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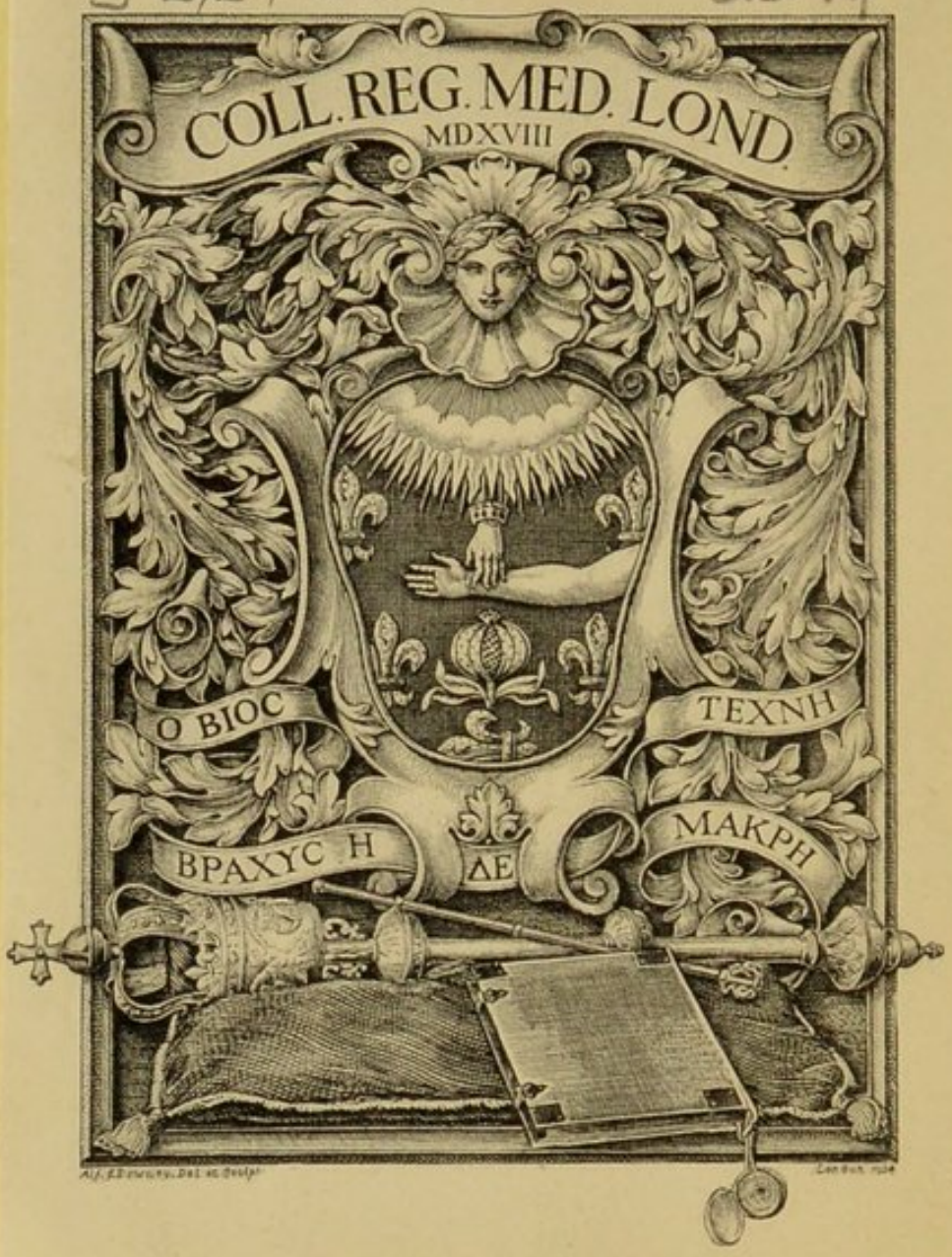

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with the Authors Compts

VARICOSE VEINS:

THEIR

NATURE, CONSEQUENCES,

AND

TREATMENT,

PALLIATIVE AND CURATIVE.

BY

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PREFATORY REMARKS.

The short section on the palliative treatment of varix excepted, Part II. of the following monograph consists of a reprint of several papers on the curative treatment of that complaint from the pages of the *Medical Times and Gazette*. The views advocated therein, relative to the curability of the disease, were first suggested by witnessing the great improvement in the condition of varicose veins, effected by the bandage when employed for the cure of ulcer on the leg thus complicated. Continuing its use, in many of these cases, long after the healing of the ulcer, and applying the same practice, slightly modified, to cases of varix unattended by ulceration, I met with a degree of success—

examples of which will be found at the end of the volume—fully confirming the hopes I had been led to entertain.

As anatomical researches into the nature and causes of varicose dilatation supply many facts which tend still further to corroborate those views, I have thrown together, in Part I., an abstract of the most authentic details we possess on the subject, which I have myself taken some pains to verify, both by dissection and by the inspection of numerous very interesting and instructive specimens of diseased veins, preserved in the Museums of the Metropolitan Schools of Medicine.

The statement, at p. 14—that inflammation of the venous tunics has not been "enunciated with sufficient distinctness, by any writers on the disease," as one of the causes of varix,—requires, perhaps, some explanation. I have cited passages from Hasse and Rokitansky which clearly specify dilatation as an ordinary result of phlebitis; and others which speak no less positively of chronic phlebitis as a consequence of

dilatation. In Hasse's work, however, these admissions are only to be found under the head of "Chronic Phlebitis;" no allusion to this malady occurring in the chapter treating of the "Causes of Varix." Rokitansky, it is true, does include inflammation of the vein in his catalogue of the causes of phlebectasis; but he mentions it, quite incidentally, as a possible source of the disease. The intimate connexion, therefore, which so palpably exists between dilatation and inflammation of the venous walls, is scarcely announced by either of these eminent authorities in such terms as would attract attention to it practically.

Again I repeat the hope,—expressed when bringing the curative treatment of varix under the notice of the readers of the *Medical Times and Gazette*,—that the practice I have described may be tested on a larger scale, and by judges less interested than myself; feeling confident that all who give it a fair trial will arrive at the same conclusion with regard to its efficacy in the class of cases pointed out. And if I

have dwelt, somewhat urgently, on the hazardous and unsatisfactory nature of the operations still too frequently undertaken for the cure of varix, no one, I venture to assert, who weighs dispassionately the evidence, bearing on that point, which is here accumulated, will tax me with condemning them more strongly than they deserve.

16, Lower Seymour Street,
Portman Square.
March, 1856.

PART I.

THE NATURE, CAUSES, AND CONSEQUENCES OF VARIX.

ALTHOUGH certain portions of the venous system are notoriously more prone than others to dilatation, this infirmity is not confined to any one class or set of veins. Prolonged obstruction to the return of blood from any vein in the body will, sooner or later, cause its branches to enlarge; and so invariably are difficulties in the transmission of blood and dilatation associated in the relation of cause and effect, that we might, on this ground alone, very safely engage to specify *à priori* the veins which would be thus affected. In accordance with this general rule, we find that the superficial or subcutaneous veins of the leg and thigh, the veins of the spermatic cord and scrotum, and the hæmorrhoidal

veins, are those most commonly attacked. It is to dilatation of the trunk and branches of the saphenæ, to which more particularly the term varix is applied, that I propose to call attention.

Being desirous of restricting myself as much as possible to points of practical bearing, I shall touch very briefly on the anatomy and physiology of these veins, referring the reader to other and better sources of information on those heads. A glance, nevertheless, at their structure and function, togegether with a consideration of the various circumstances which influence that function, and the unfavourable conditions under which it has frequently to be exercised, are absolutely necessary, not merely to explain why the superficial veins of the lower extremity should be most subject to this troublesome disorder, but to indicate some of the causes which militate so powerfully against its cure, with the view of suggesting the means best adapted to overcome them.

As, however, some little uncertainty appears to exist with respect to what is really understood by the term, it may not be amiss to commence by inquiring what amount of dilatation ought to be regarded as varix.

Definitions of Varix.—In his earlier article on the subject, M. Cruveilhier limits its appli-

cation to lateral dilatation,—"la varice proprement dite, ou la dilatation laterale," are his words. A few paragraphs in advance, he states broadly:—"When the dilatation takes place uniformly in the entire circumference of the vessel, the blood circulates freely—there is no varix. There is this great difference, therefore, between dilatation and varix, that in the one there is integrity, in the other there is alteration of the venous walls; that in the one the vessel fulfils all its functions relatively to the circulation, in the other the blood no longer circulates, there is disease." *

In his second article on the same malady,† in contradiction of his former definition, he divides varix into—first, simple uniform dilatation, with or without elongation; and, second, cellular (or lateral) varix.

Without attempting formally to define varix, M. Andral‡ describes it as existing with three different conditions of the venous walls:—the first, in which they are in a normal state; the second, in which they have become thickened; the third, in which they are thinner than natural. And these three conditions he further subdivides into six species, an enumeration of which would be foreign to my present object.

* Anatomie Pathologique, Livraison xvi. † Livraison xxxv.
‡ Précis d'Anat: Pathologique, T. ii., p. 400.

According to Hasse,* phlebectasis, or dilatation of veins, is met with in two stages:—first, as a morbid predisposition, and, secondly, as an actual disease, accompanied by morbid changes of structure. And yet he does not regard as phlebectasis, even of the first degree, dilatations of anastomosing branches, which have become "supplemental to the circulation, when interrupted by the closure of large venous trunks."†

Rokitansky,‡ following Cruveilhier, specifies two general forms of varix:—first, uniform and cylindrical dilatation, with attenuation or hypertrophy of the coats of the vein; and, second, irregular dilatation affecting the walls of the vein at certain points. Of this second form, he describes two varieties:—*a*, Dilatation occurring with elongation, and tortuosity, the sinuous convexities forming on one side only of the vein, while the opposite wall is usually tense,—a condition in which it resembles the convolutions of the intestine, or, still more nearly, the shape of the vesiculæ seminales. As these convexities increase in size, doubling upon the opposite unyielding wall, the duplicatures of the lining tunic often give to the interior of the

* Pathological Anatomy, translated for the "Sydenham Society." Ch. ii. Sect. 3, p. 37.

† Op. citat., p. 57.

‡ Pathological Anat: vol. iv. p. 361—Sydenham Society's Translation.

vein a partitioned character. *b*, A strongly-marked, lateral, saccular expansion, sometimes connected with the vein by a broad base, at others, communicating with its interior by a narrow neck. The walls of this *true* varix, as he terms it, may be formed of all the coats of the vein, or by the internal and external tunics alone, a hernial protrusion of the former having taken place between the fibres of the middle coat.

Cruveilhier and Rokitansky here show an evident disposition to regard saccular expansion alone as *true* varix, the term not being, according to their views, strictly applicable to any other forms of phlebectasis, a limitation which appears to me somewhat arbitrary. On the other hand, Andral and Hasse extend its signification, on very sufficient grounds, to simple dilatation, unattended, as yet, by any structural change. There cannot be a doubt that portions of an otherwise healthy vein may be uniformly dilated to such an extent, that the return of blood, in certain positions of the limb, must be very materially impeded; and, should any considerable section of the vessel be thus affected, the valves may become inadequate, for the time it lasts, to close its area,—in which conditions it is plain that, although there is still perfect integrity of its structure, the vein does not healthily "fulfil all its functions relatively to the circulation."

Notwithstanding, therefore, that the *form* of the enlargement has been insisted upon by some writers, and its *permanency* by others, as the peculiar characteristic of the complaint, every—the smallest—dilatation of the vessel whereby its caliber is increased to a degree which may augment unduly the influence of gravitation in retarding the blood's current, or which may render the valves inefficient, must be set down as incipient varix,—this alteration of the relative proportion which the vessel ought to bear to its contents, or the valves to the area they are intended to close, whether it be temporary or permanent, being, in reality, the first step in the morbid process.

Starting, accordingly, from this point, it will not only be more comprehensive pathologically, but more practically useful, to comprise, under the designation of varix, every gradation or stage of phlebectasis of the saphenæ, from the slightest abnormal dilatation of these vessels, through all the derangements which their hydraulic mechanism undergoes up to actual disorganisation of their structure.

Anatomical Structure and Function of the Saphenous Veins.—Let us now take a brief survey of the natural structure and function of the superficial veins of the lower extremity, and

of the difficulties with which the circulation has to contend in them.

A comparison of the venous with the arterial system demonstrates that,—although when distended with blood, the veins and arteries are equally cylindrical,—the walls of the former are so much thinner than those of the latter, that they are incapable of maintaining the cylindrical form when empty, or but partially distended, and unable to resist a very slight degree of compression. The experiments of Wintringham* and others prove, notwithstanding, that, of the two classes of vessels, the walls of the veins are capable of supporting greater weights without rupture; and by none of them is this power of resistance possessed in a higher ratio to their size, than by the superficial veins of the lower extremity. The tissues of which they are composed are also far more extensible than those which constitute the walls of arteries, particularly in their transverse diameter; and, if not so decidedly contractile, they are, unquestionably, endowed with a very considerable share of elasticity. So long, therefore, as they continue sound, they will bear excessive occasional dilatation, and will rapidly recover their normal caliber

* Experimental Inquiry on some parts of the Animal Structure, 1741.

soon after the abnormal pressure of their contents ceases.

