdomen, which is found swollen; the pain then becomes more frequent and paroxysmal in character; obscure fluctuation is then perceptible, and the veins over the belly are large and prominent. Still, the child's tongue may be tolerably clean and its appetite fair, and the bowels not very irregular. As effusion goes on, dyspnœa sets in, the pulse quickens, the skin gets hot, there are exacerbations morning and evening, loss of strength, great emaciation, diarrhœa, and death from exhaustion or some intercurrent tubercular affection rapidly follows.

The treatment will comprise, most especially, the use of iodide of potassium, and iodine ointment with cod-liver oil is to be rubbed frequently into the abdomen, which may also be painted with iodine paint, and over which warm applications may be laid to ease pain when required. The diet must be nourishing and the strength supported in every way. Sea air is occasionally beneficial, and tonics are useful so soon as the disease shows any sign of yielding, but it is unfortunately sadly fatal under any treatment.

13. Tabes Mesenterica,

Or tubercular degeneration of the mesenteric glands, resembles chronic or tubercular peritonitis very closely in its symptoms. It is rather a rare affection. Children from the twelfth month to the eighth year are most liable to it, but it is especially rare before the fifth year.

The presence of small quantities of tubercle in the mesenteric glands is, however, exceedingly common.

The symptoms are pain, more or less persistent, in the abdominal region, so that the child lies at such times with its legs drawn up to the belly; the bowels are irregular, confined or relaxed, often clayey and offensive; the abdomen remains large and tumid, whilst the rest of the body wastes (and this will distinguish such enlargement from that of rickets, *e.g.*), and debility rapidly increases. The disease cannot be diagnosed with absolute certainty until the enlarged glands can be felt through the abdominal walls, and this never happens until the disease has progressed for some time.

As the glands become enlarged various symptoms referable to pressure upon neighbouring organs are mani-

fested. Œdema and enlargement of the abdominal veins are common. Ascites is commonly, but not always, present; the mechanism of its production may be either pressure upon the thoracic duct or vena portæ, or chronic peritonitis occurring at various times in the progress of the disease; such peritonitis is rarely general, it is more often local, and post-mortem patches of recent and remote origin may be found. In such cases pain, fever, and the other ordinary symptoms of peritonitis, may be absent or so obscure as to attract no attention.* Occasionally the ascites is very considerable, and fluctuation is very distinct; it is, perhaps, more often small in quantity, and the fluctuation indistinct from adhesions. There may be considerable tympanites, occasionally vomiting and diarrhœa, the tongue usually pretty clean, and the appetite good. Cases are seen in which no swelling whatever of the abdomen occurs; it is, on the contrary, rather shrunken; in such cases the tumour can usually be felt easily; it is hard, roughly nodulated, and somewhat movable. The tubercular deposits of tubercular peritonitis, *e. g.* in the omentum, &c., are generally softer, less nodulated and more movable. Fever, pain, early abdominal swelling, and tenderness with more or less obscure fluctuation, as prominent symptoms, point to peritonitis; but inasmuch as the two diseases may coexist, the diagnosis is often very difficult. Considerable hypertrophy of the cervical glands will indicate the probability of tabes rather than peritonitis.

Hectic fever sets in towards the close, the pulse becomes extremely rapid, and profuse sweats are common; the child dies at last either of exhaustion, of some intercurrent attack of enteritis, or peritonitis. The disease frequently lasts for months, with exacerbations and remissions, and it does occasionally, but very rarely, terminate in recovery.

* See a case reported in the 'Lancet' of August 21st, 1869.

The *treatment* will be mainly that of tubercle elsewhere, viz. supporting the strength, correcting the disordered state of the liver and bowels, and the administration of iodide or phosphate of iron and cod-liver oil. Inunction of iodine ointment and cod-liver oil is useful. Change of air, especially to sea air, is all important, and bathing in warm or cold sea water, according to the season of year, should be resorted to. Cream, chocolate, and cocoa, are valuable nutriments in these cases.

14. Abdominal Tumours.

It must be remembered that when children are brought "for a big belly," it very often happens that the abdominal enlargement is only what is really quite natural and wholly unconnected with disease of any kind. Children naturally have "big bellies." In other cases the enlargement is evidently associated with rickets or tubercular peritonitis.

The liver is the organ which most frequently gives rise to genuine abdominal tumours in children; after the liver the spleen, and after the spleen the kidneys, are the glands most commonly at fault.

The liver may be enlarged from fat deposit, constituting "*fatty* liver." Frerichs calls attention to the frequent association between fatty liver and pulmonary tubercle. In infants at the breast the hepatic cells are usually rich in fat, and the liver is often to be felt enlarged during the first few weeks of life from injudicious stuffing. Again, *hyperæmia* and enlargement of the liver may result from obstruction to the circulation of the blood, as in morbus cordis, especially in mitral disease, both obstructive and regurgitant, and also in constriction of the thoracic cavity from angular curvature. In such cases of mechanical ob-

struction to the onward flow of the blood the liver becomes uniformly enlarged, its capsule distended, and its parenchyma firmer. On section it presents a '*nutmeg*' appearance, and hence this condition is often called nutmeg liver. The symptoms are (besides those to be ascertained on manipulation and percussion) those of gastric catarrh, and also slight jaundice, constipation, and scanty high-coloured urine, slightly albuminous. The enlarged organ at first feels smooth and tense, later it is uneven and granular. The treatment must be mainly palliative, inasmuch as the *fons et origo mali* is incurable. When much pain exists in the hypochondrium a few leeches may be useful, or dry cupping. Mild saline purgatives, with taraxacum and the occasional use of a leptandrin or podophyllin powder, are the chief indications. Frerichs recommends the waters of Marienbad and Kissengen.

Amyloid, albuminoid, or *waxy* liver, gives rise to considerable tumours. It is associated most frequently either with (α) caries or necrosis of the bones, especially in the joints and vertebræ, more rarely in the shafts of the long bones; (β) rickets; (γ) constitutional syphilis; (δ) ague; (ε) tubercle of lungs or intestines.

The disease usually lasts over many months; its time of origin is, however, rarely noted, as it gives rise to few symptoms during its early progress, and, indeed, the liver may attain considerable size before the general health is at all interfered with; by-and-by, however, albuminuria, ascites, and enlargement of the spleen are noticed. The liver itself is hard, the surface smooth, the edge sharp and well defined; these points, the tumefaction of the spleen, and the association with caries, struma and syphilis, are diagnostic from hyperæmic swelling, and, indeed, from fatty liver, which is softer on palpation and rarely associated with either splenic or renal disease. The prognosis

is always grave. When albuminuria sets in, the case always terminates fatally.

Treatment.—Iodide of potassium and iodide of iron are the remedies to be directed against the constitutional taints with which waxy liver is associated.

Dr. Budd recommends the hydrochlorate of ammonia in five-grain doses. The springs of Karlsbad, Ems and Weilbach are recommended. Moffat would appear the most suitable in this country. In a word, alkaline thermal and thermal sulphurous springs have appeared the most beneficial.

Post-mortem.—The liver in these cases is usually found large, smooth and firm ; its cut surface pale and glistening. On applying a solution of iodine a deep red tint, characteristic of amyloid matter, is produced ; the subsequent addition of sulphuric acid changes this to a deep violet or, more rarely, blue tint.

The spleen is usually enlarged, its consistence firm, and presenting on section the appearance known as 'sago spleen,' in which the little bodies like grains of sago become blue when treated with iodine and sulphuric acid. The kidneys are also commonly enlarged, and in a state of granular degeneration.

Hydatids of the liver is a disease giving rise to tumour, but very rarely met with in children. The symptoms are few or none until the tumour attains considerable size, and especially when the hydatid cysts are buried in the substance of the gland. More often, however, a rounded bulging tumour is discernible in the right or left hypochondrium or in the epigastrium ; such tumours are smooth, globular, and elastic, sometimes imparting a distinct sense of fluctuation. A vibratory thrill has been described as very characteristic when present ; it then indicates a multivesicular cyst. Pain is but rarely present, as also jaundice

and ascites. There is no fever, but symptoms referable to the pressure exercised by the growth become manifest as the disease goes on. Such are dyspnœa, palpitation, constipation, and œdema. The cyst may burst in various directions, *e. g.* into the pleura, peritoneum, intestines, or externally. In such cases pleurisy, pneumonia and expectoration of the hydatids, vomiting or evacuation of the hydatids, occur, according to the direction of the bursting. The most favorable condition is when the tumour bursts into the stomach or intestines. Occasionally hydatids undergo spontaneous cure, and are only found post mortem, their existence having been unsuspected during life. The spleen often suffers from hydatids contemporaneously with the liver. When the diagnosis is doubtful Récamier recommends puncture with a fine trocar. The fluid withdrawn should be limpid, watery, and free from albumen, and the hooklets or scolices of the echinococci are readily recognisable by the microscope.

Common salt and iodide of potassium have been recommended in this disease. Puncture has frequently been attended with success when the tumour is fixed by adhesions to the abdominal wall. Care must be taken to prevent any of the fluid running into the peritoneal cavity; this is best effected by pressing the abdominal wall against the cyst, and afterwards applying a padded bandage and ensuring complete quiet for twenty-four hours. To determine the existence of adhesions, Dr. Budd recommends that the edge of the tumour and liver margins be marked with ink, and then it should be noted if these boundaries are altered by change of posture, deep inspiration, and especially if the most prominent or presenting portion of the tumour remains a fixed point.

Cancer of the Liver is also extremely rare; as a secondary deposit, I have seen one case in a child seven years of age.

The diagnosis would be assisted by the cancerous cachexia, by pain, emaciation, sallowness, and feculent diarrhœa. The tumour is hard and nodular, and tender to the touch, though these conditions are not uniformly present. Jaundice, when it occurs, is persistent. Ascites is commonly present. The spleen is usually unaffected and not enlarged; this is of importance, as a diagnostic from amyloid liver. Dyspepsia is usually an early and constant symptom. Hæmorrhages are common towards the close of the disease. The treatment can, unfortunately, be but palliative.

Cancer of the Kidney is another condition occasionally producing abdominal tumour in the child. The same cancerous cachexia, gastric disorder, diarrhœa, and ascites, are present as in the liver cancer; occasionally there is hæmaturia, which, when present, is a significant symptom. Cancer of the right kidney is usually separated from the liver by a coil of intestine, which aids the diagnosis. Cancer of the left kidney is diagnosed from enlarged spleen by its rounder outline in front, the spleen having a sharp edge, and by the greater extent of the tumour into the lumbar region.

Cancer of the Stomach gives rise to greater dyspepsia, to hæmatemesis, and to pain after every meal. Moreover, the percussion is tympanitic when the stomach is diseased, dull when the liver is affected.

Leucocythæmia.—This condition, which appears due to the presence of an excess of white corpuscles in the blood, is attended with enlargement of the spleen especially, occasionally of the liver, thyroid gland, and supra-renal capsules. It is attended with pallor, great emaciation, and debility, tumid abdomen from splenic enlargement, diarrhœa, and a disposition to hæmorrhage, especially epistaxis, and hæmatemesis, anorexia, nausea, jaundice;

œdema and ascites are other concomitant symptoms. The disease is not uncommon in children; it is to be recognised from tuberculosis by the splenic and hepatic enlargement, and the extreme pallor, which, in one child that I attended, was most remarkable; this child was carried off by an intercurrent attack of measles. During the year it was under my observation it suffered from general debility, but no special symptoms, except some increasing feebleness; the child remained fairly nourished, and suffered but little. A very mild attack of measles rapidly proved fatal.

The treatment is unsatisfactory. Tonics are recommended. Steel and cod-liver oil seemed to me to be somewhat beneficial, though I cannot say much improvement took place under their use. Iodide of iron is perhaps the best form. I should another time try the hydrochlorate of ammonia in large doses.

15. Diseases of the Kidneys.

Diabetes and Diuresis.—True diabetes is so infinitely rare in childhood that it is unnecessary to consider it in this place, the more as, when it does occur, the treatment would be precisely similar in diet and remedies as in the adult. A simple diuresis occasionally follows a more or less prolonged condition of disordered stomach; when it occurs, attention to the diet (animal, and farinaceous foods and milk being most suitable), and careful regulation of the gastric or intestinal disorder, suffice for its cure. Warm baths and change of air are also valuable adjuncts in this affection, which is by no means common.

Acute Desquamative Nephritis rarely arises idiopathically, but is common as a sequela of scarlet fever; the symptoms of the disease are similar in either case,

viz. chilliness and feverishness, restlessness, pains across the loins, vomiting. Dropsy is usually an early symptom; the face is the part first affected; a peculiar puffiness is noticed, then the body generally becomes swollen, and there is occasionally effusion into one or other of the serous cavities; the urine becomes scanty, albeit micturition is frequent, its colour is dark, and it is highly albuminous; a favorable prognostic is an increase in the quantity of urine, on which the dropsy rapidly subsides. During convalescence large quantities of urine, varying from three to six pints, are often passed in the twenty-four hours. Microscopical examination of the urine discovers crystals of lithate of ammonia, mucus, epithelium scales, casts of the tubules, and blood-corpuscles.

