may be regarded as the application of the hypothesis to explain the occurrence of fatal consequences in different diseased states of the system, it may be said, that it possesses at least the merit of ingenuity in some respects, and plausibility in others. It further throws open a new and extensive field for pathological observation; and if it be productive of no other advantage than that of directing the attention of surgeons to the state of the veins in necropsy inspections, this is by no means inconsiderable. In this manner the hypothesis proposed by Mr. Arnot, in the second part of his paper, may soon be put to the test of observation, and finally be assigned that place in pathological science to which, in strict justice, it may be entitled.

**ART. V. — De la Phlébite, &c. On the Treatment of Inflammation of the Veins and Phlegmonous Erysipelas by the Compressing Bandage. By Alphonse Velpeau, M. D.**

*(Revue Médicale Française et Étrangère, Juin 1829.)*

The method now generally adopted in Britain for the treatment of phlegmonous erysipelas and the inflammation of the veins with which it is often accompanied, consists in dividing the integuments of the diseased part by several deep incisions. This severe measure, which was first proposed and resorted to by Mr. Hutchison, and has lately been introduced into general practice in consequence of the recommendation bestowed on it by Mr. Lawrence, has undoubtedly been often singularly successful. If it were necessary we could add our testimony to this effect, having at times seen it apparently save the patient's life in very desperate circumstances. It cannot be denied, however, that the treatment by numerous deep incisions is an exceedingly harsh practice, which is admissible only on account of the extreme danger of the diseases to which it has been applied, and our ignorance of a more gentle and equally effectual method of counteracting them.

If, however, the statements now and lately advanced by M. Velpeau shall be found to be warranted by the experience of others, there is another method of cure, which is not only far more simple and less severe, but likewise even positively more certain. This is the application of a tight spiral bandage to the affected limb. On two former occasions we took some notice of the author's observations on the employment of the compressing bandage in the treatment of burns, erysipelas, and spreading subcutaneous inflammation; and we announced...
his intention to try its effects in phlebitis or inflammation of the vein. The paper now before us contains the results of his experiments on that subject; and so far as a single man's experience will go in a matter of this kind, the facts now published are decisive of the superiority of the bandage over the plan by incisions.

We shall at once proceed to state shortly the leading features of some of the principal cases which have led M. Velpeau to this conclusion.

Case 2.—A young chemist was attacked in July, 1826, with acute pain in the right limb and much inflammatory fever. Twenty-four hours after the commencement of the symptoms M. Velpeau found the whole leg and thigh much swelled, except on the outer part of the latter. The skin was red in patches chiefly over the course of the saphena vein and outside of the leg. It was impossible to feel the vein in the leg on account of the swelling, tension, and extreme tenderness of the integuments, but in the upper part of the thigh where the inflammation was less violent, the saphena formed a round cord, quite distinct to the touch. The pulse was frequent, full, and hard, the tongue white, the thirst urgent, the skin hot and dry. His illness commenced two days after he remarked a crack in the lower part of the leg, accompanied with pain. He had also a small suppurating sore on the outside of the heel, about a week old, and the effect of a slight excoriatio of the skin. Venesection was immediately performed, and sixty leeches were applied to the limb; and next day, as the amendment produced was not material, forty leeches more were applied. Cataplasm and the warm-bath were also resorted to. On the fourth day there was still no material improvement. The leg was much distended and presented entirely the characters of phlegmonous erysipelas; in the thigh, which was also much swelled, the indurated saphena vein could be felt as low as six inches above the knee, while the red patches along its course reached within a few finger-breadths of the groin; and in the groin itself some inguinal glands were somewhat enlarged and tender. Twenty leeches were applied to the groin and as many to the leg. On the fifth day there was no improvement in the local symptoms, but the general fever had abated a little. The constant application of cold lotions was now tried and persevered in for twenty-four hours, but without any advantage.