The veins, again, differ materially from the arteries in being furnished with valves, so disposed as to determine the circulation in them from the capillaries towards the heart, by closing them against currents flowing in the opposite direction. This mechanism not alone protects the walls of the veins themselves from over-distension, but guards the capillaries against the congestion, which, without such an arrangement, must have ensued whenever the circulation in the great venous trunks met with a sudden check.

I need scarcely add that, as long as nothing occurs to interfere with the normal condition of the veins, and the natural course of the blood in them, the valves, lying collapsed against the walls of the vessel, are perfectly passive; in fact, their function *can* only be called into play by a retroactive impulse. But on the instant that any obstruction to the circulation in front produces a reflux movement, they are forced into contact to close the vessel against it. Each valve, or pair of valves, thus supports the column of blood immediately above it, until the obstruction in front is removed, or the propulsive power from behind, acquires sufficient force to overcome it.

Another distinction worthy of notice is, that the

communications between the veins are extremely numerous, branches and even trunks anastomosing with each other to an extent that has no parallel in the arterial system; and, finally, it is very evident that, in the aggregate, the capacity of the veins exceeds very considerably that of the arteries. If, further, one portion of the venous system be compared with another, we shall find that all these peculiarities of structure and arrangement—which are plainly and unmistakeably designed to facilitate the circulation in vessels so far removed from the propulsive action of the heart, and so easily compressible as the veins—are most fully developed wherever their contents are most exposed to obstruction from within or without.

The chief sources of obstruction with which the venous circulation of the limbs has to cope, are prolonged muscular contraction, the simple force of gravitation in dependent parts, and compression of the main trunks in the thoracic and abdominal cavities. Extraneous obstacles, likewise, are not unfrequent in the constriction of the trunk and limbs produced by the use, or, rather, the abuse of certain articles of dress.

To all these disturbing causes the venous system of the lower extremities is peculiarly obnoxious. The circulation in the deeper-seated veins is liable to be suddenly arrested, and that of

the superficial veins impeded, at any moment, by the continuous muscular effort necessary in standing long. While the erect posture is maintained, it has to overcome the natural tendency of an ascending current of blood to gravitate downwards. And to these obstacles is frequently superadded compression of the vena cava and iliac veins, as a consequence of changes, natural or morbid, taking place in the abdominal viscera.

But the dilating force, resulting from these various impediments to the return of blood, does not operate in an equal degree upon all the veins of the limb. The same uniform compression by the surrounding muscles which closes the *venæ comites* to the passage of the blood, taken in conjunction with the prompt communication between them and the superficial veins, is sufficient to secure them from ever becoming over-distended. With the exception, therefore, of the femoral vein, varicose dilatation of this class of vessels is rarely met with.

As the chief strain is thus thrown upon the superficial veins, and this is far greater than any other veins of the body have to encounter habitually, we should feel no surprise at their giving way under it, were it not that they are proportionately supplied with the means of resistance. Not only do they anastomose more freely with each other, are more liberally supplied with valves, and possess

stouter walls, relatively to their size, than the veins in general; but, in both upper and lower extremities —inasmuch as they have no arteries corresponding to them—they may be said to form a distinct supernumerary system of subcutaneous vessels, fulfilling the office of diverticula or supplementary channels to the deep-seated veins, for the express purpose of carrying on the circulation at such times as it is interrupted or suspended in them.

With all the natural qualifications they possess to enable them to discharge that function healthily, to what cause or causes, then, are we to ascribe the tendency manifested by this duplicate apparatus of blood vessels to the disease under consideration?

It has been stated that the venous tissues are more extensible than those of arteries, and that they must be endowed with a proportionate amount of contractility, or elasticity, to enable them to resume their normal caliber so readily after dilatation. Both qualities are freely displayed in these superficial veins. What, for instance, can be more striking than the contrast which they present during vigorous action and repose, or that resulting from mere position? Scarcely less remarkable are the changes produced in them by alternations of temperature. We see them greatly expanded in the warm bath,

reduced to their smallest dimensions when plunged into very cold water; dilated during the heats of summer, contracted by the cold of winter. As long as a healthy antagonism is maintained the contractility of their tunics will counteract all abnormal dilatation; but it is easy to conceive that a very little extra force brought to bear upon the veins of the lower extremity when fatigued by long continued pressure from within outwards, or when predisposed to yield by other circumstances, which will presently be adverted to, may dilate them temporarily beyond their ordinary limits, while the condition of their coats is still perfectly normal. The valves, however, which consist of simple semi-lunar or semi-elliptical folds of the lining membrane, reflected from the middle tunic, offer a certain amount of resistance, at the points of reflexion, to a dilating force from within, and will thus confine the dilatation for some time to the intervalvular spaces. But, until the venous walls lose their contractility, we shall have no permanent dilatation, no confirmed varix, even of these limited portions of the vein. The two main points, therefore, we have to ascertain are, how and when this contractility is lost, and by what means the resistance of the valves is overcome? We can only obtain satisfactory answers to these questions by tracing the course of varix from its

origin through its successive stages, and observing the character of the morbid changes in the order in which they are developed.

ORIGIN AND PROGRESS OF VARIX.—Varicose dilatation may commence under two very opposite conditions of the venous walls. It may arise, in the first place, primarily or idiopathically, when its immediate source is inherent in the tissues of the vein itself. Having been weakened by local or general morbid influences, in proportion to the diminution of contractile power control over its natural extensibility is lost; hence, ensues a disturbance of that equilibrium which ought to exist between the strength of the vessel and the weight of the column of blood it is calculated to sustain, and the entire vein, or merely a portion of it, is rendered unequal to the ordinary duty it has to perform.

The causes of this atony have, by most writers, been regarded as enveloped in much obscurity. Delpech speaks of some "cause générale inconnue" predisposing to varix. Cloquet * says "there is no certain method of cure, because we are often entirely ignorant of the cause of the malady." Bordeu has related cases following rheumatism of

* Art. Varice, Dictionnaire de Médecine.

the muscles of the thigh and leg, in which he believed that that disease had exercised an injurious influence over the veins, and had produced a tendency to dilatation. Gouty irritation indubitably aggravates varix, and may, therefore, it has been supposed, generate it. Chronic hyperæmia of the capillaries is one of the causes of dilatation alleged by Andral.* Excessive stimulation of a part or organ, probably by exhausting its nervous energy, is also a cause usually cited for varix in certain regions; enlargement of the spermatic, scrotal, vesical and hæmorrhoidal veins comes under this category. In short, as the veins will participate in and sympathise with all conditions of the general system of an asthenic nature, † they may thus be disposed to yield to mechanical forces which they would, under more favourable circumstances, be fully able to resist.

But there is a local source of weakness, to which these vessels are especially liable, not enunciated with sufficient distinctness by any writers on the disease, and that is subacute or chronic inflammation, the direct tendency of which is to produce re-

* Prècis d'Anatomie Pathologique, T. ii., p. 400.

† Nothing is more common than the statement, on the part of a patient, that the dilatation was first noticed after an attack of fever.

laxation and bulging of their walls.* It is very true that indications of inflammatory action are obvious enough in all cases of long-existing varix, but these are looked upon as its more remote *effects*. There is no lack of evidence, however, that it is often preceded and ushered in by an attack of inflammation. "The dilatation of the veins," says Mr. Hodgson, "is frequently attended by excruciating pain, and sometimes with inflammation of the skin and cellular membrane." † That the superficial veins are greatly exposed to contusion or other direct injury where they lie upon the shin and ancle bones no one will dispute. In Sir Everard Home's 9th case,‡ he states that the vena saphena became varicose in consequence of a wound of one of its branches with a bill. Another is mentioned, in the article "Varice" of the Dictionnaire de Médecine, of varix of the dorsal vein of the thumb from a sabre wound; and I have myself traced varicose enlargement of the branches of both saphenæ, below the knee and across the patella, in numerous instances to blows and wounds;

* "All the coats of a vein are relaxed by acute inflammation. The vein is dilated and paralysed . . . . Chronic phlebitis gives rise to dilatation, varicosity, and thickening."—Rokitansky, vol. iv, pp. 338, 350.

† Diseases of the Arteries and Veins, p. 540.

‡ Treatment of Ulcers, p. 328.

several to lesions accompanying fracture of the bones of the leg, or dislocation of the ancle; and not a few to the extension of inflammation from a patch of erythema or eczema, or from an ulcer in close proximity to the vein affected.*

Many patients again, without being questioned, refer the commencement of dilatation to repeated attacks of cramp; and this is a very probable source of mischief when we recollect Mr. Hodgson's statement, † that he has twice seen veins of the calf ruptured by cramp. Exposure to cold, too, by exciting chronic phlebitis, is most assuredly often productive of varix. On more than one occasion I have known it come on rather suddenly, with much pain, in the course of the superficial veins of the leg, in persons who have been obliged to stand for some time on a wet pavement. This may occur directly as an effect of rheumatic inflam-

* An example of sudden dilatation of the saphena in consequence of inflammation communicated to it by a neighbouring ulcer, is reported in the article "Varice" of the Dictionnaire des Sciences Médicales. "Just as these ulcers," remarks Hasse, "are themselves a result of phlebectasis, so do they in their turn tend unceasingly to augment the original evil."—Pathol. Anat. p. 44. When speaking of chronic phlebitis, Rokitansky states that "it is especially frequent in varicose veins and in the veins of the lower extremities, where it frequently originates in the subcutaneous tissue, which is then the seat of chronic inflammation arising from habitual eczema."—Vol. iv., p. 351. In confirmation of this see also case 52, in Dr. Lee's second paper on Phlegmasia Dolens, Med. Chir. Trans. vol. xxxvi.

† Diseases of the Arteries and Veins, p. 520.

mation of the external coat of the veins; or, secondarily, as a consequence of obstructive phlebitis induced by a vitiated condition of the blood, owing to arrest or disturbance of the cutaneous functions. In his very interesting and comprehensive memoir on Phlegmasia Dolens, (Medico-Chir. Trans. vol. xxxvi) Dr. Mackenzie has especially noted "the influence of cold partially applied to the body in predisposing the veins to morbid action," exemplifying the remark by a tabulated analysis of one hundred cases of that disease, twenty-four of which followed exposure to cold.

Secondly, varix may originate, consecutively, in causes altogether extraneous to, and independent of the vein itself, as a symptom of changes, either natural or morbid, going on elsewhere. The veins in that case retaining their normal power of resistance to the pressure from within, but this latter being increased, far beyond the ordinary ratio, by certain obstacles to the free return of blood, their walls, below the obstruction, are compelled to give way. Of this we have a familiar example in the dilatation of the veins of the leg and thigh from the pressure of the gravid uterus upon the iliac veins during pregnancy. The same effect is caused by the presence of tumours of any kind impeding the circulation in the large venous trunks; also by the partial or total obliteration which follows inflam-

mation of these vessels;—under which circumstances it is, of course, not confined to the lower limbs; the superficial veins of the abdomen, chest, arm, and hand becoming varicose in consequence of the formation of such obstacles in the abdominal cavity or thorax, or in the brachial veins.* It may likewise occur as a result of accumulations in the large intestines in persons of a constipated habit;† as an effect of hepatic congestion, and of disease of the heart; and may further be produced by tight lacing in women, and in men by wearing riding belts buckled too tightly. The direct pressure of the pad of a truss upon the trunk of the saphena in the groin will also occasionally, and the use of tight garters frequently, give rise to dilatation.

In a communication to the *Lancet* for August 12th, 1848, Dr. Herapath, of Bristol, suggests, as a cause of varix, a source of mechanical obstruction

* In his surgical observations on tumors, Dr. Warren relates two cases:—One of a boy, eight years of age, who, through violent muscular exertion, contracted a varix between the shoulder and elbow. The other, that of a West Indian gentleman, upon both whose arms varices were developed in quick succession, as the sequel of a tropical fever. A reference to a third example will be found at page 45, note.

† Dr. Davis (Med. Chir. Trans. v. xii., p. 441) quotes a case communicated by M. Bouillaud to the "Journal de Physiologie" for January, 1823, of inflamed and dilated veins of the lower extremity, which were found plugged with coagula up to the vena cava:—"The iliac portion of the colon was distended with a large mass of indurated fæces, which pressed upon the adjoining veins and rendered them impervious."

to which attention had not been previously directed. The seat of this impediment to the circulation, is the saphenous opening of the fascia lata of the thigh, the falciform edge of which, in Dr. Herapath's opinion, sometimes constricts the trunk of the saphena, as it dips downward to empty itself into the femoral vein. Acting upon this conviction, he divided the edge of the fascia in a case narrated in the paper, the details of which—especially the speedy subsidence of the tumour—appear to favour the correctness of the views advanced. In a letter I have since received from him, Dr. Herapath contributes some further particulars, to which I shall hereafter recur.

It seems to me extremely probable that this source of obstruction may come into operation after the varicose enlargement has attained a certain size, when it would tend materially to accelerate the progress of the malady; but I cannot so easily conceive that constriction of the saphena by the falciform process is, in any case, the *fons et origo mali*. The same remark is equally applicable to the saphena externa, or posterior, and the orifice in the fascia above the ham through which it passes to reach the popliteal vein. I strongly suspect, also, that smaller veins, after undergoing preliminary dilatation, are often thus constricted in their passage through the fascia to arrive at the

deep-seated trunks. I have seen varicose subcutaneous branches of the veins accompanying the anterior and posterior tibial arteries considerably larger than the orifices through which they communicated with the *venæ comites*.