The treatment must be directed to the proper exercise of the skin functions, and for this the hot-air bath is of great value, and with it diaphoretics should be combined. Tartar emetic and Dover's powder in small and repeated doses is a useful combination. When the disease is yielding and the anasarca diminishing, mild diuretics, as the citrate of potash with a little spirit of nitre, will be useful. It will be necessary throughout to keep up a sufficient action of the bowels, and for this purpose no medicine is better than compound jalap powder. Dr. Dickinson recommends that the patient should drink large quantities of water to dilute the urine and diminish the quantity of albumen. Dr. Johnson recommends wet cupping over the loins in severe cases. Dry cupping always seems to me, in children especially, a safer and very effectual remedy; especially after scarlatina there is no blood to be lost. It need, perhaps, scarcely be added that blisters are most inadmissible. During convalescence cold must be carefully guarded against, and the diet be well regulated.

16. Incontinence of Urine

Is occasionally associated with renal diseases, as gravel, excess of lithic acid in the urine, also with general debility, worms, and masturbation. More often it is caused by an excessive use of liquids, or by lying on the back during sleep. If no specific cause be present in the urine, if there be no worms and no bad habits, the best treatment will be to have the child held out once or twice every night at the same hour; to tie a reel of cotton over the spine to prevent the dorsal decubitus; to administer internally tincture of belladonna in small doses. A belladonna plaster may also be put over the sacrum. In very obstinate cases a suppository of belladonna in cacao butter is valuable. Abstinence from, or great moderation in, fluids towards night is, of course, necessary. A child seldom requires scolding for this habit; it is usually beyond its control; but if it be due to sheer idleness and dirtiness, as it sometimes is, proper correction must be resorted to. A combination of belladonna and strychnia is sometimes useful, as—

℞ Liquor. Strychniæ, ♏j;
Tinct. Belladonnæ, ♏ij;
Inf. Cascarillæ, ʒij. Ft. mist.

For a child three years old, may be given three times a day; or, benzoic acid in doses of from one to five grains made into a pill, with extract of liquorice, may be tried, and will sometimes succeed when belladonna has failed.

17. Vaginitis.

Leucorrhœa is by no means uncommon in girls of all ages; generally the seat of discharge is limited to

the vulva; it is seen in scrofulous children, and not unfrequently occurs in the course, or as a sequela of, scarlatina. Dentition and ascarides are fruitful causes of this condition. The discharge is not to be distinguished from that of gonorrhœa, but the history of the case, the absence of marks of injury, the amount of swelling, the presence of an unbroken hymen, and the presence or absence of painful micturition at the onset of the attack, will generally decide the true origin. The disease runs often a very tedious course, except when due to evident and removable sources of irritation, *e.g.* worms, dentition, and constipation. Most important in the treatment is absolute cleanliness; the discharge must be cleansed away with warm water, as in ophthalmia, several times a day, a weak astringent lotion being afterwards employed—sulphate of zinc, alum, acetate of lead, or nitrate of silver, according to the severity of the case. It is a good plan to use first one and then another of these lotions. Cold salt-water baths and friction with a rough towel are very useful, so is change of air to the sea-side and sea-bathing. Ferruginous and bitter tonics should be administered; the astringent lotions and tonics should be continued for three or four weeks after apparent cure, as this affection is very liable to return.

18. Prolapsus Ani.

This is a very common affection, especially amongst the children of the poor, from their too constant habit of giving purging physic of one sort or another to their children. Another cause is the practice of leaving children to strain upon their stools for twenty minutes or half an hour together. Sometimes it is a result of

habitual constipation, sometimes a sequence of the straining caused by severe attacks of dysentery and diarrhœa, which have weakened the muscular coats of the bowel. The treatment will vary somewhat with the cause. If there has been abuse of purgatives, especially of 'Steedman's powders,' and calomel, jalap, &c., such must be prohibited, and purgatives given only in degree absolutely necessary to maintain liquid stools. Syrup or confection of senna (castor oil is objectionable, as it tends to constipate), olive oil, or even cod-liver oil, are often sufficient and quite harmless. The diet should be regulated. Brown bread may be given instead of white, a little gruel allowed daily, or some stewed fruit, especially apples. Locally the bowel must be carefully returned, pressed back with a finger; cold water should be plentifully applied after each protrusion. Cold salt-water hip-baths, and friction of the abdomen and loins with a rough towel, are also useful. I have seldom found much benefit from astringent injections; still, they are frequently recommended, and can do no harm. If attention to the bowels and cold-water sponging are insufficient, the child should be compelled to pass its motions lying on its back; it is a good plan, in obstinate cases, to keep the child in bed, with its feet raised up on a pillow, for a few weeks. Surgical operations, *e. g.* pinching up a fold of the bowel, or destroying a portion of the relaxed membrane, are occasionally necessary. When the condition is the result of weakening diseases, tonics, ferruginous and bitter, may be usefully employed, and iron or bark baths daily used.

CHAPTER VIII.—GENERAL THERAPEUTICAL HINTS AND FORMULARY.

The action of a drug upon children often differs in kind, as well as in degree, from its action in the adult. Drugs found comparatively inert in the diseases of grown people often act with surprising effect and vigour in the young child. Children are more tolerant of some drugs than adults, and less tolerant of others; calomel and opium are notable examples. Children are altogether more susceptible, by reason of the greater delicacy of their frames, to the action of powerful medicines. Hence the common remark that homœopathy is so successful with children. It is so, not as homœopathy, but as the natural result of the action of powerful agents upon tender organizations; this is a point too much lost sight of by many practitioners. Children tolerate well, and, indeed, require certain classes of remedies which would not be at all suitable for corresponding complaints in the adult; emetics form a good example. Children bear much loss of blood very badly, and general bleeding should rarely or never be resorted to; leeches are often of great value, and the application of a few at the right time, and in the right place, does incalculable good in the relief of suffering and in the general constitutional effect produced.

Blisters should be resorted to as seldom as possible; every physician must have seen the baneful effects of blisters on the sick child—the extreme anguish they cause, the excitability they set up, the albuminuria they bring on,

the intractable sores they so often leave behind. The Emplastrum Lyttæ should be exploded, and when actual blistering is necessary (as for the relief of serous effusion, &c.) blistering fluid should be used, and the sore encouraged to heal as rapidly as possible. Behind the ears and on the vertex are the best points for head blistering; the nape of the neck is the refinement of cruelty, as the child can rest in no way. Physicians whose faith in the action of medicines on the adult has been severely shaken are often astonished and pleased in witnessing the effect of the same medicines in the child. There are just two or three rules for prescribing which are thoroughly practical and should always be borne in mind.

1. It is not good practice to give a number of powerful remedies at the same time. Some practitioners seem to endeavour to exhaust the Pharmacopœia on one sheet of paper, and frequently end with prescribing an incompatible or inert compound. Such a drug as arsenic, for instance, does not require half a dozen others to aid its operation; if good result, the good cannot be credited to the arsenic amidst the crowd; if harm, it is unfair to blame the most potent agent, when, perhaps, some of the incapables have been deranging its action.

2. Remedies of moderate bulk and of no extreme nauseousness should be selected for children. It is the best practice to make their medicines palatable, lest the struggle of giving it counterbalance the benefit produced. An excellent practitioner of my acquaintance has an unfortunate fancy for assafœtida in the nervous diseases of little ones, with what spasmodic results many an unhappy nursery can testify.

3. Narcotics and irritants must be avoided as far as possible, or when given their effects must be most carefully watched.

4. With regard to dose, no rules can be laid down without exceptions, but the following table of Gaubius is a general and valuable guide:

Ages.	Proportional quantities.	Doses.
Suppose the ordinary adult dose to be 1 drachm, then		
A child under 6 months	will require $\frac{1}{30}$	2 grains.
„ 1 year	„ $\frac{1}{12}$	5 „
„ 2 years	„ $\frac{1}{8}$	7·5 „
„ 3 years	„ $\frac{1}{6}$	10 „
„ 4 years	„ $\frac{1}{4}$	15 „
„ 7 years	„ $\frac{1}{3}$	20 „
„ 14 years	„ $\frac{1}{2}$	½ drachm.
„ 16 years	„ $\frac{2}{3}$	2 scruples.
„ 21 years	full dose	1 drachm.

FORMULARY.

N.B.—In the following formulæ the doses are such as to be generally suitable for a child three years old. When a lower and a higher dose are given—*e.g.* Potass. Citrat., gr. v—xv—the lower dose is intended for a child about three years, the higher for a child about nine or ten years old.

For convenience it will be useful to group together a few of the more important drugs under the ordinary headings of purgatives, emetics, tonics, &c. Each group referred to will be found in the index at the end of this section. This section makes no pretension to completeness, but is inserted simply as a guide in the combination and selection of remedies generally serviceable in the disorders of childhood.

1. Blood-restorers.

Iron—Manganese—Cod-Liver Oil.

Ferrum (Iron).

a. Without astringency (pure blood-restorers).

Ferri et Ammoniæ Citras. *Dose,* gr. j—v. May be given in tincture of orange and water, or in Inf. Gent. co., or in water.

— et Quiniæ Citras. *Dose,* gr. j—v. May be given in water and sweetened.

— Iodidum. Almost always given as syrup. *Dose,* ♏xx—℥j. (Invaluable in scrofula, &c.)

— Phosphas. Chiefly as the compound syrup, with the phosphates of lime, soda, and potash. *Dose,* ♏xx—℥j.

I have used this remedy in thousands of cases with the best result; it is tolerated when other preparations of iron are not, and has never disagreed with any little patient to whom I have administered it. Its pleasant taste and pretty colour are not without their advantages for sick children. Its value in rickets, in scrofula, and general debility, cannot be over-estimated; I occasionally add a small quantity of quinine or cod-liver oil to each dose.

Ferrum Redactum. Dose, gr. ¼—gr. j. A very convenient form of administering iron as powder by reason of its small bulk and tastelessness; it is free from astringency, and a good remedy in anæmia, chorea, &c. The British Pharmacopœia has lozenges of this preparation, the dose of which is one or two twice a day.

1. ℞ Ferri Redacti, gr. xxx;
Pepsinæ Porci, gr. xxx;
Zinci Phosphatis, gr. xv;
Glycerini, q. s. ut fiat massa.

Divid. in pil. xxx. *Dose*—j or ij. In anæmia, chlorosis, &c. (*Tanner*).

Ferrum Tartaratum, used as wine. *Dose,* ♏xx.—ʒj. Slightly astringent, not incompatible with alkalies; very largely used in children's disorders.

β. *With astringency.*

Tinct. Ferri Perchlor. Dose, ♏ij—♏ xv or xx. Very valuable, when combined with Quassia or Calumba, for worms, and also as a general tonic; it should be sweetened, the taste being extremely astringent. It cannot be prescribed with alkalies.

ADDITIONAL FORMULÆ.

Iron in effervescence.

2. ℞ Ferri Citrat., gr. iij—vj;
Acidi Citrici, gr. v—x;
Aquæ, ʒss—j.
Cum Pot. Bicarb. gr. v—x;
Syrup. Aurant., ʒss—j;
Aquæ, ʒss—j.
Ft. mist. cap. dum effervescend. ter die.

With Quinine.

3. ℞ Quinæ Disulph., gr. ½;
Ferri Sulphat., gr. ½;
Acid. Sulph. dil., ♏v;
With or without Magn. Sulph., gr. x—xv;
Æth. Chlor., ♏j—iij;
Aquæ, ʒss. Bis vel ter die.

As Electuary.

4. ℞ Ferri Peroxid. Hydrat. (vel Sesquioxidi), ʒij;
Confect. Aurant.,
Theriacæ, āā ʒj.
Dose—Half a teaspoonful or a teaspoonful.

Manganese, unastringent tonic, in large doses stated to be cholagogue.

Manganesii et Ferri Carbonatis cum Saccharo. Dose, gr. iij—v. Not much used.

Ol. Morrhuæ, a sheet-anchor of medicine in scrofula,

tuberculosis and debility of all sorts, glandular enlargements, rickets, &c.

The secret of giving cod-liver oil successfully is *not to give too much*, and to give it at the right time. Small doses are best to begin with, a few drops for a very young child, ʒss—ʒj for older ones, in orange wine, or a little weak nitro-muriatic acid in water, well sweetened. It should be given so as not to clash with meals, or soon after a meal; if before, it spoils the appetite. Bedtime is a good time when it causes sickness; the child lying down immediately afterwards, it is usually well retained. When it causes diarrhœa, and often in rickets, I give it with equal parts of lime water. A little iodide or phosphate of iron may be dissolved in it, or a little phosphorus when the administration of that drug is desirable. As an external application to many obstinate forms of eczema capitis and other cutaneous diseases, I have found it extremely valuable.