On the sixth day, M. Velpeau, who had previously urged the application of the compressing bandage, obtained permission to resort to this remedy, and it was rolled with moderate tightness from the toes to the groin, and then moistened with infusion of mallow. In the course of the same day he
pain was everywhere much alleviated, except at the dorsum of the foot and outer ankle. At night the patient slept well; and next morning the swelling had diminished to one-half on the leg, and had entirely disappeared from the thigh, where, however, the indurated vein could still be felt. At the dorsum of the foot and outer ankle suppuration was threatened. On the eighth day a small abscess was opened at the former point; but at the ankle fluctuation was not perceptible. Everywhere else the pain and swelling had altogether disappeared. A poultice was applied to the outer ankle, and the compressing bandage re-applied on every other part. On the eleventh day a small deep-seated abscess was opened close to the *tendo Achillis*, after which the patient was soon enabled to walk. For some time, however, the vein continued hard, and the limb subject to oedema, notwithstanding the use of the laced stocking.

**Case 4.**—A medical student three days after sustaining a puncture of the left middle finger while dissecting, was attacked with stiffness and numbness of the whole arm, and next day with redness, pain and swelling of the injured finger and hand. He applied twenty-five leeches to the hand without experiencing any relief. On the third day, when M. Velpeau first saw him, the whole metacarpal veins were of a purple colour; those of the fore-arm were also somewhat hard, painful, and much inflamed; and the inflammation had even passed the elbow. The whole cellular texture of the injured finger, hand and wrist, participated in the inflammation. The compressing bandage was proposed; and although the patient expressed some reluctance to submit to its application, it was applied from the fingers to the shoulder, a gantelet, or short glove being put upon the fingers, and the spiral turns of the bandage begun at the extremity of the metacarpus. In the evening the pain, heat, and fever, had abated considerably. The tightness of the bandage was increased by moistening it with brandy and water. Next morning there was not any fever; and the patient was able to visit M. Velpeau to get the arm dressed. The inflammation of the integuments had disappeared from the arm and great part of the fore-arm. But the veins of the fore-arm were still marked by red painful streaks; and the swelling of the hand continued. The bandage was continued during the fourth, fifth, and sixth days. On the seventh a little oedema of the pricked finger was all that remained of the disease; and on the eighth, the patient finding himself quite well, gave up the use of the bandage.

**Case 6.**—In February 1828 a candidate for the medical degree, while putting on the table a body considerably advanced in putrefaction, scratched the thumb of his left hand. On the
third day he had an attack of severe rigor, followed by pallor of the countenance and much general uneasiness, with swelling of the thumb and numbness of the arm. On the fourth day, when M. Velpeau first saw him, there was high fever, dry burning skin, white tongue, and yellowness of the features. The whole fingers and hand were much swelled and livid; the fore-arm and arm were similarly, but less severely affected; the skin was deeply coloured as high as the elbow, but the veins could not be felt. The treatment was confined to blood-letting and the use of poultices. In the evening the axillary glands were swelled, and the erysipelas extended to the shoulder, while the hand and the wrist were so gorged and livid that they seemed to be threatened with gangrene. The compressing bandage was immediately applied with great care, the glove being first drawn over the fingers, and the roller being then wrapped round the arm above the insertion of the deltoid muscle, and so as also to compress the axilla. The whole apparatus was moistened occasionally with infusion of mallows.

Next morning the fever had ceased, the countenance was almost natural, the inflammation had greatly abated on the arm and even also on the fore-arm; but the hand continued swelled, livid, and affected with darting pain; and the cuticle around the scratch had separated to the distance of half an inch, and formed a phlyctena. The bandage was renewed and moistened with brandy and water. The hand, however, was constantly affected with acute pain and heat. On the sixth day the arm was quite well, and the fore-arm was continuing to improve rapidly; but the back of the hand was much elevated, as if a deep abscess had formed. The wound was enlarged without any pus being discharged from it. The pressure on the fingers and hand was increased. During the subsequent night the pain was so severe in the hand, that the patient removed the bandages. Next morning the fore-arm was quite well and the hand was better; but the patient complained of a severe bruising pain like that caused in the foot by a tight shoe. This pain and the previous suffering referred to the hand was ascribed by M. Velpeau to the bandage having been firmly applied without pads being placed in the palm to equalize the pressure; and when the omission was at last supplied the pain gradually ceased.

