the same process occurs under the skin, as in one of the two cases, it goes by the name of phlegmonous lymphangitis. I said the passage of the puerperal ichor through the larger lymphatics caused various degrees of inflammation; and the error of Cruveilhier and the pathologists of his time was to suppose that puerperal fever could not be attributed to the lymphatics unless they contained pus. In my paper on lymphangitis in pelvic pathology, I have cited cases of puerperal fever in which the enlarged lymphatics were found to contain not pus, but a fetid brown fluid, similar to that found in the womb, containing a bit of putrid placenta. I have, moreover, shown that when filtered putrid lochial fluid is injected into the womb of recently delivered animals, this gives rise in all to the same typhoid symptoms; but, on opening the animals, it is found that sometimes the lymphatics contain pus, and at others a fetid sanious fluid like that found in the womb.

SPINA BIFIDA.

By E. NOBLE SMITH, L.R.C.P.Lond.

MR. BURTON'S communication upon this subject induces me to again express a doubt that a case of spina bifida, in which the cord communicates with the sac (*i.e.*, adheres extensively to the back of the sac), can be cured by an operation which causes the sac to contract and shrivel up. The success attending Dr. Morton's treatment seems, in a very great measure, due to the modifications which he has introduced. This fact I fully recognise, but I trust I may be allowed to express a doubt as to the spinal cord being connected with the sac in the manner shown in the diagrams given below, or in the preparation, a drawing of which accompanies Sir Astley Cooper's cases reported in the *Medico-Chirurgical Transactions*.

In answer to a former letter of mine, Dr. Morton observes (BRITISH MEDICAL JOURNAL, November 21st, 1874) that, as all his cases have been successful, he had not had an opportunity of making a *post mortem* examination of an injected case. Five consecutive cases treated according to Dr. Morton's plan recovered. A sixth is now reported, which has failed.

I now venture to analyse these five successful cases.

CASE I (BRITISH MEDICAL JOURNAL, April 6th, 1872). *Spina bifida in a child two months old.*—"Its covering was thin, so that it was quite translucent; and at the child's birth it was about half its present size; moderate pressure upon it did not cause much inconvenience or suffering; and the child had never had convulsions, and seemed in all other respects quite healthy." It was cured by Dr. Morton's injection. In this case, there is no evidence of the cord communicating.

CASE II (BRITISH MEDICAL JOURNAL, June 15th, 1872). *Spina bifida in a child fourteen days old.*—"Dr. Morton's assistant reports, that 'the tumour was as large as a middle-sized orange, and cylindrical in shape. In some parts it was reddish, and at others bluish in tint. It was semi-transparent, and somewhat wrinkled on the surface. It became tense when the child cried. On looking through it, several striæ were seen passing over its internal surface.' There is no proof that these striæ were nervous, and, as the child does not seem to have suffered at all from convulsions or paralysis, I think it is highly probable that they were only inflammatory adhesions. This opinion is strengthened by the fact that the tumour 'at birth was small, but had increased in size', and that 'some time ago it showed signs of ulceration, but these healed up, leaving thickened cicatrices of different colours'. It was cured by Dr. Morton's injection.

CASE III (BRITISH MEDICAL JOURNAL, April 26th, 1873).—Dr. Watt reports a case in which the spina bifida was a sessile semi-transparent flesh-coloured fluctuating tumour, as large as an ordinary sized hen's egg. It was extremely sensitive, and, "when viewed by transmitted light, cords were seen passing near the surface". There is much more evidence in this case in favour of the cord communicating to some extent with the sac, for the child moaned almost constantly. "Its legs dangled, and no voluntary attempt was made to move them", and "the sphincters seemed very weak". This tumour was injected with Dr. Morton's fluid, and the tumour contracted into "a cake of firm condensed tissue", but "the legs never moved together, but, when the soles were tickled, one or other leg was drawn up a short distance". There is no absolute proof, however, that the cord communicated with the sac, nor does there seem to have been a complete cure.