Much unprofitable discussion has taken place as to whether mechanical or constitutional causes are the chief agents in the production of varix. Hasse and Rokitansky speak of a constitutional disposition to dilatation of the veins, resulting from "a morbid predominance of the venous system;" but both of them agree in stating that mechanical impediments to the circulation constitute the principal agency in its development. There are cases, nevertheless, in which no mechanical obstacle whatever can be detected; and, on the strength of such exceptions to the general rule, theories opposed to the mechanical hypothesis have been brought forward. Taking into consideration facts of this kind, the circumstance that the blood in varicose veins is frequently nearly as bright as arterial blood, and that pulsations isochronous with the heart's beat have been sometimes noticed in them, Pigeaux has assumed, as a cause of varix, an anastomosis between the veins and arteries; but, until we have positive anatomical evidence in support of this opinion, it can scarcely be regarded in any other light than as a mere speculation.

In estimating the comparative influence of mechanical and constitutional causes in the production of the disease, the foregoing details will, I think, indicate sufficiently the share borne by each:—namely, that whereas the former are often powerful enough alone to generate it, in the majority of cases, they would not be competent to originate dilatation, unless certain conditions of the venous tissues, preparatory thereto, already existed. The first may be immediate and active in their operation, the others are remote and predisposing; but it is to the combination of the two causes that varicosity is ordinarily due.

That morbid influences should contribute to such a result can excite no surprise. But are there any substantial grounds for including, as some authors have done, particular temperaments among the predisposing causes to varix?

There are, unquestionably, many persons in whom the veins generally manifest a great tendency to dilatation; and a belief seems to be current that individuals of the lymphatic temperament are more prone to varicose affections than others. M. Bégin* positively denies this. "Observation," he says, "has not yet determined what variety of organisation or of temperament predis-

* Art. Varice, Dict. de Médecine et de Chirurgie pratiques.

poses most to varix. It has been remarked that the veins are very often voluminous and distended, in the lower regions of the body, in subjects characterised by the bilious temperament. Can any obstacle," he asks, "to the circulation through the liver exist in such persons, which may react upon the veins of the lower limbs, and on those of the testes? Analogy might lead us to infer this; but we have no direct proof of the fact. Notwithstanding M. Briquet's assertion to the contrary, a long experience in military surgery," he continues, "enables me to affirm that the lymphatic temperament and a feeble constitution, so far from predisposing to varix, are accompanied by a smallness of the veins almost amounting to a defect. The adult period of life, muscular force, and a considerable development of the sanguineous system are so many conditions favourable to the appearance of varix, which is, besides, much more frequent among men than among women."

The concluding sentence excepted, my own observation entirely confirms the accuracy of M. Bégin's statement. On the whole, I have met with this disease quite as often in one sex as in the other; but, certainly, in the majority of the male patients afflicted by it, the muscular and sanguineous systems were strongly developed; and a reference to recorded cases of varix will, I believe,

further tend to establish the correctness of this view of the matter.*

NATURE OF THE MORBID CHANGES AND ORDER IN WHICH THEY OCCUR IN VARIX.—Let the original source of the dilatation be what it may, a careful review of the facts contained in the preceding section can scarcely fail to satisfy the enquirer that something more than mere dilatation is required to render varix permanent. They demonstrate pretty clearly that it frequently originates purely and primarily in inflammation of the venous walls, at once weakening their contractile power; and in those cases in which it commences by dilatation in consequence of mechanical obstruction to the return of blood in the larger trunks, as well as in those where the vein proves unequal, by reason of atony or relaxation of its tissues, to support the ordinary pressure of its contents, a consideration of the nature of the morbid changes which take place during the process of enlargement, and of the order in which

* "This malady," says Monfalcon, "is often noticed, at the hospital of St. Louis, in masons, soldiers, and dancers on the tight-rope."—Art. Varice, Dictionnaire des Sciences Médicales.

In two of the worst examples related by Fabricius Hildanus and Alibert, the patients are severally described, the one as "un homme robuste et bien constitué," the other as "un maçon d'un tempérament sanguin, vigoureusement constitué."

they are developed will go far to convince us that the disease is never thoroughly established until some degree of inflammatory action has been provoked in the over-strained membranes.* The effects of this agency may consist of attenuation or of thickening of their texture; both these conditions frequently co-existing in adjacent portions of the same vessel. At the commencement of the dilatation the yielding coats of the vein, not being of a thickness proportionate to its increased caliber, are only relatively thinned; and nature often endeavours to compensate for the weakness arising therefrom, and to arrest further dilatation, by "reinforcing the fibrous texture of its external tunic in the shape of an accession of conspicuous transverse fibres,"† which constitute an actual hypertrophy‡ of the venous walls. At this stage the

* Rokitansky specifies as one of the most obvious causes of chronic phlebitis "persistent distension and dilatation of the veins, in consequence of the impediments presented to the passage of the blood through them;" and as its seat, "the cellular coat and the contiguous layers of the circular fibrous coat," that in which contractility especially resides.—Vol. iv, pp. 350, 351.

† Hasse, p. 40.

‡ In treating of "hypertrophy from the long continued action of a morbid stimulus," Carswell observes:—"A state of irritation or chronic inflammation thus produced is by far the most frequent cause of hypertrophy of the mucous, cutaneous, cellular, fibrous and osseous tissues." "It would appear that irritation kept up for a length of time in a tissue gives rise to this modification of nutrition, from the well known fact that the circulation in the capillaries is always increased under such circumstances."—Pathol. Anat. Fasc. iv., Plate iv.

vessel remains patent, like an artery, when cut through, but the valves are found unaltered.

In the greater number of instances, however, there is atrophy and attenuation as well as thickening. The longitudinal or intermediate fibres may be distended cylindrically and equally for a considerable length, or sac-like protrusions of the internal membrane between the longitudinal fibres of the external membrane occur. As the dilatation thus increases, uniformly or irregularly, the valves which, up to a certain period, retain their original shape and size, notwithstanding the altered diameter of the diseased vein, are of course inadequate to fill its enlarged area; and no longer acting as supporters and dividers of the column of blood, its entire weight gravitates downwards, in the erect posture, with greatly augmented dilating power, at the same time telling most injuriously in other respects both upon the trunk and branches. "The veins become elongated and their course very tortuous. Their canal is wide and narrow by turns; now simply deviating, now throwing out pouch-like appendices, until the whole vessel has assumed an unwonted aspect, reminding us at one moment of the seminal vesicles, at another of the convolutions of the intestines."* In the accompanying wood cuts,

* Hasse, p. 41.

copied from Cruveilhier,* these peculiarities are

FIG. 1.

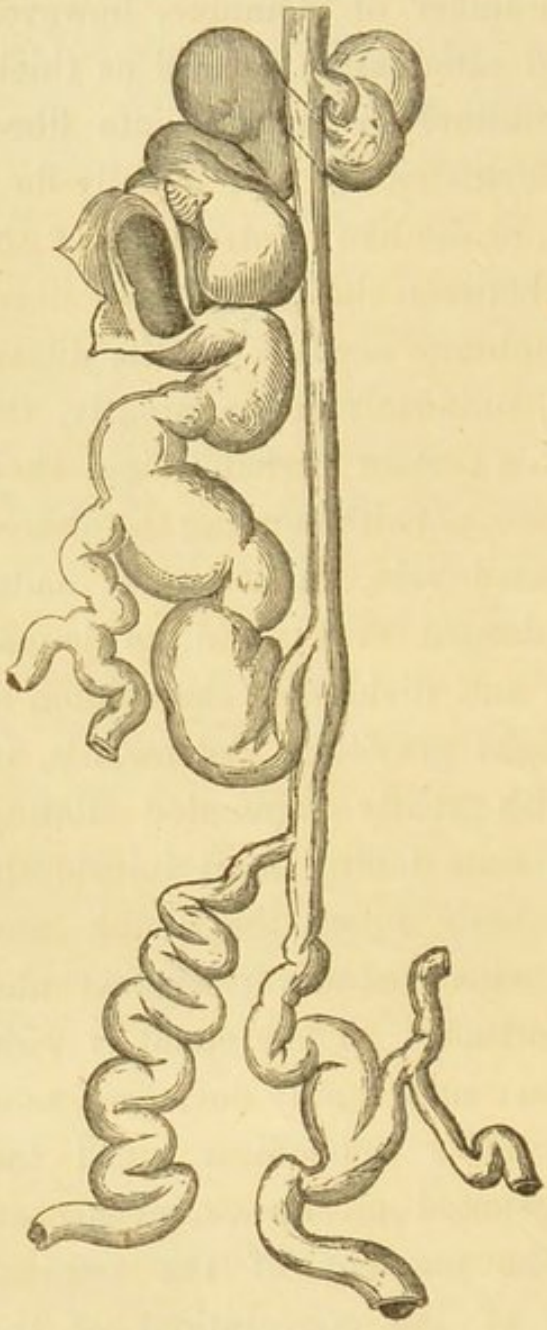
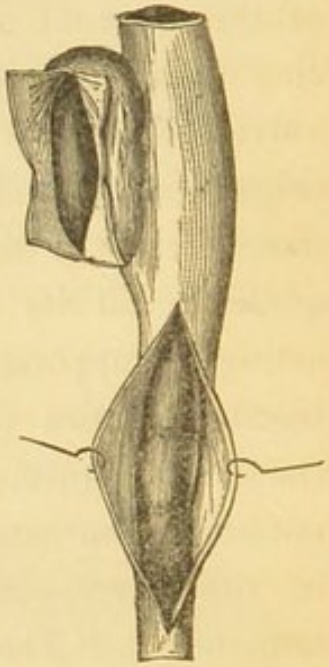


FIG. 2.



very distinctly pourtrayed.

*Anat. Pathologique, Livraison xxxv.

"The valves are now found in a state of tension, stretched transversly across the tube of the vein; or they are drawn in an eccentric direction towards the periphery; or they may be torn, in which case they float loosely in the vessel; or finally they may be almost destroyed, so that we can only detect mere traces of them."* There cannot be a doubt, however, that inflammation, by deteriorating their structure, has a considerable share in producing the actual lesions above described; since a tissue which bears so close an analogy to the serous membranes can scarcely escape its action when exposed to violent mechanical traction.

"The dilated venous reticulations either lie loosely in the panniculus, or they are imbedded in a callous, thickened, infiltrated cellular substance, with which they coalesce."† As long as this intimate union between the diseased cellular tissue and its external tunic continues, an enlarged vein must remain permanently expanded even when its walls are attenuated instead of being thickened. Not only is its cure hopeless under the peculiar circumstances just described, but the patient runs great risk of dangerous hæmorrhage should any of these open-mouthed veins give way or happen to be wounded.

* Rokitansky, p. 362. † Ibid. p. 368.

Such being the order of sequence between the manifestation of inflammatory action and confirmed varix, it appears to me that we are fully warranted in ascribing to this agency, and the deviations from healthy nutrition thence resulting, all the morbid changes which constitute the disease. Commencing with impairment of contractility, we may distinctly trace its handiwork in the hypertrophy and atrophy which the walls undergo, in the agglutination of the vein to the surrounding cellular tissue, and in the destruction of the valves. If, on the other hand, by counteracting the undue hydrostatic pressure which tends to excite it, we can prevent the occurrence, or, at any rate, the continuance, of inflammation, a vein may remain permanently dilated for an indefinite period, but the morbid process will not advance beyond the first stage of varix. Of the power we possess of thus limiting it by art the following case affords striking evidence:—

R. G., Esq., Ætat. 38, consulted me in August, 1848, for inflammation of the branches and trunk of the external saphena of the right leg, which terminated in obliteration of the vein from the ancle to the ham. In December of the same year, phlebitis again occurred in the lower portion of the femoral vein, and an abscess formed, apparently in the sheath of the vein and artery.

A second purulent deposit took place on the outside of the thigh beneath the fascia. Under the action of mercury, rapidly and freely thrown into the system from the onset of this second attack, the contents of both abscesses were absorbed, leaving the greater portion of the femoral vein obliterated. In July, 1849, my unlucky patient got wet, and phlebitis declared itself, for the third time, in the upper part of the vein. Again I had recourse to mercury externally and internally, plying him, at the same time, with nauseating doses of tartarised antimony; but the mischief speedily extended along the right iliac vein to the vena cava, and down the iliac vein on the left side, both limbs becoming equally livid, cold and tumefied. Sir B. Brodie and Mr. Bransby Cooper now saw him with me, and considered his state to be all but hopeless. He nevertheless recovered from this very serious attack, a superficial network of veins having been developed on either side, from the ancle to the groin and back of the pelvis, for the return of blood from the extremity.

In the right limb, the external saphena, the popliteal, the femoral, and probably the iliac veins are obliterated. On the opposite side the damage has not been quite so great, but the main channels are evidently much obstructed. Of the multitude of subcutaneous veins which carry on the circula-

tion vicariously, those of the thigh, never having been bandaged, are decidedly varicose with altered structure, manifest traces both of atrophy and hypertrophy existing; and during their enlargement they were the seat of frequent and rather severe pain. In those of the leg,—although uniformly dilated far beyond their natural size,—owing to the precaution of constant support, little uneasiness has ever been felt, and they still remain in the incipient stage of varix. But if at any time he assumes the erect posture, without first bandaging his legs, the sense of distension becomes in a few seconds so acutely painful that he is totally unable to stand; yet, bating an occasional alarm after overexertion, he has continued perfectly well for the last six years, the bandage enabling him to walk and ride, and even to get through a day's shooting, almost as well as before his illness.