If necessary, it may be made into an ointment, as—

5. ℞ Ol. Morrhuæ, ʒss;
Liquoris Potassæ, ʒss;
Adipis, q. s. Ft. unguent. (*Dr. Neligan.*)

When cod-liver oil cannot be tolerated, glycerine and cocoa-nut oil are the best substitutes. They should be given in doses of ʒj—ʒij two or three times a day.

2. Antacids.

Salts of Potash, Soda, Magnesia, Calcium, Lithium.

Potassa.

Potassæ Acetas renders urine alkaline; it is diuretic, and laxative. *Dose,* gr. iij—x—ʒss as a

laxative. Acetate of potash has been recently recommended by M. Labat in large doses in croup.

Potassæ Bicarb. renders urine strongly alkaline; it is antacid and diuretic; much used in rheumatism. *Dose,* gr. iij—xv. Rather more as a diuretic.

— *Citras* renders urine slightly alkaline; it is refrigerant, saline, mildly laxative, and diuretic. *Dose,* gr. v—xx.

— *Tartras* renders urine alkaline; it is diuretic, purgative, refrigerant. *Dose,* gr. x—ʒss. Purgative, ʒss—ʒij.

Liquor Potassæ does not render urine alkaline, but alkalinizes the blood and renders fibrin less plastic, hence its use in serous inflammations, especially those attended with deposit of fibrinous matter. It is also used in rheumatism and cutaneous diseases. *Dose,* ♏iij—xv or xx.

FORMULÆ.

6. ℞ Liq. Potassæ, ♏iij—xv;
Syrupi Simp., ʒss;
Inf. Serpentariæ, ʒj—iv.

In lithic acid diathesis. Very useful in chronic rheumatism.

7. ℞ Pot. Bicarb., gr. iij—xv;
Inf. Gent. co. vel Inf. Calumbæ, ʒj—iv.

In dyspepsia with acidity.

8. ℞ Pot. Bicarb. gr. iij—x;
Tinct. Hyoscyam., ♏iij—x;
Inf. Pareiræ vel Inf. Buchu, ʒij—iv.

In acidity and turbid urine. A good diuretic.

9. ℞ Pot. Citratis, gr. v—ʒss;
Vin. Ipecac., ♏v—xx;
Syrup. Scillæ, ♏xx—ʒj;
Aquæ vel Dec. Senegæ, ʒij—ʒss.

In bronchitis and febrile cough.

Soda.

Soda Tartarata renders urine alkaline. *Dose,* gr. xx—ʒij. A mild refrigerant laxative of great value in many febrile affections, seldom disagreeing with the stomach. A capital medicine for children.

Sodæ Bicarb., a valuable antacid, much used in dyspepsia and heartburn; combined with rhubarb and some carminative (*e.g.,* ginger in Gregory's powder) is a good laxative for infants. *Dose,* gr. iij—xv or xx.

It is less used than the corresponding potash salt as an antilithic, the urates of soda being less soluble than the urates of potash.

Sodæ Phosphas (tasteless purging salts). *Dose,* ʒss—ʒij. A valuable purgative for children, usually given in broth or milk; in smaller doses diuretic.

FORMULÆ.

10. ℞ Sodæ Tartaratæ, gr. xx—ʒj;
Pot. Nitrat., gr. j—v;
Syr. Zingiberis, ♏xv—ʒss;
Aq. Menth. Pip., ʒij—iv.

A good refrigerant in measles and other febrile affections.

11. ℞ Sodæ Bicarb., gr. v—xv;
Ammon. Sesquicarb., gr. j—iv;
Tinct. Gent. co., ♏v—xv;
Inf. Calumbæ, ʒij—iv.

For dyspepsia and acidity of stomach, &c.

12. ℞ Sodæ Bicarb., gr. v—xv;
Inf. Rhei conc., ʒss—ij;
Inf. Gent. co., ʒss—ij.

Tonic aperient.

Magnesia and *Magnesia Levis,* antacids and largely used laxatives for children. The light variety is stated to act more quickly. *Dose,* gr. v — ʒss. The new Liquor

Magnes. Carb. is an imitation of Dinneford's Fluid Magnesia, which has long enjoyed a great reputation. *Dose,* ʒij—ʒj.

FORMULÆ.

13. ℞ Magnesiæ, gr. iij—v;
Syr. Rosæ, ʒj:
A laxative for the youngest infants.

14. ℞ Magnesiæ, gr. v—x;
P. Rhei, gr. iij—x;
P. Cinnam. co., gr. j—iij.
A useful aperient.

Calcium.

Creta Præp. (prepared chalk). *Dose,* gr. iij—ʒss. Antacid and astringent; much used in diarrhœa.

Mist. Cretæ. Dose, ʒj—ʒss. Generally combined with Catechu, Kino, Cinnamon, or Opium.

P. Cretæ Arom. Dose, gr. v—xx.

— — c̄ *Opio. Dose,* gr. ij—x (Opium 1 in 40).

FORMULÆ.

15. ℞ P. Pot. Bromid., gr. j—iij;
Mist. Cretæ, ʒj—ij;
Syrupi, q. s.
In the irritable stomach of young children, accompanied with vomiting of sour and curdled character.

16. ℞ Cretæ Præparatæ, ʒiss;
Acaciæ Pulv.;
Sacchari Albi, āā ʒj;
Tinct. Opii, ♏x;
Aquæ, ʒiij. Ft. mist.
A teaspoonful every hour. In diarrhœa (*Dewees*).

Calcis Phosphas. Dose, gr. j—iij. It may be mixed with the food, and is highly recommended by Dr. Beneke in rickets, diarrhœa, ulcerations, and excoriations of the

skin and mucous membranes, and in general wasting of children.

17. ℞ Pulv. Calcis Phosphatis, gr. xv;
Bismuthi Nitratis, gr. xv;
Pulv. Sacch. Albi, ʒj.

Divid. in chartulas 5. Sumat j intercibos nocte maneque. In chronic diarrhœa and wasting (*Trousseau and Reveil*).

3. Astringents.

The following remedies may be grouped under this head:

Aluminium.

Plumbum.

Quercus (chiefly external use, as injections and lotions).

Galla.

Krameria.

Rosa.

Tormentilla (seldom used).

Granati Radicis Cortex (chiefly as anthelmintic).

Hæmatoxyllum (decoction, a good remedy, but stains linen).

Kino (the compound powder contains opium 1 in 20. *Dose* according to opium).

Catechu.

Bael (Extract. Liquid. Belæ Fruct. *Dose,* ♏v—ʒss in dysentery).

Matico (has a tonic action on the urinary passages).

Gummi rubrum (a new remedy). *Dose,* gr. j—vj. Syrupus Gummi Rub. *Dose,* ♏xx—ʒj. Much used in diarrhœa and dysentery).

FORMULÆ.

18. ℞ Aluminis, gr. ij—xv;
Acidi Sulph. dil., ♏ij—x;
Syrupi, q. s.;
Inf. Rosæ Acid., ʒj—iv.

In chronic diarrhœa and passive hæmorrhage. To be given every three or four hours.

19. ℞ Aluminis, gr. xxv;
Extracti Conii, gr. xij;
Syrupi Rhœados, ʒij;
Aquæ Anethi, ʒiij. Ft. mist.

In the second stage of pertussis (*Golding Bird*). A dessert-spoonful every four or six hours.

20. ℞ Plumbi Acetatis, gr. j;
Pulveris Opii, gr. ¼;
Pulv. Glycyrrhiz., gr. iij. Ft. pulvis.

In the hæmorrhage of typhoid fever. To be given every six hours for a child five years old.

Acidi Gallici. Dose, gr. j—v. Dissolved in hot water, and well sweetened and allowed to cool. Useful in chronic diarrhœa, excessive sweating, and in hæmorrhages; also in bronchitis with excessive expectoration.

21. ℞ Acidi Tannici, gr. v;
Acidi Nitrici dil., ♏vj;
Inf. Gentian. co., ʒij. Ft. mist.

To restrain excessive secretion and in hæmorrhage. Every three or four hours for a child ten years old.

Glycerine of tannin, as an application, is highly praised by Dr. Ringer in ozæna and other offensive nasal discharges, in chronic otorrhœa and vaginitis, in chronic inflammation of the throat, in relaxed throat and uvula causing irritable cough, and in eczema behind the ears of children.

Combinations of the infusions or tinctures of Kino, Catechu, and Krameria, with the mineral acids, chalk or opium, are the ordinary remedies for diarrhœa. One or two formulæ will suffice.

22. ℞ Tinct. Kino, ♏x;
Syrup. Papav. Alb., ♏x;
Tinct. Catechu, ♏v;
Aquæ Cinnamom., ʒij.

Every three or four hours, as an astringent.

23. ℞ Extract. Rhataniæ, ʒss;
Confect. Ros. Gall., ʒiv;
Syrup. Papav. Alb., ʒij;
Pulv. Catechu, gr. xv. Ft. electuarium.
In diarrhœa, &c. (*Trousseau*). Dose—a teaspoonful.

4. Acids.

Acidum Sulphuricum (dil.). Tonic, refrigerant, and astringent. *Dose,* ♏ij—v or x.

— Nitricum (dil.). Tonic, refrigerant, alterative. *Dose,* ♏ij—v or x.

— Nitro-hydrochloricum (dil.). Tonic, hepatic alterative. *Dose,* ♏j—v.

— Citricum. } Refrigerants, diminishing thirst.
— Tartaricum. } *Dose,* gr. ij—x.

— Phosphoricum (dil.). Tonic, refrigerant; used in rickets. *Dose,* ♏ij—v.

— Sulphurosum. Antiseptic; destroys vegetable growths. *Dose,* ♏v—xx.

— Hydrochloricum (dil.). Refrigerant, antiseptic, and tonic. *Dose,* ♏ij—v.

— Carbolicum. Antiseptic, astringent; very valuable in chronic offensive diarrhœa. *Dose,* gr. ¼—j, largely diluted and sweetened.

FORMULÆ.

24. ℞ Acid. Sulph. Aromatic., ♏ij;
Aquæ, ʒij.
In diarrhœa; for a child five years old.

25. ℞ Acidi Phosphorici dil., ♏iij;
Acidi Hydrochlor. dil., ♏iij;
Inf. Calumbæ, ʒiv.
In mucous and phosphatic urine.

26. ℞ Acidi Nitrici dil., ♏ij—vj;
Syrupi, q. s.;
Aquæ vel Decoct. Hordei, ʒiv—ʒj.
In typhoid and other fevers.

27. ℞ Acidi Nitrici dil., ♏ij—x;
Inf. Chirettæ, Inf. Gent. co.,
vel Decoct. Cinchonæ, ʒiv—ʒj.
Stomachic tonic.

28. ℞ Acidi Nitrohydrochlor. dil., ♏ij—v;
Syrupi Sarsæ, ʒj;
Aquæ, ad ʒiv.
In syphilitic cachexia.

29. ℞ Acidi Nitrohydrochlor. dil., ♏ij—v;
Ext. Tarax. Liquid., ♏x—ʒss;
Inf. Cascarillæ, ʒij—iv.
Hepatic alterative, and tonic.

5. Alteratives.

Iodine (chiefly as Syr. Ferri Iodidi and Pot. Iodid.).
Bromine (chiefly as Pot. Bromid. and Ammon. Bromid.).
Chlorine, Sulphur } (in their compounds).
Arsenic.
Mercury.
Potass. Chlor.
Ammon. Hydrochlor.
Dulcamara.
Sarsa.
Hemidesmus Indicus.

FORMULÆ.

Iodide of Potassium.

30. ℞ Pot. Iodid., gr. ½—vj;
Sp. Am. Arom., ♏j—v;
Syr. Sarsæ, ♏x—ʒj;
Aquæ, ʒij—ʒss or ʒj.
In syphilitic skin diseases and cachexia, &c.

31. ℞ Pot. Iodid., gr. ½—v;
Tinct. Hyoscyam., ♏ij—x;
Inf. Serpentariæ, ʒij—iv.

Chronic rheumatism, syphilitic affections, &c.

32. ℞ Pot. Iodid., gr. ½—v;
Sp. Am. Arom., ♏j—v;
Magn. Sulph., gr. x—xx;
Aq. Camph., ʒij—iv.

Chronic pleurisy with effusion.

33. ℞ Pot. Iodid., gr. ½—v;
Ferri Ammon. Citrat., gr. ij—x;
Syr. Sarsæ, ♏xv—ʒss;
Aquæ, ʒij—iv.

In debility when the action of Iodine is desirable.

34. ℞ Syr. Ferri Iodidi, ♏xx—ʒj;
Dec. Cinchonæ, ʒij—iv.

Scrofulous affections, strumous glands, &c.

35. ℞ Pot. Iodidi, gr. ½—v;
Glycerini, ʒss—j;
Syr. Aurantii, ʒss—j.
Ex. Aquæ. Bis vel ter quotidie.

In tuberculosis and the early stages of phthisis.

36. ℞ Pot. Iodidi, gr. ½—v;
Ol. Morrhuæ, ʒss—ij;
Aq. Calcis, ʒss—ij. Bis vel ter die.