CASE IV (BRITISH MEDICAL JOURNAL, January 31st, 1874). Reported by Dr. Watt.—The child made an excellent recovery after injection with Dr. Morton's fluid. The tumour "was very sensitive to the touch, became tense when the child cried, and palpation discovered a perfectly fluid condition", which is equivalent to stating that the cord did not communicate with the sac.

CASE V (BRITISH MEDICAL JOURNAL, October 24th, 1874). Re-

ported by Dr. Morton. In this case, the tumour was situated in the cervical region, and no evidence is given of the spinal cord being involved in the sac.

The accompanying cuts represent two preparations in the Museum of the College of Surgeons, of which Mr. Flower kindly allowed me to

make drawings, and I cannot understand how such cases could be cured by making the tumour contract and shrivel up.

ON JABORANDI.

By SYDNEY RINGER, M.D., Professor of Materia Medica and Therapeutics in University College, London; and W. MURRELL, L.R.C.P.

SINCE a paper published in conjunction with Mr. Gould, the present writers have made ninety-four additional observations on the effects of jaborandi. The results, whilst confirming the previous statements, add a little to our knowledge of the action of this interesting drug. We gave the medicine sixty-eight times to patients, who took it at their own homes at bedtime. In fifty-nine instances, both perspiration and salivation occurred; in five, perspiration without salivation; in four, salivation without perspiration; thirteen complained of pain over the pubes, often very severe, with a strong desire to pass urine; thirty-one experienced pain in the head, often accompanied with giddiness and dulness.

On seventeen occasions, we gave the drug at nine o'clock in the morning, in a warm room, before a large fire. Of these cases, both perspiration and salivation occurred in eleven; in two, perspiration without salivation; in one, salivation without perspiration; three experienced pain over the pubes; six felt severe pain in the head; six nausea or sickness; and, in one instance, the drug caused a good deal of drowsiness; in four cases, the sight became affected; and finally, in three cases, the jaborandi produced no effect. On nine occasions, we gave the drug to patients who immediately left the hospital and returned home, during the late severe weather. Both perspiration and salivation occurred in eight cases; in three, pain over the pubes; in six, severe pain in the head; in four, nausea; in six, much sleepiness; and, in one instance, the drug produced no effect.

In by far the greater number of observations, both perspiration and salivation were profuse; but sometimes the perspiration or the salivation or both were only slight. The observations were repeated several times on certain individuals, and we found that the effects of the drug varied considerably, not only on different people, but even in the same person. Some yield with difficulty to the drug, and require a large dose, even ninety grains of the leaves. In others, whilst exciting considerable perspiration, it affects the salivary gland but little, or not at all; on the other hand, in some it excites profuse salivation, but scarcely affects the perspiration. In respect to its influence on the brain, the sight, the urinary organs, the effects of jaborandi are even still more uncertain.

As might be anticipated, cold, exposure, and food influence the effects of the drug. Thus it acts less freely on the skin of persons dressed or exposed to cold; moreover, when administered on a full stomach, the drug is more slowly absorbed, and its effects are less marked. In experimenting, therefore, on persons dressed or exposed to the cold, we were obliged to give a larger dose to get the desired effects. The pain over the pubes was often very severe, especially on two occasions, when it was felt across the navel and passed downwards along the penis, and down the urethra. With few exceptions, the pain subsided immediately on passing water. The headache was generally referred to the forehead over the eyes, though sometimes it involved the whole head, and on one occasion was limited to the left parietal region. The character of the pain was generally dull; most persons calling it a "weight over the eyes". In one case, it was paroxysmal. When the drug was given in the daytime, the pain lasted from half an hour to several hours. Giddiness and a stupid feeling were often associated with the headache. This effect on the head, we believe, has before not been noticed. On

two occasions, where the headache and the pain over the pubes were very severe, so severe as to make men complain loudly, we injected hypodermically 1-100th of a grain of atropia, and in a few minutes the pain ceased, showing that probably the antagonism of jaborandi to atropia applies to the effects of these remedies on the head and bladder. To nine persons we gave a dose each night, varying from four to fourteen times successively, and found that the effects of the drug were undiminished by repetition. In all the foregoing experiments, we employed a tincture of jaborandi, a drachm of which corresponds to thirty grains of the drug; we gave two drachms of this tincture, and, on a few occasions, to persons who were dressed, three drachms.