I submit, accordingly, that we have sufficient grounds for the conclusion that subacute or chronic inflammation of the venous tissues is a very frequent source of varix, that it is, in all cases, the immediate agent in converting a mere functional infirmity into structural disease, and that the removal of it and its products is the first step towards a cure.

CONSEQUENCES OF VARIX.—The natural history

of varicose dilatation would be very incomplete, without some brief notice of the consequences to which it leads. In its earlier stages, varix is not always a painful affection; and, being too often looked upon, both by patient and surgeon, as a source of mere inconvenience and annoyance, the latter, if consulted, is satisfied with the recommendation of an elastic stocking, in all probability troubling himself no further with the case. In many instances, notwithstanding, the symptoms are characterised by a high degree of severity from the very commencement of the disease, the process of dilatation, to borrow Mr. Hodgson's words, being frequently attended with "excruciating pain." But great as are the inconvenience and suffering occasionally inflicted on the patient from its outbreak, the true importance of the malady is mainly referable to the results awaiting its matured development. These evils are of too serious a nature ever to be lost sight of, and I shall proceed to enumerate them somewhat in detail.

Passing over the injurious influence exercised on the general health by habitual loss of rest from the pain endured, especially at night, the congestion of the cutaneous and subcutaneous capillaries naturally tends to produce an œdematous condition of the cellular tissue, with inflammation of the skin, accompanied by extreme irritation and

itching. In this state the slightest abrasion,—a mere scratch, it may be, during sleep,—at all times difficult to heal on the leg, is sure to degenerate into a chronic ulcer, which may cripple the exertions of the patient for months or even for years. This harassing and frequently unmanageable complaint is, indeed, classed among the ordinary sequelæ of varix, independent of any breach of surface from without. "Varicosity" says Rokitansky, "is followed by œdema, hypertrophy, repeated inflammation of the cellular tissue, terminating in induration and inflammation of the skin, which cause it to coalesce with the subjacent cellular tissue and give rise to an excessive formation of epidermis, and ulcerous fusion of tissues—the so-called varicose ulcer."* On this subject I need not here enlarge. I must not, however, omit to mention that these ulcers have sometimes been known to terminate fatally from hæmorrhage, in consequence of perforation of the dilated veins beneath or around them. The same distinguished pathologist alludes to such casualties; and there is, in the museum of Guy's Hospital, a preparation (No. 1538[36] of the Catalogue) of a saphena vein taken from a patient who is recorded to have died suddenly from that cause.

* Pathological Anatomy, vol. iv. p. 368.

But should no ulceration or accident of the kind ensue, the congestion of the integuments predisposes to various cutaneous disorders, of which it not only proves the exciting cause, but, as long as it continues, renders them intractable by remedies that promptly succeed under other circumstances. One of the most distressing and obstinate of these maladies, when it breaks out in this locality, is Eczema Rubrum, or, as it is popularly and expressively termed, "weeping leg." All diseases of the skin, in short, are thus enabled to maintain their ground in this region of the body long after they have been put to flight elsewhere. Another ailment, almost equally disqualifying from active exertion, is that general thickening and induration of the skin and cellular texture already referred to, which is traceable to an exudation of plastic lymph from those inflamed tissues, and of serum from the over-charged vessels of the limb. The external coat of the enlarged veins generally becomes implicated in this process, undergoes hypertrophy, and coalesces with the inflamed cellular texture, by which their walls are made rigid like those of an artery, and their caliber patent when the vessels are divided. I have adverted to the risk of serious hæmorrhage from a slight wound of veins in this abnormal condition; profuse secondary hæmorrhage some-

times takes place from the same cause after amputation, requiring ligature of the gaping vein; a measure almost invariably provocative of phlebitis. But should the patient escape this peril, he has yet another to encounter of perhaps equal magnitude. Commenting on the dangerous character of the morbid change in question, Hasse observes, "upon the whole we may regard with alarm every instance of profuse suppuration occurring in the proximity of such veins as remain open-mouthed when wounded, either owing to anatomical situation, or to some morbid change of structure consequent upon inflammation, varicose dilatation and the like."*

Now both Hasse and Rokitansky agree in stating that the walls of varicose veins are not only very subject to attacks of chronic inflammation, but that acute phlebitis, terminating in suppuration of the cellular tissue, is sufficiently common. "This is the reason," says the former writer, "why phlebitis, artificially induced for the purpose of obliterating varicose distensions, so readily spreads to an alarming extent when once it gets beyond the adhesive stage."†

The above cited testimony, as to the proneness to inflammatory action manifested by veins in a

* Pathological Anatomy, p. 27. † Ibid., p. 27.

varicose condition, is strongly confirmatory of the opinions, entertained by many obstetric authorities, on the greater risk of Phlegmasia Dolens occurring in women who suffer much from varix during pregnancy. In his paper on that formidable disease, published many years ago in the 12th volume of the "Medico-Chirurgical Transactions," Dr. D. Davis affirms that varicose dilatation, in the opinion of most practical writers on midwifery, predisposes to Phlegmasia Dolens. The same view of the matter is held by Dr. Robert Lee, and was expressed by him in the paper before referred to. In several of the cases related in that memoir, and in his earlier papers on the subject, ("Medico-Chirurgical Transactions," vols. xxxvi and xv) the women had previously laboured under varix.

With regard to this point, the following passage from Dr. Meigs is quoted at p. 989 of the *Medical Gazette* for 1854: "I fear that an insufficient degree of attention is paid to the more severe and extensive examples of varix, not only by the patient but by the physician. In some such instances I have had to contend with dangerous crural phlebitis, coming on after labour, and clearly taking its rise in the already diseased and distended state of the veins of the leg; and I had the misfortune, about two years since, to witness the loss of one of my patients, in whom the

enormous varicose veins of the right leg and thigh were attacked, after her confinement, with phlebitis, terminating in the production of pus and all the distressing consequences of pyogenic fever. "I merely desire," he adds, "at this point, to call the attention of the reader to the propriety of taking all due precautions against the development of that dangerous malady, after the delivery of the patient who is so unfortunate as to have very bad varices of the legs." Dr. Meigs's suggestion, I venture to remark, would have been still more valuable had he urged the necessity of attention to the diseased veins long before as well as after delivery.

The accoucheur may likewise be exposed to serious embarrassment from another occasional accident, which is not alluded to by Dr. Meigs. In the *Medical Times and Gazette* for October 9th, 1853, Dr. Ramsbotham has published a case in which the dilated pudendal veins gave way during labour, and a considerable amount of blood was lost. A second instance of enormous hæmorrhage from these veins, under similar circumstances, has been recorded by Dr. Thompson of New York, a notice of which appears in the *British and Foreign Medico-Chirurgical Review* for October, 1850; and a reference to a third and fatal case, communicated by Dr. Hesse to a Prussian Journal,

will be found in the *Edinburgh Monthly Journal* for February, 1843.

In long existing and neglected varix, ulceration or rupture of the diseased walls of the vein is extremely liable to take place, and a dangerous, if not fatal, loss of blood may ensue before surgical aid can be obtained. The process by which this is ordinarily brought about is minutely described by Rokitansky. "When the pressure of the varices destroys the fascia under which they lie, they become deposited in the subcutaneous cellular and fatty tissue, and finally in the true skin itself, which becomes attenuated, inflames and gives way, causing a hæmorrhage that may prove fatal." * Excessive hæmorrhage from this cause, with serious injury to the health, is an accident of very frequent occurrence. Many patients whom I have treated for ulcer on the leg, complicated by the presence of varicose veins, have informed me that their lives have been more than once thus jeopardised. And, although the hæmorrhage usually ceases spontaneously as soon as the patient falls to the ground in a state of syncope, the instances on record of death therefrom are sufficiently numerous to render it an item of grave importance in our estimate of the con-

* Pathological Anatomy, vol. iv, p. 368.

sequences of varix. Some of these evils may fairly be set down among the incidental, rather than as the necessary sequelæ of varix; but a general survey of them amply justifies Hasse in describing the malady as "a source of abiding annoyance and suffering; and if not fraught, strictly speaking, with imminent danger to life, still capable, under particular circumstances, of operating as the immediate cause of death."*

* Pathological Anatomy, p. 37.

PART II.

TREATMENT OF VARIX.

VARIX NOT CURED BY THE OBLITERATION OF THE DISEASED VEIN.—The treatment of varix with a view to its ultimate cure—that is to say, an actual restoration of the dilated vein to its normal area and condition, so that the valves may be enabled to resume their functions and discharge them healthily — appears to have been contemplated by very few writers on the disease. A variety of surgical operations has been suggested and practised, in the expectation of inducing permanent obliteration either of the dilated trunk or of the varicose cluster; but if this could be effected certainly, permanently, and without risk, it cannot properly be designated the *cure* of the malady. It is, to all intents and purposes, as completely the extirpation of the part affected by it, as the excision or removal of the entire

varicosed vein described by Celsus, and submitted to with so much *sang froid* by the Roman consul Marius,—an episode in his life very quaintly narrated by Plutarch. Nor does it seem to have been taken sufficiently into account by the advocates of these methods of treatment, that the circulation in the lower extremity must suffer, in a greater or less degree, by this extinction of a very essential portion of its venous system, the duplicate or supplementary channels, namely, by which the blood is returned from the foot and leg, whenever the deep-seated veins are compressed by muscular action, or happen to be obstructed in any other way.

To all these operations, moreover, two very serious objections attach:—*First*, there is more or less danger of extensive phlebitis supervening upon the section or ligature of veins, in whatever manner it may be conducted. And, *secondly*, were no such consequence to be apprehended, every operation hitherto devised fails, in the majority of instances, in accomplishing the object for which it was performed.

That I do not overstate the force of these objections, ample evidence may be adduced. Cases which have terminated fatally after ligature or division of varicose veins have been placed on record by Sir Everard Home, Sir

Astley Cooper,* Sir B. Brodie, MM. Hodgson, Travers, Colles, Jules Cloquet, and others; and many more, doubtless, have occurred which have never been made public. But if the highest surgical and pathological authorities had not been unanimous in denouncing the practice as applied to diseased vessels, death from phlebitis after the ligature of healthy veins during amputation, and even as a consequence of the small puncture made in venesection, has taken place so repeatedly, that facts of this nature alone ought to be sufficient to deter surgeons from attempting the cure of varix by any operation likely to provoke it.

In support of the second objection, Sir Everard Home admits that, in one of his cases, a relapse occurred fifteen months after apparent obliteration by ligature; and Mr. Hodgson relates two instances in which, a few years after the saphena had been tied, the veins of the leg were found to be as large and troublesome as before the operation. The latter gentleman thus sums up the result of his experience on the subject:—

* Sir A. Cooper states that no fewer than eight cases terminating fatally after ligature had come to his knowledge.—Lectures, edited by Tyrrell. One of these accidents, it is said, happened in the practice of Sir Astley himself, some months after he had roundly declared that a surgeon who performed such an operation deserved to have a ligature applied round his own neck.

"From the preceding observations it is evident, first, that ligature or division of varicose veins sometimes produces alarming and even fatal consequences; and, secondly, that the disease in the branches sometimes increases after the obliteration of a varicose trunk."*

In his Lectures, published in 1846, Sir B. Brodie speaks of the simple subcutaneous section of the branch or branches implicated, which was formerly advocated by him † on the score of its comparative security, as "a dangerous operation." "But still," he continues, "there is another reason against having recourse to it. I do not believe, from what I have seen, that it permanently benefits the patient. If I cured one cluster, two smaller ones appeared on each side of it, and ultimately I left the patient no better than I found him. . . . By caustic,‡ where one cluster was cured other clusters appeared."§ "I have seen cases," says Mr. Vincent, "where varicose veins of the leg have been tied or divided,

* Diseases of the Arteries and Veins, p. 563.

† Medical and Chirurgical Trans. Vol. vii.

‡ It has been contended that the treatment of varix by caustic is exempt from the risk attending ligature and section. A preparation (3600) in the Museum of the London University College, is thus described in the catalogue:—"Two apertures in the saphena vein caused by the application of caustic potass for the obliteration of varix. *Phlebitis and death ten days after its application.*"

§ Lectures on Pathology and Surgery, p. 188.

and where portions have been removed; but as soon as the patients got about, I have remarked that the leg has been embellished with fully as many diseased vessels as before these severe operations."* "If you tie the vein ever so well," observes Dr. Colles, "you will find that in twelve months that vein will be as pervious as if it had never been tied at all."† Testimony not less unfavourable, is given by MM. Jules Cloquet, Bégin, and Blandin, in the Articles "Ulcère" and "Varice" of the French Dictionaries.

With such a weight of authority in adverse array against the performance of operations of the kind for the cure of varix, it may appear somewhat superfluous to entertain the question at all; and still more so to dwell at any length upon it. But ingenious modifications of section, ligature, or caustic continue to be brought forward from time to time, and supported by their half-score of successful cases; the main point being the obliteration of the vein in the safest manner possible, without much regard to the permanency of the effects, or at any rate, with no very conclusive evidence thereof. The authors of such proposals too often overlook the circumstance that *permanent*

* Observations on some of the points of Surgical Practice, p. 229.