In phthisis, &c.

Bromide of Potassium.

37. ℞ Pot. Bromid., gr. i—v;
Syr. Papav. Alb., ♏x;
Vin. Ipecac., ♏v—x;
Dec. Senegæ, ʒij.

In pertussis. To be given every two or three hours, the quantity of the Bromide increased gradually. For a child one year old.

38. ℞ Potassii Bromidi, gr. iij—x;
Syrup. Simp., ♏xv;
Aquæ, ʒij.

To be given two or three times a day. In splenic and hepatic enlargements, convulsions, insomnia, and nervous excitability.

39. ℞ Potass. Bromidi, gr. iij—x;
Tinct. Lobeliæ Inflat., ♏v—x;
Syr. Rhœados., ʒss;
Aquæ, ʒij.

Every four hours. In laryngismus stridulus.

Bromide of Ammonium.

40. ℞ Ammonii Bromidi, gr. ½—v;
Tinct. Valerianæ Ammoniat., ♏x;
Aquæ, ʒij,

In spasmodic affections and pertussis.

41. ℞ Ammonii Bromidi, gr. ij;
Tinct. Hyoscyam., ♏x;
Syrup. Simpl., ♏xv;
Aquæ, ʒij.

A draught at bedtime. In night-terrors and sleeplessness.

Arsenic. Extensively employed in chronic skin diseases, in chorea, dyspepsia, &c. It should be given directly after or even with meals; and ophthalmia, smarting in the conjunctivæ, nausea, colicky pains, and diarrhœa, are indications for the reduction of the dose. Most dermatologists agree that Arsenic is not beneficial during the acute stages of skin diseases. Arsenic is one of the drugs that children seem to tolerate better than adults even in large doses.

42. ℞ Liquoris Arsenicalis, ♏½—iij, or even v;
Tinct. Hyoscyam., ♏v;
Inf. Calumbæ, ʒij.

To be taken three times a day immediately after meals. In chronic skin affections, especially psoriasis, eczema, lepra, and pemphigus. The Henbane may be omitted, but it sometimes causes the Arsenic to agree better when the stomach is irritable. The effect is to be closely watched, and the dose may be cautiously increased.

43. ℞ Liquoris Arsenicalis, ♏½—iij;
Quinæ Disulph., gr. ¼—ij;
Acidi Sulphurici dil., ♏iij;
Syr. Zingiberis, ♏xx;
Aquæ, ʒij.

Three times a day. In chorea, atonic dyspepsia, &c.

44. ℞ Liquoris Arsenici Hydrochlorici, ♏½—ij;
Aquæ Camph., ʒij.

This preparation of the Ph. B. is about three times *stronger* than that of the Ph. Lond. It is stated to agree better with the stomach than the Liquor Arsenicalis. Half a drop is sufficient for a child five years old.

Liquor Sodæ Arseniatis. Dose, ♏¼—j.

Ferri Arsenias. Dose, gr. $\frac{1}{60}$—$\frac{1}{30}$.

Iodide of Arsenic. Dose, gr. $\frac{1}{100}$—$\frac{1}{60}$.

The Iodide of Arsenic is formed extemporaneously when the Liquor Arsenicalis and Liquor Potass. Iodid. comp. are ordered together.

Mercury.

45. ℞ Hydrarg. c. Creta, gr. iij;
Pulv. Rhei,
Pulv. Jalap. co., āā gr. iv.
An ordinary aperient when the liver is sluggish.

46. ℞ Hydrarg. c. Creta, gr. ½—ij;
Pulv. Cinnam. co., gr. j—iij.
Two or three times a day to produce the constitutional effects of Mercury in young children.

47. ℞ Calomelanos, gr. j;
P. Sacch. Alb., gr. iij.
A convenient and effectual purgative for infants; it can be placed on the back of the tongue, and is readily swallowed.

48. ℞ Calomelanos, gr. j;
P. Pot. Nitrat., gr. j;
P. Sacch. Alb., gr. ij.
In inflammation to be repeated every three or four hours.

49. ℞ Calomelanos, gr. ij;
Pulv. Jalap. co., gr. v;
Pulv. Ipecac., gr. ½.
In the early stages of bronchitis and pneumonia.

50. ℞ Liq. Hydrarg. Perchlor., ♏ij—x;
Tinct. Cinchon. co., ♏v—xx;
Aquæ, ʒij—iv.
In syphilitic cachexia.

Hydrarg. Iodid. Viride. *Dose,* gr. $\frac{1}{6}$—$\frac{1}{2}$.
— *Rubri.* *Dose,* gr. $\frac{1}{40}$—$\frac{1}{16}$.

51. ℞ Hydrarg. Iodid. Rubri, gr. j;
Potassii Iodidi, ʒij;
Liquoris Arsenicalis, ʒiss;
Tinct. Lavand. co., ℥ij;
Spirit. Chloroformi, ʒiv;
Aquæ ad ℥xij.

Dose—ʒss—ʒj three times a day after meals. In psoriasis and some inveterate squamous, tubercular and ulcerous affections of the skin. (*Dr. Tanner.*)

52. ℞ Hydrarg. Perchlor., gr. ij;
Ætheris, ʒj, solve et adde
Olei Jecoris Aselli, ℥vj.
ʒj contains 1-24th grain of the Perchloride. (*Bumstead.*)

Chlorate of Potash.

53. ℞ Pot. Chlorat., gr. v—x;
Syrup., q. s.;
Aquæ, ʒij—iv.

In typhoid and other fevers, severe thrush, stomatitis, and affections of the mouth and throat.

54. ℞ Pot. Chlorat., gr. ij—x;
Tinct. Cinchon. comp., ♏v—xx;
Syrupi, q. s.;
Aquæ, ʒj—iv.

In ulcerative stomatitis, diphtheria, &c.

55. ℞ Pot. Chlorat., ʒj;
Decoct. Hordei, vel Lactis, Oj. Pro potu.

In fevers.

Ammon. Chloridum (Ammoniæ Hydrochlor.). *Dose,* gr. ij—v. As an expectorant with stimulant properties; as an alterative in glandular enlargements; by some considered cholagogue.

56. ℞ Ammon. Chlorid., gr. ij—v;
Syrup. Hemidesmi, ʒss—j;
Aq. Cinnamom., ʒij—iv. Fiat mist. quartis horis.

In adynamic febrile affections, subacute bronchitis, &c.

57. ℞ Ammon. Chlorid., gr. ij—iv;
Liq. Ammon. Acetat., ♏xx—ʒss;
Syrupi Limonis, q. s.;
Aq. Camph., ʒiv.

In typhoid.

58. ℞ Ammon. Chlorid., gr. ij—iv;
Oxymel Scillæ, ♏xx—ʒss;
Syrup. Tolutan., ♏xx;
Decoct. Althææ, ʒiv.

In catarrhal affections.

Sarsa, *Dulcamara.* } Their infusions and decoctions are useful adjuncts to Iodide of Potassium, &c.

Hemidesmi Radix (chiefly used as syrup in kidney affections. It is a slight diuretic. *Dose*, ʒss—j).

59. ℞ Ammonii Iodidi, gr. j—iij;
Syr. Hemidesmi, ʒss;
Inf. Cascarillæ, ʒij—iv.

In strumous glandular enlargements, &c. Two or three times a day.

60. ℞ Sodii Iodidi, gr. iv;
Syr. Sarsæ, ʒss;
Dec. Sarsæ, ʒiv.

In syphilitic cachexia, when Iodide of Potassium does not agree.

6. Stimulants to the Spinal Cord.

Strychnia.
Arnica.
Rhus Toxicodendron.

Strychnia.

Liquor (ʒij contains gr. j of the alkaloid). *Dose*, ♏ss—ij or iij cautiously given.

Tinct. Nucis Vomicæ (strength 1—10). *Dose*, ♏j—v.

61. ℞ Tinct. Nucis Vomicæ, ♏j—v;
Tinct. Cinchon. co., ♏v—xv;
Decoct. Cinchon., ʒij—iv.

In paralysis and some stomach diseases.

62. ℞ Tinct. Nucis Vomicæ, ♏j—v ;
Syr. Ferri Phosph. co., ♏xv—℥j ;
Aquæ, ℥ij—iv.

A powerful tonic where the use of Strychnia is indicated.

63. ℞ Liquor Strychniæ, ♏ij ;
Tinct. Belladonnæ, ♏v ;
Inf. Cascarillæ, ℥ij.

Two or three times a day for a child five years old. In incontinence of urine.

64. ℞ Liquor Strychniæ, ♏ij ;
Tinct. Cinchon. co., ♏v ;
Inf. Calumbæ, ℥ij.

In intestinal irritation occurring shortly after meals.

65. ℞ Extract. Nucis Vomicæ, gr. iij ;
Fellis. Bovini Inspiss., gr. xij ;
Extract. Taraxaci, gr. xx ;
Extract. Gentianæ, gr. xx.
Divid. in pil. xxiv. Sumat j, bis die.

In habitual constipation for children nine or ten years of age, and young girls shortly before the menstrual period is established.

Arnica, of the tincture. *Dose*, ♏x—℥ss.

66. ℞ Inf. Arnicæ (from ℥j of the flowers), ℥iv ;
Syrup. Croci, ℥vj ;
Æth. Sulph., ♏x.
Coch. j, larg. Secundis horis.

For a child three years old. In hydrocephalus. (*Dr. Ure.*)

67. ℞ Tinct. Arnicæ, ♏x ;
Tinct. Lavand. co., ♏v ;
Inf. Serpentariæ, ℥ss.

Stimulant to the nervous system.

Arnica is also useful in small doses for nocturnal incontinence of urine.

Rhus Toxicodendron. The powdered leaves made into infusion or tincture are highly recommended in paraplegia. The dose of the powdered leaves is gr. $\frac{1}{8}$—$\frac{1}{2}$. The action is stated to resemble that of Strychnia. But Rhus also

produces diuresis and diaphoresis, on which account it has been used in erysipelas and fevers. It is a drug requiring further investigation. That its action is very powerful cannot be doubted, and it should therefore always be given with caution. Dr. Neligan employed the tincture in doses of from ʒss—j in adults, ♏v—xv would therefore be sufficient for a child.

7. Sedatives to the Spinal Cord.

Potass. Bromid.
Ammon. Bromid.
Conium?
Calabar Bean.
Gelsemin.

Bromide of Potassium is now given in large doses in epilepsy and other convulsive nervous disorders. In the convulsions of children (in whom the spinal system is peculiarly excitable) it is extremely efficacious. In insomnia, restlessness, laryngismus stridulus, and hooping-cough it is also largely employed. The dose may be increased even in young children from gr. j—v or even x, until the sedative effect is manifested. It is a remedy which I have used with much success in the earliest stages of hydrocephalus.

Conium.

Succus Conii Fol. Dose, ♏v—xv or xx. Tinct. Conii Fruct. *Dose,* ♏v—xv. Anodyne and antispasmodic; used in chorea, pertussis, and the irritative cough of bronchitis and bronchial phthisis. There is considerable difference of opinion as to its method of action. The Succus appears to be the most active preparation. I have failed to get satisfactory results with even large doses of the Extract.

68. ℞ Succi Conii, ♏xx;
Syr. Papav. Alb., ♏x;
Mist. Amygdal., ʒij.
In pertussis for a child five years old.

Physostigmatis Faba or *Calabar Bean* has recently been much used in tetanus with undoubted advantage; and in chorea and other affections of the nervous system. The dose of the powdered bean is from gr. ij—iv for a child seven years old.

Gelsemin is a new American remedy, of considerable efficacy in spasmodic and nervous disorders. *Dose,* gr. $\frac{1}{12}$—$\frac{1}{2}$.

8. Antispasmodics.

Assafœtida.
Sagapenum.
Galbanum.
Valerian.
Rue.
Camphor.
Sumbul (of the tincture. *Dose,* ♏ij—x).
Succini Oleum.
Castor.
Musk.

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69. ℞ Tinct. Assafœtidæ, ʒss;
Syrup. Rhœados, ʒj.
Dose—ʒj every hour. In flatulent colic.

70. ℞ Tinct. Assafœtidæ, ♏v;
Oxymel Scillæ, ♏x;
Tinct. Opii, ♏ss;
Syrup. Rhœados, ʒj;
Aquæ ad ʒij.
To be taken frequently in pertussis. For a child two years old.

71. ℞ Tinct. Valerian. Ammoniat., ♏v—x ;
Tinct. Camph. co., ♏v ;
Sp. Chloroformi, ♏iij ;
Aquæ Anethi, ʒij.
In laryngismus and other spasmodic affections.

9. Stimulants.

Alcohol, Ether, Chloroform, } These are more especially stimulants to the brain.

Ammonia, Phosphorus, } These are considered to be stimulants to the ganglionic system.

Turpentine, Resins, Myrrh, Lavender, Rosemary, Mentha, Cinnamon, Cajeput, Nutmeg, Clove, Ginger, Cardamomum, } May be grouped as vascular stimulants.