On the ninth day the hand was much less swelled; but a gangrenous phlyctena formed on the points of all the fingers, which had been allowed incautiously to rest too heavily on the cushion. An eschar separated from each of these phlyctenae in the course of eight or ten days, and the nail and last phalanx of the fore-finger were subsequently lost. The remains of the swelling were speedily removed by the uninterrupted use of the bandage.
The last of these cases is particularly valuable, as it shows that the very worst forms of diffuse cellular inflammation may be promptly reduced by the simple treatment here proposed. It also illustrates admirably the extreme importance of regulating the pressure uniformly, by filling up the natural hollows with proper pads and preventing small portions of the limb from bearing the weight of it for any length of time. There is no doubt that, as M. Velpeau specifies in his former papers, the success of the treatment by tight bandaging must depend neatly on the uniformity and smoothness with which the roller is applied; for wherever the pressure is less than on the surrounding parts, there the inflammation will not only go on without control, but will probably be even augmented in consequence of the resistance opposed by the surrounding pressure to the free return of blood.

It is unnecessary to quote any of the other examples related by the author in his paper, as they all agree in their leading particulars with those already noticed. It does not appear that he has hitherto met with a case where the method was unsuccessful. M. Velpeau suggests that advantage may be taken of the effect of compression in checking inflammation of the veins to prevent its formation in cases where operations are performed on the veins of the extremities, and where it is well known that fatal phlebitis has not unfrequently resulted. In not a few cases of death after amputation of the leg, the great veins have been found severely inflamed. Here, too, it is reasonable to suppose that such an event may be warded off by the practice adopted by most surgeons, of applying the circular bandage tightly round the stump.

As the compressing bandage is likely to come soon into general use as a remedy for inflammation of the veins, and, if found to possess all the certainty ascribed to it by M. Velpeau, must really be accounted an important discovery in the practice of surgery, it is right to mention that compression appears to have been employed for parallel purposes by various surgeons, before it was thought of by him. Ambrose Paré employed it with success to check what appears to have been a severe case of phlegmonous erysipelas, consequent on the operation of venesection. Theden also used the compressing bandage in erysipelas of the extremities, John Hunter recommended the inflammation of the veins, that pressure should be applied on some part of the course of the affected vessel, with the view of disturbing the tendency of the disease to spread along a continuous membrane; and if his instructions had not been lost sight of, it is highly probable that the method by compressing bandages would have been in general use before
now, and many lives saved which have been sacrificed by this alarming disorder. In 1815, M. Bretonneau of Tours recommended the employment of tight spiral bandages in the treatment of burns. But M. Velpeau has been the first to show that all forms of erysipelas of the extremities, as well as phlebitis, are checked by this treatment, and to recommend it forcibly to the attention of practitioners, by stating the results of an extensive personal experience.

Arr. VI.—Observations on the Nature and Treatment of Cholera, and on the Pathology of Mucous Membranes.

By Alexander Turnbull Christie, M. D. Madras Medical Establishment, and lately in Medical Charge of the Civil Department in the Southern Mahratta Country.

Edinburgh, 1828. Pp. 197. 8vo.

The work of Dr Christie, which ought to have been noticed by us at an earlier period, consists chiefly of some interesting facts and ingenious speculations regarding the pathology of the Indian cholera. We have brought before the reader on several occasions the opinions entertained by eastern practitioners as to the nature of this formidable disease. On referring to the information formerly communicated it will be found that there has been no want of pathological theories. Some have conceived that the disease is an inflammatory affection of the bowels, others that its fundamental cause is a depraved state of the blood, consisting chiefly in deficient oxygenation, and others that the cause is a deranged state of the general nervous system, or of its centre the brain. Of all the notions which have been entertained, none certainly has appeared to us so probable as the doctrine which refers its pathological cause to a disorder of the alimentary canal, although perhaps it is not so clear that this disorder is of an inflammatory nature. It has always appeared to us singular that so few of the eastern physicians who have written on cholera have been led to adopt this opinion, and that so many should have looked for the pathological cause in affections of the nervous or circulating systems, the disordered states of which to a European pathologist would assuredly seem to be not primary but secondary circumstances in the train of phenomena constituting the disease.

Dr Christie, however, has firmly espoused these views, and