† Lectures on Surgery, v. 1, p. 98.

obliteration can only be effected by a high degree of phlebitis; and, consequently, that the ultimate success of these attempts must always be directly proportionate to the risk incurred; and that, in the same degree in which they contrive to diminish it, the chances of cure will also be lessened.

In a brief review of the various modes of endeavouring to cure varix by obliteration of the dilated vessel, appended to the first edition of an Essay "On the Treatment of Ulcers on the Leg," published by me in 1848, I noticed the application, in Italy, during the years 1846-7,* of what is termed Galvano-puncture, for the purpose of coagulating the blood in the dilated saphena, with the hope of thus effecting its perfect closure; those who advocate this proceeding alleging in its favour the certainty of the cure and its freedom from danger. The latter part of the statement appeared to be borne out by the cases related; but, with respect to the certainty of obliteration, I then came to the conclusion that "satisfactory proof of the *permanency* of the cures reported was still wanting."

With one of these gentlemen, Dr. Milani of Varese, I have since corresponded, and he frankly acknowledged, in reply to my inquiries, that his success had been exactly commensurate *with the*

*Annali Universali di Medicina, Jan: 1847.—Gazette Médicale, July, 1847.

degree of inflammation excited in the vein; at the same time stating, however, that he had never seen any ill consequences ensue from the practice. In cases followed by little or no phlebitis, the varix, he admits, has returned as soon as the clot has become dissolved and absorbed. When complete obliteration of the vein, therefore, has happened after Galvano-puncture, it is clearly not due to the mere coagulation of its contents, but is the result of acute inflammation producing the consolidation of a considerable portion of the vessel.

I should not have thought it worth while to revert to the rather hasty conclusions drawn from the employment of galvano-puncture,* were it not for the probability that similar claims may ere long be advanced in behalf of other agents—such as the perchloride of iron—which also possess the property of coagulating the blood within the vessels. But should any hopes of the kind be entertained, the

* So recently as June 9th, 1855, I notice, in the *Medical Times and Gazette*, the report of a discussion on this subject at a meeting of the North London Medical Society. A case was related, by Dr. Samojé of Berlin, of varicose degeneration of all the large and small veins of one arm in a young girl, which were operated on by Drs. Baumgartner and Wertheimer. Ten needles were inserted, with the effect of producing immediate coagulation and apparent obliteration of the enlarged vein, but no mention is made of the ultimate result. A paper by Sir E. Home, read before the Royal Society in 1826, was likewise referred to, detailing the obliteration of a large artery by the introduction of a steel needle heated red hot.

following observations of Hasse ought to be sufficient to dispel them entirely. "It is surprising," he remarks, "in how short a space of time a plastic plug, extending through numerous branches, and even filling a tolerably large trunk, will disappear, so that canals previously impervious are again opened to the circulation." He adds, in a note,—"This fortunate termination of phlebitis, I have experienced in my own person. The whole system of the saphena, up to its insertion in the crural vein, had become blocked up by plastic lymph; even the minute twigs of the corium had, by the formation of pustules beneath the epidermis, given proof of active participation in the disease; and yet *within five weeks* of the inflammation subsiding, the circulation was fully restored in almost all the veins as before."*

In the modification of ligature, by the needle and twisted suture, more recently introduced by Mr. Henry Lee† (*i. e.*, removal of the needle and division of the vein on the second or third day after constriction), he may possibly attain one of his objects, and prevent absolutely the future restoration of the canal of the divided vessel itself. But granting that it never again becomes

* Pathological Anatomy, p. 24.

† Clinical Lecture on Varix,—Medical Times and Gazette, January 5, 1852.

pervious, the patient is, in the long run, no gainer by its obliteration, if—as we have seen it explicitly affirmed by Sir B. Brodie, Mr. Hodgson, Mr. Vincent, and others—before many months have elapsed, its place is supplied by one or more veins of inferior caliber, of course abnormally dilated to convey a larger volume of blood than is natural to them. That this is not merely the occasional but the ordinary sequel of obliteration of a venous trunk, whether it take place naturally or artificially, will scarcely admit of doubt.* A case I have published elsewhere † will presently be cited, in which the saphena interna was converted into an impervious cord by the insertion of five needles beneath it; and yet, within twelve months, a varicose vein had been developed, alongside this cord, quite equal in size to the original varix, and occasioning even a greater degree of suffering. In July, 1853, I met with a similar example, but in this second case the relapse occurred in less than four months after the occlusion of the trunk, the operation

* "After obliteration of a venous trunk," says Mr. Hodgson, "the anastomosing channels generally become varicose."—P. 338. "Whether the collateral circulation be carried on by one or more veins, they acquire a volume much more considerable than what is normal."—Andral, Anat. Pathologique, T. ii. p. 404.

† The Treatment of Ulcers and Cutaneous Eruptions on the Leg, p. 96, 2nd Edition, 1853.

having been performed in the March previous. Both these patients informed me that they suffered most severely during the process of obliteration, that they were confined to bed for some weeks, and that it was very long before they were able to walk without pain and lameness (see Cases I. and II., pp. 88 and 90). Had the veins been divided after ligature, in accordance with Mr. Henry Lee's practice, it is very probable that much of this suffering would have been avoided, and that their recovery would have been incomparably more rapid.

Nevertheless, if the danger of phlebitis is considered by Sir B. Brodie to be a sufficient reason for abandoning his simple subcutaneous section of the vein, Mr. Lee's operation cannot be quite so safe as he appears to regard it. A case, indeed, fully bearing me out in this opinion, which was operated on by him November 12th, 1852, is referred to in the *Lancet* for March 18th, 1854. Ligature and division of the vein were followed by inflammation, abscess in the leg and groin, and pyogenic fever. On the thirty-eighth day the foot and ancle were still in a painful, œdematous condition; and in addition to these accidents—which so commonly attend the operation—it is recorded that, "during the height of the fever, the patient had been seized with severe pain in his right

wrist. This pain subsequently diminished, but in the eleventh week again became very acute; the fingers were quite powerless and extended, and the forearm and wrist perfectly useless, though no external ulceration or inflammation had taken place." This occurred in the winter of 1852–3; and the return of the patient to King's College Hospital, in the spring of 1854, afforded the reporter of the case an opportunity of ascertaining that, after the lapse of more than a year, the paralysis of the forearm continued.

By those who still practise the ligature and section of veins for the cure of varix,—and even of varicose ulcers,—it is urged that, in the majority of instances, no serious consequences are to be apprehended, and that death from this cause is a comparatively rare accident. But phlebitis, once provoked, is so little under our control, that, until he can say to this disease—"Thus far shalt thou go and no farther,"—I cannot bring myself to believe that any surgeon is justified in deliberately encountering so formidable a risk, remote as he may deem it, for the sake of an advantage which is at best merely transitory. A single example of such an operation terminating fatally ought, in my judgment, to outweigh five hundred cases attended by no immediately disastrous results.

With so little encouragement to persist in cura-

tive efforts based on the principle of obliteration of the diseased vessel, it is not to be wondered at that the profession generally has been content to fall back upon the old palliative treatment by the bandage. Or, rather, as the management of club-foot and analogous distortions was formerly abandoned to the surgical mechanician, that of varix is now turned over to the bandage-maker; much ingenuity having been displayed in the invention of lacing and elastic stockings, and other expedients, to meet the wants of the public. Even in its early stage small hope of cure is held out to the patient; the contrivances alluded to being solely recommended in order to arrest the further development of the malady.

I shall proceed, therefore, in the first instance, to inquire how far these palliative measures fulfil their intention, and to what description of cases they are severally best adapted. And, in the second, I hope to be able to show that a large proportion of varicose veins may be restored to a perfectly healthy condition, and the worst specimens of the disease greatly ameliorated, by perseverance in a plan of treatment which has, at any rate, the merit of being both safe and simple.

I.—THE PALLIATIVE TREATMENT OF VARIX.

Since the immediate source of varix is an inability, on the part of the coats of the veins, to withstand the pressure from within to which they are subjected in the erect posture, the most natural and direct course we can pursue for their relief is the adoption of means calculated to diminish that pressure as much as possible. This may, of course, be instantly effected by confining the patient to the recumbent position, as Mr. Vincent has proposed, when all trace of the malady will entirely disappear. But the maintenance of this posture, excepting under extreme circumstances, is manifestly impracticable. The remedy would be worse than the disease. All that is usually attempted, therefore, is to endeavour to assist the vein in the discharge of its function by giving it support from without, and thus palliating the infirmity. Unless, however, the support is afforded equally and uni-

formly to the entire surface of the limb, so as to place the superficial veins in a similar position to the deep-seated, more harm than good will result from the attempt. The surgeon has no difficulty in accomplishing this object by the careful application of a proper roller; but as it must be applied early in the morning, while the limb is yet unswollen, he cannot be in daily attendance for that purpose, and the patient naturally catches at any substitute for the roller which promises to lead to the same end, and render him independent of his surgeon.

A good elastic stocking offers these advantages; but unless the varicose limb undergo some preparation, and the selection and adaptation be made under the eye, or the directions, of the medical attendant, instead of palliating the complaint, its employment will often be highly prejudicial. A few remarks, accordingly, upon the preparation necessary, and on the qualities which one of these articles ought to possess, in order that the benefits derivable from its use may be attended with as few drawbacks as possible, will not be out of place here, to enable the young practitioner to guide his patient's choice.

It may seem scarcely necessary to premise that it ought to fit the limb accurately; otherwise one portion of the veins will be supported at the

expense of those which are not so. We can only ensure this by taking the measure for the stocking on first rising in the morning, before swelling has come on; since it is obvious that a stocking which may fit accurately, nay tightly, a swollen limb, —and a varicose leg unsupported is always more or less œdematous,— will not only be useless but injurious after its size has been diminished by the subsidence of that swelling. Yet this is a point seldom properly attended to. I have been repeatedly consulted by persons wearing an elastic stocking, more especially pregnant women, who complained severely of pain coming on during the afternoon and continuing through the night (after its removal), and have learnt, on enquiry, that when put on in the morning the lower portion of the stocking was comparatively loose.

Should much tendency to œdema be present, it will not be a sufficient precaution merely to take the measure of the limb early in the morning. I then make it a rule never to allow the patient to be measured for an elastic stocking until a carefully applied bandage has been worn for some days.

If its texture be too close, the heat and perspiration will be confined, and great irritation of the skin will often arise from this cause. Stockings composed of sheet india rubber, whether perforated or not, are on this ground most objectionable; and

in a still greater degree if the india rubber be vulcanised. Silk, again, combined with india rubber in the form of webbing, is somewhat more heating than thread or cotton, and stockings thus woven are less suited for summer wear. On the other hand, the perspiration becomes condensed by the cold of winter, and the inside of the stocking, when the wearer is in active exercise, is constantly moist. To obviate this source of annoyance it is much more cleanly, and better in all respects, to draw them on over a tight-fitting stocking of thin texture, or the casing of wet linen straps described hereafter. Without some protection of the kind, they are very apt to excite troublesome erythematous or eczematous inflammation of the skin; and whenever any disposition to these affections is manifested, the stocking must be laid aside altogether.

Where the skin is sound, and the veins are not inflamed, a well-chosen elastic stocking may generally be relied on for arresting the progress of varix in its earlier stages and during pregnancy, but it will do little to promote the cure of the disease. It is also very well adapted to cases where a cure is hopeless, but in which amelioration has been effected by other means, to maintain the improvement.

The inconveniences so frequently attendant on

the use of the best constructed and most accurately fitting elastic stocking, and the established fact that when discontinued, even after it has been worn for years, the dilatation is found to be little if at all abated,* have led surgeons to try other palliative measures, some of which are well deserving of notice, although, the precise objects they are intended to accomplish not being very clearly defined, they may not have been always applied with due discrimination; a treatment which may be perfectly suitable to one stage or variety of the disease being often injurious under other circumstances.

The first to which I shall refer is the "vein truss" invented by the late Dr. Colles, of Dublin, so warmly eulogised by him in his lectures. The following account of this instrument appears in some notes of a lecture on varix, by that gentleman, in the *Dublin Quarterly Journal of Medical Science* for February, 1849: "As it appeared to me that the grand object in the treatment of varicose veins was to obliterate the caliber of the vein, it struck me that this object could be at-

* "The relief afforded," says Dr. Colles, (who devoted much attention to the treatment of varix) "is of a temporary nature; the disease remains as before their use, and is ready to assume its worst form if they are left off for a day."—Lectures on Surgery, p. 98. I have seen this verified in numerous instances.

tained by means of simple pressure. I tried at first pressure on the vein at the inside of the knee, but this was attended by much pain. I then tried pressure where the saphena dips down to join the femoral vein in the groin, and found it to answer all my purposes. In these cases," he states, "I now employ a small truss called a vein truss, shaped like that for hernia, but of course much smaller. The pad is applied to the trunk of the vein, the strap being buckled round the buttock. You will find it difficult to get the patient to keep the truss in the right place at first, but the proper spot can be marked out for him. This plan has succeeded admirably with me; and the more I use it the more I am convinced of its utility." Dr. Colles speaks of it as most serviceable to pregnant women who have suffered from rupture of varicose veins. "I have seen some of these patients, he continues, quite exsanguinous from loss of blood in this way, and by the application of the vein truss the bleeding was arrested. When delivery takes place they may put the instrument aside."