We have carefully watched the effects of jaborandi on the circulation, and always find that it increases the frequency of the pulse, and, except when the pulse is frequent from fever, we have never seen this drug lessen the frequency of the beats. Mr. Langley finds that jaborandi reduces the frequency of the heart's action in animals; hence we must conclude that, in this respect, it affects man differently from animals. Mr. Langley expresses a caution against its use, owing to its depressing effect on the heart; but though, in our numerous experiments, the patient has sometimes become rather depressed, yet we have never witnessed, even after large doses, any very marked amount of weakness.

HISTORY AND MEANING OF THE TERMS DIPHTHERIA AND CROUP.

By SIR JOHN ROSE CORMACK, M.D., F.R.S.E.,
Physician to the Hertford British Hospital, Paris.

AT page 507 of the JOURNAL for April 17th, Dr. William Cumming of Edinburgh begins a note on "Croup and Diphtheria" by thus expressing himself. "The question as to the identity of membranous croup and diphtheria is worthy of the attention it has recently received; but I confess I have some difficulty in understanding how the two diseases can be ranged under the same category." This sentence shows that the same words are at present being employed with different meanings in the discussion to which Dr. Cumming refers. I have read that discussion up to date, and it has appeared to me to derive much of its confusion from the controversialists not attaching the same meaning to the terms croup and diphtheria.

With Dr. Cumming, I hold that membranous croup and diphtheria are not identical; and yet I am not sure, from the drift of his letter, whether he accepts in their integrity the views now almost universally adopted by French physicians, clearly laid before the Pathological Society of London in 1865 by Dr. R. H. Semple, and which I have for many years considered true beyond even the possibility of doubt. My present object, however, is not to enter the lists as a controversialist, but simply to try to clear the field of debate by making a plain statement as to the history and signification of two words.

Diphtheria (with Bretonneau, Trousseau, Semple, George Johnson, and others) I look upon as a malady *sui generis*—as a contagious specific general disease. The leading characteristic of diphtheria is a specific exudation upon mucous surfaces, wounds, and cutaneous abrasions. This specific exudation constitutes the false membranes which we may meet with on the mucous membrane of the pharynx, larynx, trachea, nares, and vagina, as well as around wounds and on cutaneous abrasions. We often see the membrane form on the edges of the tracheotomist's incision in diphtheritic croup. The diagnosis between diphtheritic croup and the various kinds of non-diphtheritic membranous sore-throat (non-diphtheritic membranous croup), can frequently be established by applying a small blister to a convenient part of the body, such as the forearm. If the membranous sore-throat be a local manifestation of the general specific disease, that is, of diphtheria, then, and then only, the blistered surface will become covered with false membrane. Confluent herpes of the throat is often mistaken for diphtheritic sore-throat; and the success in the treatment of diphtheria, of which some British practitioners have lately boasted, can only be explained by their having had to do with throat herpes (*herpès guttural* of Gubler), or common membranous sore-throat (*angine couenneuse commune* of Trousseau). Cases of common membranous sore-throat, recovery from which is spontaneous, are often proclaimed as cases of diphtheritic sore-throat. Their differential diagnosis is, nevertheless, easy; but there are cases of confluent herpes of the throat which it is difficult by mere examination to distinguish from cases of diphtheritic sore-throat.

The sum of the whole matter is this: diphtheria is a specific disease, *sui generis*: an usual local manifestation of it is the formation of false membrane on the mucous surface of the larynx and trachea, constituting diphtheritic croup. The use of the prefix "diphtheritic" is necessary,

so long as the word "croup" is retained, to prevent mistake as to the nature of the affection spoken of; without the explanatory prefix, the word croup is ambiguous, being often employed as a general designation of all membranous obstructions of the throat, and still farther extended by some to spasmodic laryngeal obstructions. The spasmodic croup of English authors is the *faux* croup of the French.