Tar, Creosote, Petroleum, Carbolic Acid, Liquor Sodæ Chloratæ, } Antiseptics.

Alcohol in small quantities increases the secretion of the gastric juice, hence its value in atonic dyspepsia. In too large quantities it destroys the powers of digestion, retards oxidation, and impairs the general health. Healthy chil-

dren are infinitely better without alcohol in any form; it is not a food, and if habitually taken is less valuable as a medicine when really required in illness; for Alcohol, although a bad food, is a good medicine. Perhaps the tendency of the present day is to overrate its powers—the effect of the reaction from bleeding and blistering of days gone by. Still, in cases of great exhaustion, in the continued fevers, and in general debility, there is no doubt as to its value. For children, port wine and brandy are, I think, on the whole, the best forms for its administration.

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72. ℞ Ammoniæ Sesquicarb., gr. j—iij;
Tinct. Zingiberis, ♏v;
Syrup. Aurant, ʒss;
Aquæ Cinnamomi, ʒss.
Stimulant in exhaustion, &c.

73. ℞ Aquæ Menth. Pip., ℥iss;
Sp. Ammon. Arom., ʒss;
Sp. Ætheris Nitrosi, ♏xij;
Sp. Lavandulæ co., ʒj;
Syrup. Simpl., ℥ss.
Dose—ʒj every two hours. In receded eruptions and sinking from exhaustion. (*Evanson* and *Maunsell.*)

74. ℞ Ætheris vel Sp. Ætheris, ♏v;
Sp. Chloroformi, ♏v;
Spir. Myristicæ, ♏x;
Inf. Caryophylli, ʒiij.
A powerful diffusible stimulant. For a child five or six years old.

75. ℞ Liquoris Sodæ Chloratæ, ʒj;
Tinct. Cinchon. co., ʒvj;
Spiritus Vini Gallici, ʒxij;
Aquæ ad ℥viij. Ft. mistura.
A dessert or tablespoonful in low fever with great prostration. (*Dr. Tanner.*)

Phosphorus.

76. ℞ Phosphori, gr. ss;
Olei Succini, ʒss.

♏j—ij ter die, ex aqua. In paralysis and loss of nerve power.

77. ℞ Phosphori, gr. j;
Ol. Morrhuæ, ʒj.

This should be allowed to stand for fourteen days in a dark place, then add

Olei Caryophylli, ♏v.

Dose—♏v in mist. Amygdal. ter die sumend. In some cases of rickets and phthisis, the dose to be increased with great caution if the stomach bear it well.

Terebinth. Ol. Dose, ♏ij—v. As an anthelmintic, ʒj—ij or more with castor oil. Turpentine is reputed stimulant, diaphoretic, diuretic, and astringent.

78. ℞ Ol. Terebinth, ʒss;
Ol. Limonis, ♏iv;
Syr. Simp., ʒss;
Aq. Cinnam. ʒj. Ft. mist.

Dose—ʒj, quart. q. hor. In diarrhœa and flatulence. (*Evanson* and *Maunsell.*)

79. ℞ Inf. Rosæ, ʒij;
Magn. Sulph., gr. x;
Mannæ, gr. x;
Ol. Terebinth, ♏iij.

To be given every four hours. In hæmatemesis, &c.

Tar is employed externally in the form of ointment in chronic eczema, and internally also in skin diseases and chronic catarrhal affections. It is given internally in the form of capsules. *Dose,* gr. iij—vj.

Creosote has been employed in chronic bronchitis, in phthisis to restrain secretion, in neuralgia, in skin affections, and in chronic vomiting. Its taste is extremely unpleasant. *Dose,* ♏¼—½ in flavoured mucilage.

Carbolic Acid is now extensively used both externally as a lotion or glycerine, and also internally. It is an admirable antiseptic. I have employed it considerably in some forms of chronic feculent diarrhœa with excellent results. It has also been given in typhoid fever. As a gargle, one or two grains should go to an ounce of water. *Dose* of the glycerine, ♏j—iv freely diluted. *Dose* of the solid acid (Calvert's), gr. $\frac{1}{4}$—$\frac{3}{4}$ in water well sweetened.

Charcoal and *Permanganate of Potash* are also much used as antiseptics, but they are destitute of stimulating properties.

10. Sedatives to the Brain and General Sedatives.

Opium, { Morphia, Codeia, } These are regarded as more particularly sedatives to the brain.
Rheas,
Lactuca,
Cannabis Indica,
Belladonna.
Atropia.
Stramonium.
Hyoscyamus.

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Opium is one of the drugs which children do not tolerate so well as adults, and which, therefore, always requires caution in its administration.

80. ℞ Tinct. Opii, ♏j;
Syrup. Croci, ℥ss;
Aquæ, ℥ss.

Dose—℥j every two or three hours for a child six months old.

81. ℞ Tinct. Camph. co., ♏xv;
Syrup. Rhœados, ʒij;
Aquæ Camph. ad ʒj.

Dose—ʒj. For the very youngest infants when Opium is required.

Syrupus Codeiæ. Dose, ʒj. Has been used in pertussis.

The *Liquor Morphiæ Acetat.* (Ph. B.) is useful in pertussis. The dose may be a minim to commence with, gradually increased and given with sufficient frequency to control the cough. Combined with Belladonna it is very efficacious.

82. ℞ Extract. Belladonnæ, gr. ij;
Liquor. Morph. Acetatis, ♏viij;
Oxymel. Scillæ, ʒij;
Aquæ Camph. ad ʒj.

Dose—ʒj for a child one year old with pertussis. The Belladonna may be gradually increased up to one or two grains at a dose for children five years old, but it is always best to commence with a small dose.

83. ℞ Tinct. Camph. co., ♏xx;
Vin. Ipecac., ♏xx;
Syrup. Tolutan., ʒij;
Mucilag. Acaciæ ad ʒj.

Dose—ʒij every four hours for a child four years of age, in severe coughs.

Belladonna has been much used in pertussis. It is, perhaps, the most valuable drug we possess against that disease. It requires to be given cautiously. I have repeatedly seen the characteristic eruption thrown out, with dryness of the fauces, and dilated pupils from extremely small doses. At the same time cases will be met with requiring large quantities before any effect is manifested. It is desirable to use a fresh extract.

84. ℞ Extract. Belladonnæ, gr. $\frac{1}{6}$—j;
Potass. Bromid., gr. j—v;
Syrup. Papav., ♏xv;
Aquæ, ʒij.

In pertussis to be given every two or three hours, night and day, until the paroxysms are reduced in number and severity.

85. ℞ Extract. Belladonnæ, gr. $\frac{1}{2}$;
Syrup. Simpl., ʒj;
Aquæ Destill., ʒij.

Dose—For a child one year old, ʒj every hour, in pertussis. (*Bouchut.*)

86. ℞ Tinct. Belladonnæ, ♏ij—v;
Liquor. Strychniæ, ♏j—ij;
Syrup. Simpl., ʒss;
Inf. Canellæ, ʒij.

In incontinence of urine.

87. ℞ Atropiæ, gr. $\frac{3}{4}$;
Sacch. Albi, ʒiiss. Misceantur optime.

Dose—A grain or a grain and a half two or three times a day for a child five years old with pertussis. (*Bouchardat.*)

Externally *Belladonna* is serviceable in relieving pain. Plasters of the drug are commonly employed in cardiac affections and painful diseases of the chest, and elsewhere.

Stramonium is used chiefly in asthma and neuralgia. It is not much employed for children.

Lactucarium, a drug of rather doubtful efficacy. It is supposed to add diuretic to its narcotic properties. *Dose*, gr. j—iij or v.

88. ℞ Lactucarii, ʒss;
Decoct. Lichen. Islandic., ʒij;
Mucilaginis, ʒss;
Syrupi, ʒj. Ft. mist.

Dose—ʒij, frequently in spasmodic cough, &c. (*Brera.*)

Hyoscyamus I have found to be a remedy of the greatest service in children's diseases. It is a safe and efficient sedative without the deleterious effects of Opium.

89. ℞ Tinct. Hyoscyam., ♏v—x or xv;
Liq. Ammon. Acet., ♏x—ʒss;
Vin. Ipecac., ♏v—xv;
Aq. Camph., ʒij—iv.

In some forms of bronchitis, &c.

90. ℞ Tinct. Hyoscyam., ♏v;
Syrup. Papav., ♏v;
Aquæ Anethi, ʒj.

An anodyne for a young infant.

91. ℞ Extract. Belladonnæ, gr. ij;
Tinct. Hyoscyam., ♏xx;
Syrupi Simp., ʒss;
Aquæ ad ʒiss.

Dose—ʒij, for a child five years old. In incontinence of urine.

Cannabis Indica.

92. ℞ Tinct. Cannab. Indic., ♏j—v;
Mucilaginis, ʒj;
Triturat. et adde
Aquæ, ʒij—ʒiv.

This drug is a powerful anodyne and antispasmodic. It has lately been extensively used in insomnia, neuralgia, and spasmodic affections. It is stated to cause none of the unpleasant after-effects of opium. It should be cautiously given. In children pertussis, chorea, irritative cough, laryngismus stridulus are the diseases in which it is most serviceable. Mr. Squire directs that it should be ordered as in the text, or the resin will be precipitated by the water.

11. Vascular and Heart Sedatives.

Antimony.
Bismuth.
Colchicum.
Hydrocyanic Acid.

Digitalis.
Aconite.
Lobelia.
Actæa Racemosa.
Veratri Viridis Radix.
Tabacum.
Aqua Laurocerasi (*Dose*, ♏ ¼—j, seldom used).

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Antimony.

93. ℞ Pulv. Jacobi Ver., gr. j—iij;
Calomelanos, gr. j;
Sacch. Albi, gr. v. Ft. pulv.

Dose—Every four hours. In acute inflammations.

94. ℞ Vin. Antimonial., ʒss;
Vin. Ipecac., ♏xv;
Tinct. Camph. co., ♏xx;
Mucilag. Acaciæ,
Syrupi Scillæ, āā ʒiv.

Dose—ʒj, every two or three hours. In bronchitis, &c., for a child two years old.

95. ℞ Antim. Tartarat., gr. j;
Potass. Nitrat., ʒj;
Mist. Amygdal., ℥iij.

Dose—ʒj, every two hours. In pneumonia, bronchitis, &c.

Bismuth (subnitrate and carbonate).

96. ℞ Bismuthi Albi (subnit.),
Magn. Carb., āā gr. xvi;
Acidi Hydrocyan. dil., ♏v;
Aquæ, ℥iv.

Dose—ʒij, for a child three years old. In flatulent gastrodynia and gastralgia.

97. ℞ Bismuthi Carb., gr. j—ij;
Magn. Carb., gr. iij;
Tinct. Hyoscyam., ♏v;
Inf. Rhei, ʒij.

In atony and irritability of the stomach.

Prussic acid (Acid. Hydrocyanici dil. *Dose*, ♏$\frac{1}{8}$—j, always to be cautiously given).

98. ℞ Acidi Hydrocyan. dil., ♏ij;
Tinct. Hyoscyam., ♏xx;
Syrup. Aurant., ʒss;
Mist. Amygdal., ʒij. Ft. mistura.

Dose—ʒij may be given frequently in pertussis, laryngismus stridulus, croupy cough, &c., for a child five years old. ʒj for a child two years old.

99. ℞ Acidi Hydrocyan. dil., ♏x;
Syrup. Papav. Alb., ʒiij;
Aq. Flor. Aurant. ad ʒvj.

Dose—ʒj, capiend. secund. vel tert. horis. In spasmodic cough. Child three years old, the dose may be cautiously increased.

Colchicum is used chiefly in gout and rheumatism; not much employed in children's diseases.

100. ℞ Vin. Colchici, ʒiij;
Spirit. Ætheris Nitrosi, ʒij;
Pot. Acetat., ʒij;
Aquæ ad ʒiv.

Dose—ʒj, every four hours. In scarlatina, when there is suppression of urine, high fever, and delirium. (*Dr. Bennett.*)

Digitalis is considered to be a cumulative drug. It is a drug requiring caution, as it certainly acts sometimes out of all proportion to the dose in which it is given. In cardiac affections it is particularly valuable for palpitation and tumultuous action caused by hypertrophy. When dropsy is present it is especially indicated; its value as a diuretic then also comes into play. It is one of our best remedies in scarlatinal dropsy.

101. ℞ Tinct. Digitalis, ♏iij;
Tinct. Hyoscyam., ♏v;
Syr. Aurantii, ʒss;
Aq. Camph., ʒiv.

For a child five years old may be given every six hours.

102. ℞ Infus. Digitalis, ʒss;
Pot. Acetatis, gr. v;
Spirit. Juniperi co., ♏x;
Decoct. Scoparii, ad ʒiv.

In anasarca every four or six hours. Child five years old.

103. ℞ Pulv. Digitalis, gr. vj;
Hydrarg. Subchlor., gr. xij;
P. Sacch. Alb., gr. xviij.
Misce et divid. in pulveres xij.