As Dr. Colles' "vein truss" is quite unknown to the instrument-makers of London, I wrote, in 1852, to a surgeon of some distinction in Dublin, to request that he would procure and send me one, in order that I might give it a fair trial in a case

which appeared to me exactly adapted for it. In reply to my letter he informed me that he was unable to obtain such an instrument, and believed that it had been given up as inconvenient and inefficient. Having been spoken of, however, by Dr. Colles in such high terms, I have not felt myself justified in passing it by without notice.

A very simple method of supporting and dividing the column of blood in varicose veins is recommended by Sir B. Brodie.* Several straps of adhesive plaster, three or four inches in length and one in breadth, are drawn rather tightly across the enlarged trunks or varicose clusters. These are worn without a bandage, and Sir Benjamin affirms that, in one instance, a lady continued their use for seven or eight years with complete relief. I have tried this plan of treating varix, when the trunk of the saphena in the thigh was alone affected, and have found it quite as successful as Sir B. Brodie has represented it to be. The adhesive plaster was spread upon leather; straps of about an inch and a half wide, and four inches long, were cut from it, and applied spirally to the thigh at the distance of a couple of inches from each other. In the case of a lady who was scarcely able to walk previously, the pain and weakness of the

* Lectures on Surgery and Pathology, p. 189.

limb were immediately alleviated, and since the straps have been worn the dilatation has diminished very perceptibly.

Mr. Wormald employs pressure upon the trunk of the saphena as it lies upon the inner condyle of the femur, closing the vessel with a compress of lint, secured in place by a strap of adhesive plaster which does not quite encircle the limb, and consequently leaves the circulation in the external saphena free.

With the same view Mr. Nunn has recourse to an elastic band and compress, which is buckled round the leg below the knee; and many practitioners use a simple garter of vulcanised India rubber. My Dublin correspondent informs me that the surgeons of that capital have, for some time, been treating varicose veins with the elastic garter and compress, regarding it as preferable in many respects to the elastic stocking. "What is curious, he adds, is, that it not only improves the varicose veins of the leg, but it also has the same beneficial effect upon the veins of the thigh when they are varicose, by directing, I suppose, the current of blood to the deeper veins." Notwithstanding this testimony in its favor, I have known many patients complain that the garter increased their uneasy sensations, producing greater dilatation of the veins, and causing swelling of the ancle

and foot; a circumstance by no means surprising, when we reflect that the circulation, in both the internal and external saphenæ, will be almost equally obstructed by an elastic cincture embracing the entire circumference of the leg.

In the *Medical Times and Gazette* for March 15th, 1851, Mr. Startin has given an account of an elastic ribband of vulcanised India rubber, which he has found useful in palliating varix. Wound spirally round the limb from the foot to the knee, or groin, this band, in aggravated cases of the disease, divides and supports the column of blood in the whole course of the enlarged veins very efficiently. I never venture to apply it, however, without a bandage, and, in some instances, even then it occasions swelling of the leg with more or less pain, compelling the patient to throw it aside. I have often found it answer extremely well put on over the bandage; but if any breach of surface exists, great care must be taken that it does not cross the sore, which would be seriously galled by its pressure. Worn thus, it proves a certain and convenient method of securing the turns of the bandage from displacement, when the leg is unusually bulky, or where, from any other cause, they are likely to slip. It is scarcely safe to trust the application of this spiral ribband to the

patient, as there is no small risk of his drawing it more tightly over one part than another, so as to cause it to act unequally and produce mischievous constriction.

In an earlier section of this Essay, I have noticed Dr. Herapath's ingenious operation, founded on an opinion entertained by him that the falciform edge of the fascia lata of the thigh often gives rise to varicose dilatation, by the obstruction it offers to the circulation at that point where the trunk of the saphena dips downward to reach the femoral vein. I there stated my belief that, although this source of obstruction might very possibly contribute to augment the varicose enlargement, after it had attained a certain size, it could scarcely in any case be the original cause of dilatation. The evidence adduced by Dr. Herapath strongly corroborates this impression. In the case of Atkins—published in the *Lancet* for August 12th, 1848—Dr. Herapath informed me, four years subsequently, that the varicose dilatation still existed; and, in a second case, the particulars of which were communicated in the same letter, the support of a bandage had been thought necessary ever since the operation. Notwithstanding, therefore, the immediate relief afforded to both patients by the division of the edge of the fascia, the result of the operation was

merely palliative. But if Dr. Herapath has not established the claim of his operation to rank as a curative measure, it may yet bestow comparative ease and comfort on many an individual suffering under varix in its worst form.

Before I enter into any detail of the methods, either palliative or curative, which I have found most successful in treating varix, I am desirous of calling attention to an experiment, instituted by Sir B. Brodie, for the purpose of explaining how obliteration of the trunk of the saphena relieves varicosity of its branches,—some writers contending that it must produce an effect the very opposite. The experiment in question not only determines this point satisfactorily, but places in a strong light the mischief to which the capillaries and initial radicles of a vein are exposed, when its trunk is dilated to such an extent as to nullify entirely the action of its valves as supporters and dividers of the column of blood in it. At the same time it illustrates the mode of operation of Mr. Startin's ribband and the elastic garter, and points out the class of cases to which they are suited.

Having applied a bandage upon a varicose limb, thereby emptying its superficial veins of blood, and placed his finger upon the trunk of the saphena above, so as to close it, Sir Benjamin relates that,

on taking off the bandage, the patient being in the erect posture, as long as the saphena was compressed above the veins below filled very slowly, and only from the capillary vessels. "But if," he states, "(the patient being still in the erect posture) I removed the pressure from the saphena, the valves being of no use, the blood rushed downwards by its own weight, and filled the varicose clusters below almost instantaneously."*

Nothing can show more decisively than this statement—which any one can easily verify for himself—that, when the trunk and branches of the saphena are both varicose, the chief difficulty with which we have to contend, in treating the disease, is the weight of the abnormal amount of blood in the former. It enables us likewise to explain the failure of all attempts to cure varix, when the entire vein is diseased, by measures applied merely to its branches, whether these consist of the ligature, section, or caustic, or of elastic stockings, rollers, and strapping; since no rational expectation of permanently obliterating a varicose cluster of branches by any justifiable operation, or of restoring them to their natural size by direct support from without, can be entertained, while such a dilating force from above is still in undiminished activity.

* Lectures on Surgery and Pathology, p. 187.

But, it may be urged, if Sir B. Brodie's experiment has pointed out so clearly the chief cause why these and similar attempts to cure varix must necessarily prove abortive, does it not indicate as plainly the best means of overcoming that difficulty,—the adoption, namely, of some one of the plans already described, which act on the principle of removing the burden from the cluster below by compression of the trunk above? Let the experiment be carried further, however, and we shall find that, the pressure upon the trunk of the saphena being continued, the distension of its branches will slowly proceed, until they become so gorged that little or no increase of size will be perceptible on the removal of the finger. The current, in fact, will only be diverted into other channels when these vessels are filled to overflow.

All the merit, accordingly, which can be claimed for the various contrivances alluded to, is that of palliating the complaint when, by the imperfection or annihilation of the valves throughout the vein, a vastly augmented hydrostatic pressure from above bears injuriously on the branches of the saphena, and on the capillaries in which they originate; since the compression of the main trunk is itself a source of obstruction to the circulation—of very much inferior dilating power, certainly, but quite sufficient to defeat the *cura-*

tive effects of such modes of treatment. And when the dilatation of trunk and branches has not yet reached the extreme point at which the valves are useless, or where it has by any means been brought within this limit,—and again, when the varicose enlargement is confined to the branches—no object will be gained by compressing the trunk of the vein either above or below the knee. On the contrary, much harm would be done by it, inasmuch as the distension of the veins below the point of obstruction, before the blood is forced into other channels, in a person compelled to stand for many hours daily, must obviously tend to keep up the disease in veins already dilated, and extend it to others not previously affected. In short, Sir B. Brodie's remark, when speaking of the rationale of obliteration of the saphena for the cure of varix, is equally applicable to all treatment by compression of the trunk of the vein:—"It may be suited to very aggravated, but not to ordinary cases of the disease."

Under such extreme circumstances, where both trunk and branches are excessively dilated, the elastic garter, applied with the following precaution, often acts as a palliative in a degree but little inferior to the elastic stocking, as far as the veins below the knee are concerned, whilst it is free

from certain disadvantages inseparable from the latter. In order to provide as free egress as possible for the contents of the obstructed internal saphena, I commence by adjusting a tolerably thick compress of lint on either side of the trunk of the saphena *externa*, where it lies upon the united head of the gastrocnemii muscles, just below the ham. These compresses are confined in place by a strip of adhesive plaster, three or four inches in length, crossing them and the vessel. I then place a compress of lint upon the trunk of the internal saphena where it ascends along the inside of the head of the tibia, and secure it by a common garter of India rubber, slipped over the foot and brought up to encircle the leg just below the knee, so as to embrace, at the same time, the strip of plaster and the compresses at the back of the limb. As these latter are intended to act as a bridge, to protect the trunk of the external saphena from compression by the elastic garter, they must be thick enough to fulfil that object; and the strip of plaster must be so applied as to approximate them rather than the contrary, otherwise the integument over the vein may be tightened and impede the circulation in it. The garter, moreover, ought not to embrace the limb too tightly, or it will cause pain and produce swelling. The pressure should

scarcely be felt by the patient in standing or walking.

When the saphena is much diseased in the thigh, in addition to the proceeding above described, I strain across the dilated trunk, just as it winds round the inside of the thigh to reach the saphenous opening of the fascia lata, one or two of the straps of adhesive plaster recommended by Sir B. Brodie; which, when spread on leather, will sink deeply into the soft parts, and, with the aid of a compress of lint, constrict the enlarged vein sufficiently to close it against any great amount of regurgitation from above. With few exceptions, I have found these simple expedients very successful in the kind of case specified; relieving the pain occasioned by standing and walking, and checking the progress of the disease both in the leg and thigh. But not only is further dilatation arrested; in many cases a positive amendment is speedily observed, which commonly proceeds up to a certain point, when the impetus of the obstructed current from below begins to tell upon the vein, and the malady becomes stationary. The patient is now, however, in a comparatively comfortable condition, and with ordinary care and attention may escape all future risk and annoyance from the varicose veins. There is no necessity to wear the garter at night, and the compresses and plaster will not require renewal daily.

After the explanation I have attempted above of the *modus operandi* of these elastic garters, I need scarcely repeat that, when the veins below the knee are alone dilated,—more especially when the external saphena is the seat of the disease—no advantage will be gained by compression of their trunks. A roller, or elastic stocking drawn on over a tight-fitting, thin stocking, padded at those points where the varicosities are most prominent, is then the best palliative.

II. — CURATIVE TREATMENT OF VARIX BY WET STRAPPING AND BANDAGING.

One of the writers*—I might almost say the only one—who has spoken confidently of the actual curability of varix, is the late Mr. Vincent, whose lengthened experience, as senior surgeon to St. Bartholomew's Hospital, entitles his opinion to great consideration. At pp. 226 and 228 of his "Observations on some of the Points of Surgical Practice," he expresses his conviction that veins of the leg, when diseased, will, if the limb is main-

* "It is *probable*," suggests Mr. Hodgson, "that when dilatation is confined to a small portion of the vein, powerful compression, by means of a firm compress and adhesive straps, by stopping circulation through the vessel, may ultimately effect a cure of the disease."—Diseases of the Arteries and Veins, p. 564.

tained in the horizontal position, and in perfect repose, gradually recover from their thickening and enlargement. "This fact," says Mr. Vincent, "I have observed." Again he remarks, "I have no doubt, that if patients would submit to the confinement, that by means of continued rest, and leeching where this step is required, all cases of varix may be fully relieved."

In the consecutive form of varix we meet, unquestionably, with strong and frequent corroboration of Mr. Vincent's view of the matter. No one, I think, will dispute that when the pressure upon, or obstruction of, the venous trunks, which has given rise to the dilatation of their branches, is removed, these latter, under favourable auspices, spontaneously decrease in size until their caliber approximates to what it was normally. We see, daily, instances of women suffering greatly from this affection during pregnancy, who become exempt from all annoyance therefrom after childbirth; the removal of the obstruction, and the brief confinement to the horizontal position, alone sufficing to bring about this desirable issue.

It may be true that the veins, in such cases, are not often thoroughly restored to health. There is still more or less permanent dilatation, and proportionately defective action of the valves, which prepares the way for a return of the malady,

in an aggravated form, on the advent of another pregnancy; and which, in females obliged by their position in life to be much on foot, speedily increases, until, long before another pregnancy arrives, the varix becomes confirmed and habitual. Nevertheless, if nature, when simply unthwarted, is capable of doing so much towards the cure of varicose dilatation,—which may have existed to a very distressing extent for months,—it is no small encouragement to the surgeon to endeavour, by artificial aid, to complete the process which she has so well commenced.