Confusion is apt to arise in the minds of uninitiated students of foreign medical literature when they begin to compare French and German authorities on diphtheria and croup. To avoid bewilderment, it is necessary to bear in mind that the physicians of France and Germany respectively attach absolutely different meanings to the words diphtheria and croup.

The great majority of French writers, considering the question from a purely clinical point of view, regard diphtheria as a disease which is general, specific, and contagious, specially characterised by the formation on the affected parts of false membranes, which, when removed, are reproduced, and which have a great tendency to extend to neighbouring parts, and to become more or less general. French writers designate all pseudo-membranous laryngeal affections by the name of croup; but some of them limit the use of the term croup to diphtheritic laryngeal membranous exudations.

German writers, on the other hand, adopt a purely anatomical division. Completely abandoning the original signification of the Scottish and Swedish word, by which was simply meant croupy or crowing respiration, they apply the term croupal to all affections which are characterised anatomically by the formation of a fibrinous exudation or superficial false membrane upon a subjacent mucous surface in a state of integrity; hence we find them speaking of croupal nephritis and croupal gastritis. They apply the term diphtheritic to deep or interstitial pseudo-membranous exudations, accompanied by infiltration and elimination of the parts subjacent to the false membrane. An example will make clear the essential difference between the German and French nomenclature. The term croupal pneumonia is generally employed in Germany to designate acute pneumonia with fibrinous exudation (*pneumonie aiguë, franche, avec exudation fibrineux*). Some German authors, looking to the pseudo-membranous and ulcerative character of dysentery, give it the name of intestinal diphtheria.

As to the unfortunate word croup, it would be well to expunge it from British scientific medicine, or be careful to employ it unambiguously, which can always be done by the use of a descriptive prefix such as diphtheritic, herpetic, spasmodic, etc.

The word croup was, I believe, first employed in scientific medical literature in 1765 by Dr. Francis Home of Edinburgh, in his *Inquiry into the Nature, Cause, and Cure of Croup*. Till then, it was only the popular term in Scotland and Sweden for stridulous breathing, for crowing or croupy respiration. An attentive perusal of the cases detailed by Dr. Home leads to the impression, that the epidemic described by him was an epidemic of diphtheria, and identical with that studied by Bretonneau at Tours in 1826, and described by him under the name which he created, diphtheria, from *διφθέρα*, a pellicle. It must always be remembered, however, that, although Bretonneau created the name and indicated the true pathology of the disease, his first work—*Recherches sur l'Inflammation spéciale du Tissu Muqueux, en particulier sur la Diphthérie*—published at Paris in 1826, was far from complete. It was, however, a grand unveiling of the truth, and the foundation of one of the most brilliant clinical inquiries which adorn the history of medicine.

The term croup was not vulgarised in France till the publication in 1809 of F. Ruette's translation of Home's *Inquiry*. In the same year, Ruette published at Paris a translation from the English of an account by Starr, in the *Philosophical Transactions* for 1750, of an epidemic *morbus strangulatorius* which he had observed in 1748 at Liskeard, in Cornwall. Ruette blames Home for intentionally omitting to mention the work of Starr. He says that perhaps there was nothing new but the name in Home's admirable description: "On pourra même reprocher à ce médecin (Home), d'ailleurs si recommandable, de n'avoir gardé silence sur Starr qu'afin de nous persuader que la maladie dont il (Home) nous a donné une si belle description était nouvelle, ainsi qu'il le prétend; mais un examen plus approfondi nous convaincra peut-être qu'elle n'a de nouveau que le nom qu'il lui a donné."

In concluding this notice of the history and meaning of the terms diphtheria and croup, I may add that, in the current medical literature of Italy and Spain, I find that croup and diphtheria are employed exactly as in France, with this occasional difference, that, in place of croup, the Italian writers often use the term laryngeal diphtheria.

The guardians of the poor of the city of Exeter have raised the salary of the workhouse surgeon (Mr. J. Woodman) from £80 to £100 per annum.