One powder every six hours in hydrocephalus. (*Dr. Merriman.*)

104. ℞ P. Digitalis Fol.,
Potassæ Nitratis, āā ʒss;
P. Sacchari Albi, ʒiiss.
Misce et divid. in chartulas xl.

One powder thrice daily, in inflammations of lungs and heart, and in dropsies. (*Trousseau.*)

105. ℞ Infusi Digitalis, ʒviiss;
Potassæ Nitratis, ʒij;
Acidi Hydrocyanici dil., ♏xiv;
Syrup. Aurantii, ʒij.

Dose—ʒj, every two hours. In hypertrophy of the heart, with excessive action. Child five years old. (*Dr. Copland.*)

Aconite, one of the most powerful sedatives which we possess. It is anodyne, depressant, and antiphlogistic. In the early stages of acute inflammations it is of value; the pulse is lowered, the circulation is rendered less rapid, excitement calmed, and moisture appears upon the skin. I have recently employed Aconite to a rather large extent at the instance of a homœopathic friend; and while I have failed altogether in obtaining results from such a preparation as the third homœopathic decimal either in myself or in others, yet with $\frac{1}{4}$- or $\frac{1}{2}$-drop doses of the tincture of the Ph. B. the results are such as above described. I may just mention that Aconite is of undoubted value in acute rheumatism, in fact it has long been used in this disease. This circumstance appears to me to destroy the homœopathic notion of its use. The inflammation of rheumatism

differs materially from ordinary acute inflammations; to mention only one point—it exhibits no tendency to suppuration. According to homœopathic law one remedy cannot be homœopathic to two different conditions. It is clear, therefore, that Aconite cannot be homœopathic to both kinds of inflammation. I mention this matter because I have met practitioners who appear to have an objection to employ Aconite lest it should be thought homœopathic treatment. Supposing that this objection were valid against the use of any means calculated to relieve suffering, the above consideration appears to me completely to remove it. Aconite is further useful in pertussis, neuralgia, excited action of the heart in hypertrophy, pericarditis, &c.

106. ℞ Tinct. Aconiti (Ph. B.), ♏ss;
Syrup. Croci, ♏x;
Aquæ Camph., ʒij.

To be given every hour. In broncho-pneumonia, parotitis, and the early stages of acute inflammation generally.

107. ℞ Tinct. Aconiti (Dub.), ♏iij;
Mist. Camph., ʒss. Ft. haust. 4tis horis.

In acute rheumatism at fourteen or fifteen years of age. (*Dr. Neligan.*)

Lobelia. The action of Lobelia is sedative, diaphoretic, and expectorant. It is used in asthma, catarrhs, croup, pertussis, and bronchitis.

Dose of the tincture, ♏ij—v or x.

Dose of the ethereal tincture, ♏ij—v or x.

108. ℞ Tinct. Lobel. Æthereæ, ♏iij;
Syrup. Hemidesmi, ʒss;
Decoct. Malvæ, ʒij.

For a child three years old. In paroxysmal coughs the dose may be cautiously increased.

109. ℞ Tinct. Lobel. Æthereæ, ♏iv;
Succi Conii, ♏x;
Syrup. Croci, ♏xx;
Mist. Amygdal., ʒij.

To be given every three or four hours. In pertussis. Child five years old.

Green Hellebore. *Dose* of the powdered root, gr. ½—j or ij. *Dose* of the tincture (Ph. B.), ½—iij or v. This drug is now extensively used in America, like Aconite, in acute inflammations, especially pleurisy, pneumonia, and peritonitis. It is also given in the spasmodic affections of children. As it occasionally produces unpleasant symptoms it must be given with caution. I have no experience of its use.

Actæa Racemosa. This drug is employed chiefly in chorea and rheumatism. *Dose* of the tincture, ♏iij—x or xv.

12. Nervine Tonics.

Silver.
Zinc.
Copper.
Cinchona.
Quina.
Bebeerine.
Salicine.

Argent. Nitrat., valuable especially in spasmodic nervous diseases, eclampsia, chorea, &c. *Dose,* gr. $\frac{1}{24}$—$\frac{1}{12}$ or $\frac{1}{6}$, in the form of pill made with crum of bread or any of the following extracts, which may appear most suitable:

Fell. Bovin. Inspissat.
Ext. Gentianæ.
— Conii.
— Hyoscyam.
— Humuli.

110. ℞ Argent. Nit., gr. $\frac{1}{16}$—$\frac{1}{3}$;
Aquæ Destillat., ℥ij;
Syr. Simpl., ℥v. Ft. mist.
Coch. min. j, vel ij, quart. q. hor. In obstinate diarrhœa. (*Trousseau.*)

Zinc.

111. ℞ Zinci Sulphatis, gr. ¼;
Tinct. Cinchon. co., ♏x;
Inf. Calumbæ, ʒij.

Tonic.

112. ℞ Zinci Sulphatis, gr. ¼;
Acidi Sulph. dil., ♏ij;
Syr. Aurant., ʒss;
Inf. Aurant., ʒij.

Tonic. (*Dr. Druitt.*)

113. ℞ Zinci Valerianatis, gr. ¼—½;
Syr. Hemidesmi, ʒss;
Aq. Flor. Aurant., ʒij—ʒiv.

In chorea, three or four times a day.

Copper.

114. ℞ Cupri Sulphatis, gr. j;
Syrup. Papav., ʒj;
Aquæ Anisi, ʒiij.

Dose—ʒj, every three or four hours. In pertussis. (*Chavasse.*)

115. ℞ Cupri Sulphatis, gr. j;
Ext. Hyoscyam., gr. ij;
Ext. Gentianæ, gr. v. Ft. pil. viii.

Dose—One every four hours. In chorea, chronic diarrhœa, &c.

Cinchona.

Pale bark is best suited for irritable stomachs.

Yellow bark is a more powerful tonic, but apt to disagree.

Red bark, containing both Quinine and Cinchonine, is the most potent tonic of the three.

Doses—Tinct. Cinchon. Flavæ. ♏x—ʒss.
Ext. Liquid. Cinchon. Flavæ. ♏v—x.
Tinct. Cinchon. comp. (of pale bark.) ♏x—ʒss.
Extract. Cinchon. Rub. (Ph. Lond.). gr. j—iij.

116. ℞ Ammon. Sesquicarb., gr. iij;
Tinct. Cinchon. co., ♏x;
Dec. Cinchonæ, ʒij.

Every three or four hours. In debility, &c.

117. ℞ Acidi Nitrici dil., ♏iij;
Tinct. Cinchon. co., ♏x;
Syrup. Aurant., ʒj;
Decoct. Cinchonæ, ʒiv.

In convalescence taken two or three times a day.

Quina. A tonic in constant use, and more potent than any with which we are acquainted. Small doses as a rule answer best with children. Nor will the stomach always bear Quinine: it is very often advisable to commence a course of tonic treatment, particularly after very exhausting diseases, not with Quinine, but with Gentian, Chiretta, Calumba, or some other of the minor tonics, and as the strength and appetite begin to improve, to introduce Cinchona or Quinine gradually.

118. ℞ Quinæ Disulph., gr. ¼—j;
Acidi Sulph. dil., ♏ij—v;
Magnes. Sulphat., gr. v—x;
Aquæ, ʒij—iv.

A common form of administration; the Epsom Salts correct the constipating effect of Quinine.

119. ℞ Quinæ Disulph., gr. j;
Tinct. Valer. Ammon., ♏x;
Aq. Camph., ʒiv.

In chorea, for a child seven years old.

120. ℞ Quinæ Disulph., gr. ij;
Acid. Sulph. Arom., ♏xvj;
Aquæ Destill., ʒiss;
Syrupi Caryophylli, ʒss. Misce.

Dose—ʒj—ij. For very young children. (*Dr. Joy.*)

121. ℞ Ferri et Quinæ Citratis, gr. xl;
Tinct. Aurant., ʒij;
Syr. Aurant., ʒj;
Aquæ ad ʒvj.

Dose—ʒj—ij. A very efficient form of tonic, and rather palatable.

122. ℞ Quinæ Valerianatis, gr. x;
Liq. Taraxaci, ʒvj;
Tinct. Sumbuli, ʒij;
Inf. Cascarillæ, ℥v. Misce.

Dose—ʒj—iv. In neuralgic and spasmodic nervous affections.
(*Dr. Neligan.*)

Beberiæ Sulphas. Dose, gr. ¼—j. Tonic and antiperiodic. May be given in water or bitter infusions.

Salicine. Dose, gr. ½—j or ij. Tonic and stomachic.

These two substances are used as substitutes for Quinine when that drug cannot be taken or cannot be procured. Salicine is readily borne by the stomach, and is a drug of some value.

13. Stomachics.

Calumba (an excellent stomachic).
Cusparia (aromatic, useful in dysentery).
Quassia (very valuable in threadworms).
Simaruba (used in dysentery, very bitter).
Gentian (tonic and stomachic).
Chiretta (as Gentian, a finer bitter).
Cascarilla (an aromatic stomachic).
Canella (aromatic, but bitter).
Cortex Winteri (a warm aromatic).
Salicis Cortex (tonic and antiperiodic—see Salicine).
Lupulus (tonic, diuretic, narcotic. Lupulina—*Dose,* gr. ½—j). Hops are sometimes used as a pillow to procure sleep.
Aurant. Cortex, } (aromatic tonics).
Limon Cortex, }
Anthemis (aromatic tonic; in large doses emetic).
Artemisia Absinthium (extremely bitter, anthelmintic).
Pepsine.

FORMULÆ.

123. ℞ Tinct. Lupuli, ♏x—xx;
Acid. Nit. dil., ♏ij—v;
Inf. Cascarillæ, ʒij—iv.
In chronic dysentery, &c.

124. ℞ Tinct. Opii, ♏j;
Acidi Nit. dil., ♏iv;
Inf. Simarubæ, ʒj.
Dose—ʒj in milk or barley water every three or four hours. In chronic diarrhœa.

125. ℞ Tinct. Cardam. co., ♏v;
Syr. Aurantii, ʒss;
Inf. Cuspariæ, ʒij.
In flatulent indigestion.

126. ℞ Sodæ Bicarb. Exsicc., gr. xxiv;
Extract. Taraxaci, ʒss;
Syrup. Aurant., ʒij;
Inf. Calumbæ ad ℥ij. Misce.
Dose—ʒij. Tonic and alterative. (*Dr. Hillier.*)

127. ℞ Acidi Sulph. dil., ♏xvj;
Tinct. Aurantii, ʒj;
Syrupi, ʒj;
Inf. Aurantii, ℥j;
Aq. Cinnamomi, ʒij.
ʒj three times a day for a child one year old. In vomiting from weak and irritable stomach. (*Dr. West.*)

Pepsine.

Pepsina Porci is the best preparation. It is valuable in cases of dyspepsia from atony of the stomach, with deficient secretion of gastric juice. *Dose,* gr. ij—iv. Pepsine Wine (Morson's) is an agreeable form of giving the drug. *Dose,* ʒss in water. Corvisart's Pulv. Pepsinæ et Amyli or 'Poudre Noutrimentive' is required in larger doses, gr. v—x before meals. Pepsine has also been prepared in the form of lozenge.

14. Emetics.

Ipecacuanha.
Tartar Emetic.
Mustard.
Sulphate of Zinc.
Sulphate of Copper.
Ammoniæ Sesquicarb.
Baptisin (gr. $\frac{1}{2}$, a new remedy of American origin).
Alum.

FORMULÆ.

128. ℞ Pulv. Ipecac., gr. ½—j;
Sacch. Alb., gr. iij.

To be repeated every quarter of an hour till sickness results. Safe for young infants.

129. ℞ Vin. Ipecacuanhæ,
Syrupus croci, āā ʒj,

Every quarter of an hour till vomiting occurs. The wine is not a good form as an emetic. I have given two ounces of it and failed to cause sickness, even with the help of warm water, tickling the throat, &c. The spirit in the wine restrains the action, and the effect of the ipecacuanha is often spent upon the bowels, causing purgation.

130. ℞ Vin. Ipecacuan., ʒss—j;
Vin. Antimonial., ♏x—xx;
Syrupi, q. s.

'Ad emesem' rather depressing, but a quick emetic.

131. ℞ Antim. Pot. Tart., gr. ij;
Oxym. Scillæ, ℥j;
Aquæ, ℥j.

ʒij or ʒiij every quarter of an hour in the early stage of croup for a child three or four years old.

132. ℞ Aluminis, ʒiij;
Syrup. Violæ, ℥j.

Dose—℥ss. To be repeated if necessary. In croup, &c.

Mustard is a capital emetic, always at hand and useful in emergencies; ʒj or ʒij in warm water freely diluted, rapidly produces vomiting without depression.

133. ℞ Cupri Sulphatis, gr. ½;
Syrup. Violæ, ʒj.

In a little barley water repeated often till sickness occurs. For a child one year old.