But not only is *a tendency* to the natural cure of consecutive varix manifested, on the removal of the exciting cause; examples are not uncommon in which the cure has been perfected without artificial assistance, no vestige of the disease remaining after the expiration of ten or twelve years. And, as an earnest of what may be accomplished by art, I may appeal with confidence to the experience of those who have long been in the habit of treating, according to Mr. Scott's method, or my own proceeding, ulcers on the leg complicated by varix. In all cases of the kind, by the time the ulcer is cured, a very marked improvement has taken place in the condition of the veins; and this improvement will continue as long as the patient perseveres

in the use of the bandage, although its progress will neither be so rapid nor so striking as at first.

We have, besides, positive evidence of the practical efficacy of compression in curing dilatation of another class of veins, the enlargement of which has been regarded as scarcely less intractable than that of the saphenæ. I allude to a paper on Varicocele, by Mr. Curling, published in the twenty-ninth volume of the Medico-Chirurgical Transactions—(for 1846). "In a late work on Diseases of the Testis," says Mr. Curling, "I stated the object of this method to be the 'maintenance, whilst the patient is in the erect posture, of such a pressure on the spermatic veins as may be sufficient to relieve them from the superincumbent weight of blood. This pressure must be continued a sufficient time to enable the coats of the vessels to return to their natural dimensions, and to acquire strength to carry on the circulation.'" The requisite amount of compression was obtained by the application of a Moc-main lever truss to the external abdominal ring; and a number of cases are given wherein the practice was perfectly successful, the treatment occupying from one to two years.

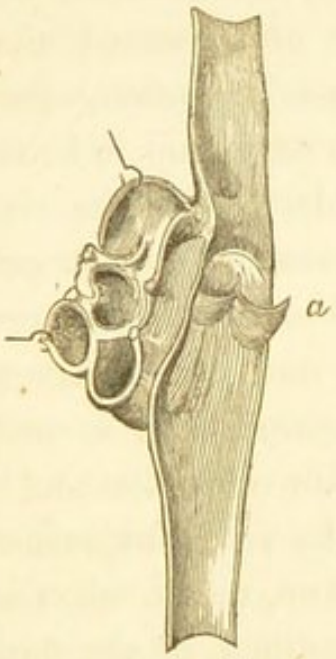
And here I may be allowed to ask, what are the grounds on which surgeons have been led to despair of the cure of varix? Certainly not the

mere dilatation of the vein, whether uniform, serpentine, or saccular, since that is so often seen to subside spontaneously up to a certain point, and occasionally to get perfectly well. That many of the morbid changes resulting from inflammation may also disappear, and the vessel gradually recover its normal condition, we have abundant evidence, in the complete restoration of veins to health after very severe attacks of phlebitis.

The change, however, which must baffle all attempts to *cure* varix, in the proper acceptation of the word, is the shrunken and shrivelled state of the valves, which not unfrequently takes place in old and neglected cases of the complaint; a positive disproportion between them and the area of the veins having been produced by disease. In some inveterate specimens scarcely a trace remains to point out their former sites; in others only a few slender threads. Hence it almost appears to have been assumed that such a change of structure, implying an entire extinction of their functions, is always to be apprehended when varix has advanced beyond its early stage; a conclusion from which I must express my dissent, believing that destruction of the valves rarely occurs except as a consequence of acute inflammation, or of repeated attacks of chronic phlebitis. In Cruveil-

hier's sketch of multilocular varix (Livraison xxxv), a copy of which is subjoined, the valves

FIG. 3



(*a*) are unaltered in form and dimensions, although the vein has undergone changes indicating a rather advanced stage of the disease; and I have seen them equally sound in other instances of aggravated varix. The closest external examination, moreover, will not enable us to declare, at any given period, that the valves are so annihilated; and too many examples of recovery—not merely of slight and recent cases, but of long existing and grave specimens of varicose dilatation—have come under my observation, to permit me to entertain so discouraging an impression.

Without venturing to affirm, with Mr. Vincent, that "*all* cases of varix may be fully relieved," what I desire to establish is, *first*, that during its early stage, before inflammation has wrought any material change of structure, the complaint is, with scarcely an exception, perfectly curable. *Secondly*, that it ought not to be too hastily abandoned as incurable, even in its worst stage, since, in varicose disease of most unpromising aspect, I have witnessed so complete a restoration of the vein to health, under a steady perseverance in appropriate measures, that I should be very reluctant to pronounce any case to be irremediable, until convinced by actual experiment that its cure was hopeless. And, *lastly*, when no hope of cure remains, the condition of the patient may be so far bettered, and the malady brought under control, that we may fairly guarantee him against the chief dangers and inconveniences attending it.

As some modification of the treatment by bandaging is requisite to meet certain peculiarities of varicosity, I shall distribute its details under three heads, commencing with that suited to the simplest form of the disease.

1. Curative Treatment of Simple Uniform Varix.— Whether it arise primarily, or consecutively, the tendency to dilatation may

readily be counteracted, at an early period, by equable and steady support of the vessel, in conjunction with cold and astringent lotions; although time will still be needed to restore the full tone and elasticity of its coats in order to guard against a relapse. Unfortunately, the surgeon is rarely consulted until the dilatation has become confirmed; and the duration of the treatment will, of course, depend very much upon the length of time it has existed.

Plaster strapping, as suggested by Mr. Hodgson, applied according to Mr. Scott's method from the toes upward, is not ill-suited to fulfil the end we must aim at,—that is to say, the closure of the vein to the circulation for a longer or shorter period,—if the requisite amount of pressure, by such agency, could be borne by the patient sufficiently long. After a while, however, the skin is sure to become heated, inflamed, and excoriated, and is sometimes deeply cut by the edges of the straps, whatever may be the plaster employed, or the material on which it is spread. I have, accordingly, for some years entirely abandoned its use, in the treatment both of ulcers and of varicose veins, in favour of the following very simply constructed bandage, which possesses all the advantages of plaster strapping without its inconveniences:—

Placing the patient on a low seat, and elevating the foot until the veins empty themselves by the gravitation of the blood towards the trunk, I apply wet straps of linen, or calico, precisely in the same manner as Mr. Scott applied adhesive plaster. The bands for this purpose should be from two to three inches in width, and from twelve to sixteen in length, stout enough to prevent them tearing easily but not too thick. Adjusting the middle of one of the shorter and narrower of these bands, previously soaked in water, just above the heel, the two ends are brought forward over the ancles, drawn tightly, and crossed upon the instep. The middle of another is placed beneath the sole of the foot, its extremities brought up firmly over the instep, and laid down smoothly one upon the other. A third is applied, like the first, from behind forwards, but a little higher; and thus, ascending the leg, the process is repeated with the rest of the bands, each one in succession overlapping the upper half of that below it, until the limb is firmly and evenly cased to the knee. Over the straps a calico roller is carefully put on, the greatest attention being paid to its equable adjustment, so that the pressure may be uniformly distributed over the entire limb.

Through its texture the course of the varicose veins should be moistened several times daily with

cold water, diluted Goulard lotion, or solutions of alum, sulphate of zinc, or chloride of lime. Whenever the bandage is taken off for renewal, the dilated veins should be subjected to brisk friction, upwards, with the hand for some time, and a douche of cold water poured over them, the foot being kept in an elevated position until it is re-applied. In winter, and when patients are elderly, or delicate, the free application of cold water or lotions is not always safe, and this part of the treatment must of course be left to the discretion of the surgeon. It is better, under such circumstances, to confine the astringent influence of cold strictly to the vessels affected.*

No one who has not tried this mode of bandaging can form an estimate of the power of adhesion possessed by the wet strapping, or the amount of steady, even support it is capable of affording. In these respects—as I have elsewhere stated, when advocating their employment in the

* A curious fact, mentioned by M. Parent Duchatelet, in his paper on the health of the "Débardeurs" of the Seine (Annales d'Hygiéne publique, T. iii), practically exemplifies the astringent influence of cold in maintaining the contractility of the venous tissues. Enquiring how far this class of workmen—whose legs are plunged in water for many hours daily—were subject to ulcer, he ascertained that, contrary to the general belief, they were not only unusually exempt from that troublesome complaint, but their lower extremeties were also remarkably free from varicosities, œdema, and swelling.

treatment of ulcers and cutaneous eruptions on the leg—their action is in no degree inferior to that of plaster, at the same time that the softness of the material allows of its closer adaptation to the inequalities of the limb, and precludes all risk of cutting or excoriation, accidents so common when plaster strapping is made use of, that its contact could never be borne long enough to produce any permanently good effect.

The wet straps are especially serviceable in compressing the bulk of the soft parts before the application of the roller, and they give the latter a much better hold than it can take of the bare skin, or even of plaster, thus materially diminishing the chance of the roller slipping. Their greater permeability, again, admits of the more efficient use of lotions; and their cheapness, when compared with diachylon, or any other kind of plaster, is no slight recommendation. Unless displacement of its turns should occur earlier, or uneasiness be felt at any point, if the skin be sound the bandage need not be renewed before the fourth, fifth, or sixth day of its application; indeed I have frequently left it undisturbed for a fortnight or three weeks.

In cold weather a flannel roller is preferable to one of calico in all respects. It is quite as elastic as Churton's cotton-web bandage, supports the veins more firmly and comfortably, and is not

liable to rope. In summer, or with patients who find both flannel and calico heating, I employ rollers of coarse mull muslin, which are light and cool, and give as much support as calico.

Although an elastic stocking, employed alone, may sometimes arrest the progress of varix in its earlier stages, it can never be regarded as a curative measure. In fact, the heating properties of the material rather augment the tendency to dilatation; and as the ordinary pressure exercised by it but partially empties the veins of blood, lateral expansion in a saccular or serpentine form will often go on beneath the stocking. When combined, however, with wet strapping, its efficiency is very considerably enhanced. But in order to derive the full advantage from this combination, the dimensions of the leg, for the stocking, must be taken after the wet strapping has been worn for some days, and the limb has been reduced a trifle below its natural size. Patients, accordingly, who are unable, or who will not take the trouble, to bandage a varicose leg in the manner set forth above, may adopt the alternative of an elastic stocking drawn on over a casing of wet strapping.

2. Curative Treatment of Saccular, Vesicular, and Serpentine Varix.—In cases of long standing and more aggravated character,

where great tortuosity, saccular expansions of the main trunk and larger branches (numerous clusters often sprouting from these latter), and vesicular enlargements of the cutaneous veins exist, the support, distributed over the general surface of the limb by the wet straps and bandage alone, not entirely emptying the diseased veins, will do little more than palliate the complaint.

To direct the pressure, therefore, effectually upon those points where it is most called for, I have recourse to compresses of lint, or spongiopiline, in combination with the bandage, large enough to cover the chief clusters and each of the sacculated portions of the vein separately, and thick enough to close their channels. These compresses, moistened in cold water or astringent lotions, are placed on the most salient dilatations, and the straps and bandage carried over them. Many of the varicosities rapidly disappear; others require the maintenance of the compression for a longer period; and in serpentine varix, especially, the process of reduction is occasionally very tedious.

In saccular expansion and mulberry-like vesicular clusters in the skin, I seldom rely, for the completion of the cure, on the mere diversion of the circulation into other channels. Taking ad-

vantage of the known tendency of the lining membrane of the veins to adhesive inflammation, I endeavour to obliterate all lateral pouches, and vesicular protrusions through the skin, by submitting them to a high degree of pressure, so as to maintain their opposite surfaces forcibly in contact,—no very difficult matter when they happen to be situated over a bone; but when they lie upon the soft parts of the calf, as is most frequently the case, they recede beneath the pressure of the ordinary compresses, and require some more unyielding substance to close their cavities entirely. To meet this difficulty, I make use of the leather cones with which billiard cues are tipped, or smooth wooden or ivory buttons, choosing a size corresponding with that of the varicose pouch; and, for the blue cutaneous vesicles, glass or porcelain shirt studs. The former are readily retained *in situ* by lint compresses and the bandage; the latter I insert into a small slit or button-hole in one of the wet straps, and carefully adjust it to the pit in the integument through which the vesicle has protruded; and, either by producing cohesion of their entire walls, or closure of the narrow neck connecting them with the vein, and coagulation of their contents, I generally succeed, ere long, in effacing both large and small cells.

Where the saphena in the thigh, as well as the branches below the knee, are diseased, the pressure from within upon the walls of the latter will be more than doubled by the superadded weight of the column of blood in the former. Until this dilating force from above be neutralized, no rational expectation of permanently reducing the enlarged veins to their natural size can be entertained. At the same time, therefore, that the several remedial measures, described, above are brought to bear upon the yielding branches, the dilated trunk ought also to be effectually supported. As, however, it is not possible, by any form of bandage, to exercise the same degree of equable compression upon the veins of the thigh as on those of the leg, I never attempt to carry the wet straps and roller above the knee; but, leaving them to counteract all undue accumulation below, I trust to Mr. Startin's elastic riband, wound spirally round the thigh from the knee to the groin, to divide the column of blood in the dilated trunk, and take off its downward pressure upon the branches; and I have more than once had occasion to observe that, by the time the veins of the leg are restored to a healthy condition, the dilatation of those of the thigh has, likewise, materially diminished.

3. Curative Treatment of Varix when

COMPLICATED BY INFLAMMATION.—Subacute inflammation of varicose veins ordinarily arises simply as a consequence of over-distension of the venous tissues, and when that is fairly obviated, the morbid effect will soon disappear. It may, further, be caused by some local injury, or by exposure to cold and damp. In either case it is usually confined to a small section of the vein; and rest in the recumbent posture, with cooling topical applications—common antiphlogistic treatment, in fact—will generally get rid of the attack speedily.