Amongst emetics must now be included Apomorphia, a substance recently discovered by Messrs. Matthiessen and Wright. In a communication read before the Royal Society in June, 1869, these gentlemen state that $\frac{1}{10}$th of a grain of the hydrochlorate, when subcutaneously injected, has been found by Dr. Gee to excite vomiting in from four to ten minutes. A quarter of a grain taken by the mouth produces a similar effect. Dr. Gee regards the Hydrochlorate of Apomorphia as a "a non-irritant emetic and powerful anti-stimulant." One fortieth of a grain of this substance hypodermically injected produced sickness within a few minutes, in two little patients of mine at the Victoria Hospital. The children were ten and eleven years of age respectively, both suffering from chorea, in which disease this drug, thus employed, appears marvellously efficacious, although the method of its operation remains to be explained.

15. Laxatives.

Cassia (Confection. *Dose,* ʒj—ij.)
Prunum.
Tamarind.
Manna.
Viola.
Ficus.

Sulphur.
Magnesia.
Bran.
Treacle.
Mustard Seeds.

FORMULÆ.

134. ℞ Mannæ Optimæ, ʒij;
Aq. Anethi, ℥j.
Dose—ʒj *pro re natâ*. For young infants.

135. ℞ Mannæ Opt., ʒij;
Syrup. Rosæ, ℥j.
Dose—ʒj.

136. ℞ Magnes. Carb., gr. xx;
Mannæ, ʒij;
Tinct. Rhei co., ʒj;
Syrup. Rosæ ad ℥iss;
Dose—ʒj—ij.

137. ℞ Sulphur. Sublim., ℥j;
Theriacæ, ℥ij.
Dose—ʒj. A well-known nursery recipe.

138. ℞ Magnes. Calcin., gr. xl;
Pulv. Rhei, gr. xx;
Pulv. Cinnamomi, gr. x. Misce.
Dose—gr. iij—vj for infants. (*Evanson and Maunsell.*)

16. Purgatives.

Purgatives.
Castor Oil.
Aloes.
Rhubarb.
Jalap.
Senna.

Drastic Purgatives—

Scammony.
Colocynth.
White Hellebore.
Croton Oil.
Buckthorn.
Gamboge.

Hydragogue Purgatives—

Elaterium.
Bitartrate of Potash.

Saline Purgatives—

Sulphate of Potash.
Sulphate of Soda.
Sulphate of Magnesia.
Tartrate of Potash.
Soda Tartarata.
Phosphate of Soda.

Mineral Waters—

Cheltenham.
Epsom.
Leamington.
Püllna.
Seidlitz.
Carlsbad.
Friedrichshall, &c., &c.

Cholagogue Purgatives—

Calomel.
Colchicum.
Leptandrin.
Podophyllin.
? Taraxacum.

Anthelmintics—

Kousso.
Mucuna.
Santonin.
Spigelia.
Pulvis Stanni.
Staphisagria.
Filix Mas.
Turpentine.
Granati Radicis Cortex.
Kamala.

(For the use and doses of these, see the Chapter on Worms.)

FORMULÆ.

139. ℞ Pulv. Rhei, gr. iij;
Pulv. Scammon. co., gr. v;
Pulv. Jalap. co., gr. v.

An effectual purgative for a child three or four years old.

140. ℞ Calomelanos, gr. ij;
P. Scammon. co., gr. x.

A drastic purge when worms are suspected, &c.

141. ℞ Podophyllin., gr. $\frac{1}{8}$;
Leptandrin., gr. $\frac{1}{6}$;
P. Jalap. co., gr. v.

Hepatic purgative.

142. ℞ Tinct. Rhei co., ʒj;
Syrupi Sennæ, ʒij;
Decoct. Taraxaci ad ℥j.

Dose—ʒj—ij, *pro re natâ.*

143. ℞ Magnes. Sulphatis, gr. x—xx;
Ætheris Chlorici, ♏iij;
Inf. Gent. co., ʒij—iv;

Tonic and aperient.

144. ℞ Ol. Ricini,
Ol. Terebinth,
Mist. Acaciæ,
Aquæ Menth. pip., āā ʒij—ʒss. Ft. haustus.

In tapeworm. For children twelve or fourteen years old. (*Dr. Hooper.*)

145. ℞ Decocti Cort. Rad. Granati, ʒxj;
Syrupi Zingiberis, ʒj.

Dose—A wine-glassful three times a day. In tapeworm when the bowels have been cleared by Castor Oil.

146. ℞ Pulv. Elaterii, gr. ½;
Pulv. Scammon. co., gr. v;
Pot. Bitart., ʒss. Ft. pulvis.

A powerful hydragogue purge. Child ten years old.

147. ℞ Tinct. Rhei co., ʒj;
Syrupi Sennæ, ʒj;
Syrupi Rhamni, ʒj;
Aquæ ad ʒj.

A rather brisk purge. For a child ten years old.

148. ℞ Potassæ Sulphatis, gr. xii;
Inf. Rhei, ʒvss;
Tinct. Aurantii, ʒss;
Aquæ Carui, ʒij.

ʒss for a dose for a child three years old. (*Dr. West.*)

149. ℞ Potass. Bitart., ʒij;
Extract. Glycyrrhizæ, gr. xx;
Decoct. Aloes co., ʒvj;
Aquæ Menth. Pip., ad ʒij.

ʒij *pro re natâ.*

150. ℞ Magnes. Sulphatis, ʒij;
Potassæ Sulphatis, ʒss;
Potassæ Nitratis, gr. xxiv;
Syrupi Limonum, ʒij;
Aquæ ad ʒij.

ʒij—ʒiv. Saline aperient. (*Dr. Hillier.*)

151. ℞ Sodæ Phosphatis, ʒj;
Syrupi Limonum, ʒss;
Decoct. Hordei, ʒvj. Ft. mist.

Dose—Two tablespoonfuls. An agreeable aperient.

152. ℞ Ricini Olei, ʒj;
Ovi Vitelli semissem. Tere simul et adde
Aquæ Florum Aurant.,
Syrup. Simpl., āā ʒj;
Aquæ, ʒvj.

A pleasant way of giving Castor Oil. *Dose*—ʒj, or more. (*Trousseau.*)

153. ℞ Infusi Sennæ co., ʒxv;
Potassæ Tart., ʒij;
Extr. Glycyrrhiz., gr. x;
Tinct. Card. co., ʒj;
Spir. Ammon. Arom., ♏xij. Fiat mistura.

Dose—ʒij—iv. An efficient purgative. (*Dr. Underwood.*)

17. Diuretics.

Pareira.
Buchu.
Chimaphila.
Uva Ursi.
Potassæ Nitras.
Juniper.
Scoparius.
Sp. Ætheris Nitrosi (*Dose*, ♏v—xv or xx.)
Cubebs.
Piper Longum and Piper Nigrum.
Copaiva.
Cantharis.

Many Soda salts are diuretic; Potash salts are so even more decidedly. Also the Benzoate of Ammonia in doses of two to ten grains, especially in dropsies, chronic bronchitis, &c.

FORMULÆ.

154. ℞ Acidi Nitrici dil., ♏iij—v;
Tinct. Hyoscyam., ♏v—x;
Decoct. Pareiræ, ʒij—iv.

Three times a day, in chronic cystitis.

155. ℞ Pot. Bicarb., gr. v;
Tinct. Hyoscyam., ♏v;
Inf. Buchu, ʒij.
In irritable bladder and acid urine.

156. ℞ Pot. Nitratis, gr. iij;
Spir. Ætheris Nit., ♏v;
Syrup. Croci, ʒss;
Aquæ, ʒiv. Ft. mist., quartis horis sumend.
Diuretic and febrifuge.

157. ℞ Sp. Juniperi, ♏v;
Decoct. Chimaphilæ, ʒij;
Sp. Ætheris Nitrosi, ♏v.
In dropsies, &c.

158. ℞ Succi Scoparii, ♏x;
Decoct. Uvæ Ursi, ʒij.
In mucous urine, &c.

159. ℞ Potassii Iodidi, gr. viij;
Potassæ Nitratis, gr. xxxij;
Extract. Taraxaci, gr. xl;
Infusi Digitalis, ℥j;
Syrupi, ʒij;
Aquæ ad ʒiv.
Dose—A tablespoonful for a child six years old. (*Dr. Hillier.*)

18. Diaphoretics.

Liquor Ammon. Acetatis.
— — Citratis.

Serpentaria (a very valuable remedy in low febrile conditions, chronic rheumatism, and general cachexia).

Guaiacum (useful in periosteal affections and some skin diseases; stated to be valuable in Tonsillitis).

Mezereon, Sassafras, } (occur in Dec. Sarsæ co.).

Opium (in minute doses).

FORMULÆ.

160. ℞ Tinct. Serpentariæ, ♏x;
Decoct. Mezerei, ʒiv;
Tinct. Guaiaci Ammon., ♏v;
Mucilaginis, ♏x.

In chronic rheumatic and syphilitic pains.

161. ℞ Liq. Ammon. Acetatis, ʒss;
Syrup. Rhœados, ʒss;
Aquæ Flor. Aurant., ʒiv.

A pleasant diaphoretic, may be given every three or four hours.

162. ℞ Liq. Ammon. Acetatis, ʒss;
Tinct. Camph. co., ♏v;
Sp. Ætheris Nitrosi, ♏v;
Aquæ ad ℥ss.

A draught at bedtime to produce copious diaphoresis.

163. ℞ Acidi Citrici, gr. xv;
Tinct. Guaiaci, ♏x—xx;
Potass. Bicarb., ℈j;
Mucilaginis, ad ℥j.

To be taken while effervescing every three or four hours. In tonsillitis.

164. ℞ Ammon. Sesquicarb., gr. iij;
Syrup. Aurant., ʒss;
Inf. Serpentariæ, ʒij—iv.

In typhoid conditions when diaphoresis is desirable.

19. Expectorants.

Expectorants—

Senega.
Ammoniacum.
Scilla.
Balsam of Peru.
Balsam of Tolu.
Storax.
Benzoin.

Ipecacuanha.
Antimony.
Asclepedin (*Dose*, gr. $\frac{1}{4}$—j. So-called 'Pleurisy Root,' a new remedy).

Demulcents—
Acacia.
Tragacanth.
Althæa.
Cetraria, &c.

FORMULÆ.

165. ℞ Tinct. Benzoin. co., ʒij;
Pulv. Tragacanth., ʒss;
Aquæ Cinnam., ℥iij.
Dose—ʒij. In chronic bronchitis.

166. ℞ Vin. Ipecac., ♏v—xv;
Syr. Scillæ, ʒss;
Oxym. Scillæ, ♏v—x;
Decoct. Senegæ, ʒij—iv.
In bronchitis when expectoration is viscid and difficult.

167. ℞ Decoct. Senegæ, ℥iv;
Vin. Antimonialis, ♏xx;
Syrup. Althææ, ℥j.
Dose—ʒj sæpe sumend. An expectorant mixture for croup and bronchitis during the acute stage.

168. ℞ Mist. Ammoniaci, ℥vj;
Sodæ Bicarb., ʒss;
Tinct. Camph. co., ʒij;
Tinct. Hyoscyam., ʒj;
Vin. Ipecac., ʒij.
Dose—ʒj, sæpe urgent. tuss. A valuable formula in phthisis, catarrhal cough, &c.

EXTERNAL APPLICATIONS.

20. Baths.

A Tepid Bath for a child should have a temperature of about 85° Fah.

A Warm Bath for a child should have a temperature of about 90° Fah.

A Hot Bath for a child should have a temperature of about 98° Fah.

Nitro-Muriatic Acid Bath.

169. ℞ Nitric Acid, 1 fluid ounce;
Hydrochloric Acid, 2 fluid ounces;
Warm Water, 10 gallons.

This must be made in a wooden bath, and the child should remain in it about ten minutes. It is used chiefly for hepatic sluggishness. When a child evidently dreads the water, an excellent plan is that suggested by Dr. Eustace Smith, viz.—to cover the bath with a blanket, to place the child thereon, and then gently to lower it into the water. By this simple plan much screaming, terror, and unnecessary exhaustion are avoided.

Sulphur Bath.

170. ℞ Sulphide of Potassium, 2 ounces;
Warm Water, 10 gallons.

Useful in scabies, and in chorea, and other nervous affections.

Salt-water Bath.

171. ℞ Common Bay Salt, or better Tidman's Sea Salt, 4 ounces;
Water, Warm or Cold (according to season, &c.), 4 gallons.

To be used every morning in tuberculosis, scrofulosis, general debility, rickets, &c., a most useful remedy. The whole body should be rubbed after every bath with a Turkish towel or rough bath gloves, to excite healthy action of the skin.

Mustard Bath.

172. ℞ Powdered Mustard, 2 ounces;
Hot Water, 4 gallons.

For a foot-bath, as a derivative, occasionally as a stimulant, in conditions of great exhaustion the child is immersed all but its head.

Iron Bath.

173. ℞ Sulphate of Iron, ½ ounce;
Water, 4 gallons.

For strumous and rickety children. The Ammonio-Citrate of Iron may be used, but it is more expensive. The Steel bath is useful in some diseases of the skin.

Bark Bath.

174. ℞ Half a pound of either of the Cinchona Barks boiled for half an hour with a pint of water, and strained. The decoction thus made can be added to two gallons of water. Other forms of Bark may be similarly used.

Gelatine Bath.

175. ℞ Gelatine, 4 ounces (Glue is sometimes used as a cheap substitute);

Boiling water sufficient to dissolve it, and added to four gallons of water. This is most useful in many cutaneous affections.

Valerian Bath.

176. ℞ One drachm of Valerian Root made into infusion, and added to the water of the bath. In essential convulsions, eclampsia, &c. (*Trousseau.*)

Corrosive Sublimate.

177. ℞ Corrosive Sublimate, gr. x;
Alcohol, ʒij;
Distilled Water, ℥j.

To be added to the bath. In syphilitic skin diseases. (*Trousseau.*)

21. Counter-Irritants.

Strong Iodine Paint.

178. ℞ Iodinii, gr. x;
Potassii Iodidi, gr. v;
Sp. Vin. Rect., q. s. ut fiat pigment.

To be applied with a camel's hair brush. A powerful discutient. Diluted it is useful over enlarged glands, for which purpose the Linimentum Iodi of the Ph. B. is also used.

Oil of Amber.

179. ℞ Sp. Camphor., ʒss;
Tinct. Opii,
Ol. Succini, āā ʒij;
Ol. Amygdal, ʒss. Ft. applicatio.

To be rubbed on the chest in pertussis, &c.

Croton Oil.

180. ℞ Ol. Crotonis Tiglii, ♏xx;
Ol. Olivæ, ʒiij.

A powerful counter-irritant and rubefacient, producing, if much used, a pustular eruption.

22. Gargles, Throat Applications, and Inhalations.

Young children cannot gargle; for them, therefore, the throat should be syringed out with the gargle. Poisonous gargles should never be prescribed for children of any age, —such as Belladonna, Corrosive Sublimate, and the like.

Borax and Myrrh.

181. ℞ Sodæ Bibor., ʒj;
Tinct. Myrrhæ, ʒss;
Decoct. Cinchonæ, ʒviij. Ft. Gargarisma.

182. ℞ Potassæ Chloratis, ʒj;
Tinct. Kino, ʒss;
Aquæ, ʒviij. Ft. Gargarm.

In ulceration of the fauces, relaxed throat, &c.

183. ℞ Sodæ Bibor., ʒss;
Glycerini, ʒj. Ft. applicatio.
To be applied by means of a camel's hair brush to aphthæ, &c.

184. ℞ Sodæ Sulphitis, ʒj;
Aquæ, ʒj.
An application to be similarly used for aphthæ.

The glycerines of Carbolic and Tannic Acids of the Ph. B. are very useful applications in diseased conditions of the throat and tonsils. The glycerine of Carbolic Acid should be a little diluted for young children, and applied with care. It has been used with much success in diphtheritic exudations, foul ulcerations, &c.

Inhalations may be made by adding to half a pint of boiling water—

20 drops of Creosote (useful in ozæna and ulcerations about the pharynx attended with offensive smell), or
15 drops of Tincture of Iodine, or
20 drops of Ammoniated Tincture of Guaiacum, or
2 fluid drachms of Oil of Turpentine.

These are used more especially in chronic diseases; as, for instance, the Iodine in laryngeal phthisis. But it is also of use in severe coryza, ozæna, and some cases of bronchitis. Turpentine is an excellent stimulating vapour in cases of chronic bronchitis with much secretion. The Guaiacum is employed in throat affections, as tonsillitis, &c. Very young children, of course, cannot use inhalers. Of instruments used for inhaling, Dr. Nelson's is cheap and serviceable; there is now a great variety of instruments used for the purpose. Besides these, the following drugs are now much employed in the form of atomised fluids. Hand-ball atomisers are used to produce the spray,—that of Dr. Siegle is a particularly good form of

instrument. Medicated spray is valuable in diseases of the mouth, fauces, pharynx, &c. A solution of Sulphurous Acid thus employed is stated to be most efficacious in sore-throats, ulcerations about the tonsils, diphtheritic exudations, &c. I have twice employed it with marked benefit.

The following quantities of drugs are proportioned to the fluid ounce of water. Many other substances may be similarly used.

Acidi Tannici . . .	3 grains.
Aluminis Exsicc. . .	5 grains.
Boracis	5 grains.
Belladonnæ Extract. . .	$\frac{1}{4}$ grain.
Potass. Chlorat. . .	5 grains.
Tinct. Ferri Perchlor. .	5 drops.
Tinct. Iodi . . .	1 drop.

Atomised fluids are to be used cautiously, especially when drugs like Iodine, Opium, Belladonna, &c., are employed.

23. Liniments and Lotions.

Lotions.

Black Wash.

185. ℞ Calomelanos, ʒj;
Mucilag. Acaciæ, ʒss;
Aq. Calcis, ʒviiss.

Yellow Wash.

186. ℞ Hydrarg. Perchlorid., gr. vj;
Aq. Calcis, ʒvj.

Red Wash.

187. ℞ Zinci Sulphatis, gr. vj;
Tinct. Lavand. co., ʒj
Aquæ, ʒvj.

Belladonna Lotion.

188. ℞ Ext. Belladonnæ, ℈ij ;
Aquæ, ℥viij.

Opiate Lotion.

189. ℞ Pulv. Opii, ʒss ;
Aquæ Fervent., ℥viij. Macera per horas duas et cola.

Poppy and Borax.

190. ℞ Ext. Papav., ʒij ;
Boracis, ʒj ;
Aquæ Fervent., ℥iv.

For itching eruptions.

Spirit.

191. ℞ Sp. Vin. Rect., ℥ss ;
Aquæ Coloniensis, ℥ss ;
Aquæ, ℥xv.

Cooling lotion.

Nitric Acid.

192. ℞ Acidi Nitrici dil., ʒij ;
Aquæ, ℥xvj.

Alkaline Lotion.

193. ℞ Liq. Potassæ, ʒij ;
Acid. Hydrocyan. dil., ʒj ;
Mist. Amygdal., ℥viiss.

For itching eruptions.

Borax and Glycerine.

194. ℞ Boracis, ʒj ;
Glycerini, ℥j ;
Aq. Flor. Aurant. vel Rosæ, ℥viij.

Soothing.

Arnica.

195. ℞ Tinct. Arnicæ, ʒij;
Aquæ Sambuci, ʒiv.

For sprains and bruises.

Sal Ammoniac.

196. ℞ Ammon. Hydrochlor., ʒss;
Acidi Acetici, ʒiiss;
Sp. Vin. Rect.,
Aquæ, āā ʒiij.

Discutient.

Lead.

197. ℞ Liq. Plumbi Diacetat., ʒj;
Aquæ, Oj.

Cooling.

198. ℞ Plumbi Acetat., ʒj;
Ammon. Carb., ʒj;
Tinct. Opii, ʒss;
Aquæ Rosæ, ʒviij.

In urticaria, &c.

Carbolic Acid.

199. ℞ Acidi Carbolici, ʒij;
Sp. Rorismarini, ʒj;
Sp. Vin. Rect., ʒss;
Aquæ, ʒvj.

For pediculi.

200. ℞ Hydrarg. Corros. Sublim., gr. xij;
Sp. Vin. Rect., ʒj;
Aquæ Destillatæ, ʒvj;
Ol. Rosæ, ♏iij.

For pediculi.

Liniments.

201. ℞ Lin. Camph. co., ʒj;
Lin. Sapon. co., ʒiss;
Tinct. Opii, ʒss.

For chronic pains, &c.

Opiate.

202. ℞ Tinct. Opii, ℥ss;
Ext. Belladonnæ, ℈j;
Lin. Sapon. co., ℥iss.

Glycerine and Belladonna.

203. ℞ Ext. Belladonnæ, gr. xx;
Glycerini, ℥ss.

Chloroform, &c.

204. ℞ Chloroformyli, ℥j;
Ext. Belladonnæ, gr. xx;
Ext. Opii, gr. xx;
Ext. Aconiti, gr. x;
Glycerini, ℥j.

A very powerful anodyne to be used cautiously.

Capsicum.

205. ℞ Tinct. Capsici, ℥ss;
Lin. Saponis co., ℥ss.

Stimulant and rubefacient.

Corrosive Sublimate.

206. ℞ Hydrarg. Perchlor., gr. ij;
Aquæ Rosæ, ℥ij;
Sp. Vin. Rect., ℥ss.

In favus.

207. ℞ Tinct. Cantharid., ℥iij;
Lin. Sapon. co., ℥ix.

For chilblains.

Or,

208. ℞ Calcii Chlorid., ℥j;
Boracis, ℥j;
Axungiæ, ℥j.

Caustic Application.

209. ℞ Acidi Chromici, ℥j;
Aquæ, ℥j.

In ringworm.

24. Collyria.

Zinci Sulph., gr. j,
Aluminis, gr. j—viij,
Argent. Nitrat., gr. j—iv,
Zinci Acetat., gr. j,
Liq. Plumbi Diacetat., ♏v,
Sp. Vin. Gallici, ʒj,
} Aquæ destillatæ, ʒj.

The above are the ordinary strengths employed to the ounce of water.

Zinc and Opium.

210. ℞ Zinci Sulphat., gr. vj;
Vin. Opii, ʒj;
Aquæ Rosæ, ʒvj. Ft. Collyrium.

To dilate the Pupil.

211. ℞ Ext. Belladonnæ, ℈j;
Aquæ, ʒj.

Or better,

212. ℞ Atropiæ Sulphatis, gr. j;
Aquæ Destillatæ, ʒj.

25. Ear Lotions.

213. ℞ Calcii Chlorid., ʒij;
Aquæ, Oss. Ft. Lotio.

214. ℞ Argent. Nitrat., gr. v;
Aquæ, ʒj. Ft. Lotio.

26. Ointments.

Aconite.

215. ℞ Aconitinæ Puræ, gr. ij;
Cerat. Cetacei, ʒj. Misce accuratissime.

"To be used with care."

Bismuth.

216. ℞ Bismuthi Subnit., ʒj;
Axungiæ, ʒiij. Ft. unguent.
For cracks, excoriations, and irritable sores.

Resin and Creosote.

217. ℞ Creosoti, ♏xx;
Ung. Resinæ,
Adipis, āā ʒj. Ft. unguent.
Stimulant and disinfectant.

218. ℞ Balsam. Peruv., ʒj;
Ung. Cetacei, ʒj. Ft. unguent.
Stimulant.

Carron Oil.

219. ℞ Ol. Lini,
Aq. Calcis, partes æquales.
A useful application for burns.

220. ℞ Collodii, ʒij;
Ol. Ricini, ʒj. Misce.
An application in burns and wounds.

Carbolic Acid.

221. ℞ Acidi Carbolici, ʒj;
Glycerini, ʒj. Misce.
As a dressing to wounds.

222. ℞ Ovorum Vitell., ʒiv;
Glycerini, ʒv. Misce.
An excellent coating in erysipelas, itching eruptions, &c.

Oil of Cade.

223. ℞ Ol. Cadini,
Sulph. Præcip., āā ʒiij;
Glycerin. Amyli, ʒvj;
Adipis Benzoati, ad ʒiij. Ft. unguent.
Recommended by Dr. Anderson in scabies.

Iodine and Cod-liver Oil.

224. ℞ Ung. Iodi,
Ol. Morrhuæ, āā ʒiv. Ft. unguent.

Recommended by Dr. Tanner in bronchocele and mesenteric disease.

Calomel.

225. ℞ Calomelanos, ʒij;
Ung. Cetacei, ʒj. Ft. unguent.

In cutaneous affections.

Scott's Ointment.

226. ℞ Ung. Hydrarg.,
Cerat. Sapon., āā ʒj;
Camph. Pulv., ʒj. Ft. unguent.

27. Hypodermic Injections

Are eminently serviceable for the immediate relief of pain and in cases where it is desirable to get the system as rapidly as possible under the influence of the drug to be employed.

Morphia, Atropine, and Aconitine are three most potent agents when thus employed. It is wisest to commence with an extremely small dose, as the action is occasionally out of proportion to the quantity used.

Morphia. A solution of the acetate, twenty-four drops of which contain one grain of Acetate of Morphia in a convenient strength. Of this, one drop is sufficient for a child ten years old; the quantity may be carefully increased to two or three drops. The solution should be neutral.

Atropia. The Liquor Atropiæ Sulphatis (Ph. B.), each drachm of which contains half a grain of Atropine, is too strong for hypodermic use. Three fluid drachms of water

should be added to one fluid drachm of the liquor; and of this solution one drop will be sufficient to commence with in a child ten years old.

Aconitine.

227. ℞ Aconitiæ, gr. j;
Sp. Vin. Rect., ♏xv;
Aquæ Destill., ℥j. Ft. solutio.

Of this solution one drop will also be sufficient at the age of ten.

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