But when the case has been neglected, and the inflammation has become chronic, we shall have to combat not so much the inflammatory action as its products, thickening of the tunics affected by deposition of lymph within and without the coats of the vessel. The combination of antiphlogistic measures with repose, of which Mr. Vincent speaks so confidently, bids fair, unquestionably, to fulfil the requisite indications for successful treatment, "if," as he remarks, "patients would submit to the necessary confinement." Yet, unless there be greater apparent necessity for lying in bed, few persons, in this busy land, can or will indulge in such a *far niente* mode of life long enough to work out a satisfactory issue. And as the same object may, in this instance,

be achieved equally well, without condemning the patient for a length of time to his bed or couch, there is the less reason to regret its impracticability.

The beneficial operation of leeches may be obtained, quite as effectually, in conjunction with the bandage, as with perfect repose. Should an ulcer exist simultaneously with this condition of the veins, I direct the leeches to be applied at once to its surface; and, as a large flow of blood will take place from this source, if the leg be immersed in warm water, the practice seldom fails to arrest all further inflammation. If there is no breach of surface, I apply them without hesitation to the skin, feeling little or no apprehension of the leech-bites degenerating into ulcers, as long as the limb is properly supported by the wet straps and bandage. Following Sir B. Brodie's advice, I avoid attaching them immediately over the vein, but distribute them alternately on either side of it, and at the distance of at least half-an-inch from it. If one application does not wholly succeed in removing the inflammation, the leeches must be repeated until the proposed end is attained.

Where much thickening from deposition external to the enlarged vein is present, I have found that nothing excites so rapid an absorption

of the deposit as blistering along the line of induration. But here again it is necessary to act with caution; if the skin directly over an inflamed superficial vein be blistered, the patient will often suffer considerably, and the inflammation be aggravated by the proceeding. My usual plan is to paint a streak of the skin, about half-an-inch in breadth, parallel to the course of the vein, but at the distance of from half to three-quarters of an inch from it, with a camel's-hair brush dipped in the acetum cantharidis, taking the precaution of allowing it to dry completely before the straps and bandage are re-applied; otherwise the lotion is apt to spread and affect a larger surface than was intended.

With the support of the bandage, patients seldom complain much of uneasiness from the blister, and very commonly walk about as usual whilst vesication is going on. I have followed the practice of blistering the callous margins of chronic ulcers on the leg for some years, and have rarely witnessed an extension of the ulceration, or any other inconvenience, result from it, unless the strapping and bandage have been negligently applied.

It is only in obstinate cases of chronic varix, where inflammation is actually present, or its products excessive, that it is necessary to leech or

blister the track of the diseased vein. In most instances, the compression exercised by the bandage will alone excite the absorption of the lymph in which it lies imbedded; a process considerably expedited by mercurial inunction, beneath the bandage, at those spots where the thickening and induration are greatest.

It is almost superfluous to remark, in conclusion, that constitutional measures are no more to be neglected in the treatment of varix than in that of any other local affection. In the primary or idiopathic form of the disorder, which is so often traceable to local or general relaxation of the tissues, consequent on an attack of some asthenic malady, mere topical treatment can but palliate the complaint. Whatever tends to invigorate the frame, and give tone to relaxed fibre, will gradually renovate the lost or diminished contractility of the venous walls, and at length enable the patient to dispense with the support of the bandage; and of all tonic remedies there is none, perhaps, which tells so decidedly upon the passively dilated vein as cold bathing,—more particularly the shower-bath,—followed by brisk and frequently-repeated friction in an upward direction.

CASES ILLUSTRATING THE TREATMENT OF VARIX.

As all surgeons, in treating ulcers on the leg, must have noted the improvement which takes place in the condition of the diseased veins under the prolonged use of the bandage, there is no need to bring forward examples of this minor degree of success. I may state, however, that I have memoranda of numerous instances in which dilatation, tortuosity, and thickening, have been so much reduced, after a few weeks' trial of the practice described, that the patients have stopped short of actual cure, resting content with the relief and comfort obtained in that brief period,—the application of a common roller, or an elastic stocking over a padded gauze stocking, being sufficient to assure them against a relapse. Many of these were cases of ulcer; and the closure of the vein by a suitable compress above the sore, taking off the downward pressure upon its capillaries, has

proved quite as effectual in promoting cicatrization as ligature or section of the enlarged vessel. In Case I., the former plan succeeded after the total failure of the latter somewhat heroic remedy. The first two cases given below are those referred to in an early part of this work (see p. 47), as marked instances, which had fallen under my own observation, of the inadequacy of the ligature to cure varix. They serve likewise to illustrate some of the inconveniences ordinarily attending the operation. One result, to which I have not before alluded, is the circumstance that the abnormal dilatation of the smaller veins, consequent on the obliteration of a trunk, or main branch, is necessarily incurable. They may, it is true, be restored by the bandage to their natural dimensions for a time; but the requirements of the circulation will, almost infallibly, cause them again to dilate as soon as its controlling influence is withdrawn. The treatment by obliteration, therefore, when most successful, not alone misses its mark, but puts it out of the surgeon's power to cure the disease radically by any other means.

CASE I.—*Varicose dilatation of the branches of the internal saphena, recurring in less than twelve months after ligature of the vein :—*

Daniel Donovan, aged thirty-four, a patient at

the Hospital for Diseases of the Skin,* with an ulcer on the leg of more than six years' standing, November, 1852. (Case reported "Essay on Ulcers," p. 96, second edition.)

In December, 1851, the trunk and two branches of the internal saphena of the left leg having been varicose about two years, five needles were inserted beneath them, in one of the London hospitals, and their canals obliterated by the twisted suture. Notwithstanding their obliteration, and nearly five months' confinement to bed, he left the hospital with the ulcer unhealed. In November, 1852,—eleven months after the operation,—I found the trunk of the saphena converted into a thick impervious cord; but alongside it ascended a dilated vein, which, the man asserted, was quite as large and as painful as the former vessel before its obliteration. This duplicate of the saphenous trunk appeared to communicate with the branches of the obliterated vein, which expanded into a broad tumour lying immediately above an oblong ulcer.

November 11th, 1852, the varix was treated by compresses of spongio-piline beneath the wet straps and bandage, and at the period of the heal-

* To Messrs. Startin and M'Whinnie I am indebted for opportunities, kindly afforded me at the above-named valuable institution, of testing the practice here brought forward.

ing of the sore (February 10th, 1853) all dilatation had disappeared.

April 7th, the cicatrix continued sound, and the veins presented a perfectly natural appearance even when he rested his whole weight on the limb. No persuasion would induce him to throw aside the bandage even temporarily. In the autumn of 1853 I had another opportunity of examining the limb, and could discover no remains of dilatation, although he had then left off the bandage for some months.

CASE II.—*Varicose cluster, formed by the branches of the internal saphena four months after ligature of their trunk* :—

Mrs. F——, aged forty-two, applied to me, July 22nd, 1853, for the cure of an ulcer near the inner ancle of the right leg, the veins of which are varicose. The history she gave me was, that seventeen years ago, when unmarried and acting as cook, the veins of the right leg became enlarged and painful. The skin inflamed, and a succession of varicose ulcers formed, which occasioned so much suffering and annoyance that she obtained an elastic stocking, which she wore, with considerable relief, for four or five years. After several stockings were worn out, she made an attempt to do without them; when the veins at once relapsed

into as bad a condition as before, and ulcers again broke out. The left leg also now became affected with varix, and she bandaged both limbs with calico rollers.

In March, 1853, she was persuaded to undergo an operation for their cure; and needles were inserted beneath the trunks of the saphenæ internæ of both legs. For twelve hours after the operation she suffered extreme agony, and the pain continued to be very severe for a fortnight, accompanied by much swelling. When she was able to get up, she felt cords running down the inside of each leg, so tight and painful that for a long time she was unable to walk. Plaster strapping was applied, to get rid of the swelling, which cut the skin and produced the ulcer above the inner ancle.

Five weeks afterwards (about the middle of June), she noticed that the branches of the saphena interna of the right leg were enlarging below the site of the operation, and she purchased another elastic stocking, which afforded no relief. When she came to me (in July), a convoluted mass of small veins existed just above the sore, and another cluster in front of the ancle, very sensitive to the touch, and exceedingly painful at night. The veins of the thigh were also much dilated.

July 22nd: The sore was dressed, and compresses of lint and spongio-piline applied to the

enlarged veins beneath the wet straps and bandage, which were renewed every third day, all pain ceasing after their first application.

The ulcer was healed in about a fortnight, when the veins were already much improved, but she did not attend longer.

May 10th, 1855: Within the last few weeks, Mrs. F—— has again consulted me, with painful superficial ulcers behind the inner ancle of each foot. The veins of both legs were larger than ever, and those of the right side in a state of subacute inflammation, which has been subdued by the bandage as promptly as formerly. The sores are also nearly cicatrized; but whenever its support is thrown aside, there can be little doubt that the same troublesome affections will return.

The following selection from my case-book will show the efficacy of these simple means in accomplishing the cure of aggravated varix, when patient and surgeon persevere steadily in their use.

CASE III. — *Serpentine varix of the cutaneous branches of the internal saphena, upon the ancle, from a blow; cured by compression:—*

Creenha Wimprey, aged twenty-two, treated April, 1852, for ulcer, at the Hospital for Diseases

of the Skin. (Case reported, "Essay on Ulcers," p. 130, 2nd edition.)

After the cure of the ulcer, May 13th, the treatment of the varix by compresses of spongiopiline was continued for about three moths, at the end of which time the dilated veins were completely obliterated by adhesion. She was still recommended, however, to persist for a time in the use of the bandage.

CASE IV.—*Serpentine and sacculated varix of the internal saphena. The vein restored to its natural size by compression:—*

Jonathan White, aged forty, a patient at the Hospital for Diseases of the Skin, with ulcer on both legs, May, 1852; the veins of the left leg only dilated.

June 17th: Treated the enlarged veins by compresses and the bandage, cold affusion and friction.

September 27th: The veins perfectly healthy in appearance, uniform in shape, no dilatation, and scarcely any tortuosity.

This man called upon me recently with a return of ulceration in the right leg, but the veins of the left leg continued quite sound.

CASE V.—*Obliteration of a lateral pouch by compression :—*

Miss D—— consulted me, February 1st, 1854, for saccular varix of the internal saphena, attended by lameness, pain, and weakness. It was treated, for but a short time, by the compress, straps, and bandage, when she discontinued her attendance, all uneasiness having been removed.

I saw this lady in the autumn of 1855, and found that the pouch had been long shut off from the vein by the formation of a coagulum, which was diminished to a small, hard knot, the rest of the saphena being quite healthy. She had left off the bandage for some time, feeling the leg perfectly strong and well.

CASE VI.—*Extensive serpentine and saccular dilatation of the trunk, branches, and cutaneous radicles of the internal and external saphenæ of the right leg, reduced to their natural state by compression :*

Hannah Clifford, aged thirty, a widow who had borne several children ; a patient at the Hospital for Diseases of the Skin, April, 1852, for ulcer on the left leg.

July 11th : She requested me to look at the right leg, the veins of which had been varicose for some years. The trunks of both internal and

external saphenæ were dilated and convoluted, with several large sacculi in the course of the former vein; the initial branches of the external saphena, and the venous arch on the dorsum pedis, excessively dilated; from the sole of the foot a multitude of enlarged veins converged towards the outer ancle, and numerous dilated cutaneous branches ascended tortuously on the front and outside of the leg, studded here and there with blue spherical expansions, so thinly covered with cuticle as to threaten bursting. The leg was much swollen, and she suffered extreme pain and cramps in it, particularly at night. Graduated compresses of lint were applied, upon all the varicose enlargements, beneath the wet straps and roller, and frequent affusion of cold water through the bandage recommended.

August 2nd: The general dilatation of the veins much diminished, and all pain relieved. Upon the larger pouches, in addition to the lint compresses, the leather cones with which billiard cues are tipped were now placed, and porcelain shirt studs, fixed into small slits in the wet straps, were inserted into the vesicular expansions of the cutaneous veins. The limb bandaged as at first.

September 27th: With the exception of a leash of veins on the outside of the foot, still somewhat enlarged, all varicosity had disappeared.

This patient called upon me about a year afterwards, in consequence of a sudden return of varix, as she supposed, in a branch of the external saphena just above the ancle. On examination, I found that an attack of phlebitis had been brought on by standing on the wet flags of a kitchen, and that the vein was already plugged by coagulum. She was then employed as a cook, and had discontinued the bandage for some months, but I could not detect any remains of varicose dilatation.

CASE VII.—*Enormous varicose enlargement of the trunk, branches, and cutaneous radicles of the internal saphena, treated by compression:—*

Mrs. H., aged forty-seven, stated when she applied to me, February 7th, 1853, that she had suffered from varix for nineteen years, since her first pregnancy. The whole of the cutaneous veins on the inside and outside of the left leg were varicose, and two enormous clusters had been thrown out from the trunk of the internal saphena just below the knee. Nine months previously a small pouch on the instep had burst, and occasioned the loss of a considerable amount of blood. A sore formed at the spot, which still remained unhealed. Several sacculi in the larger clusters were extremely thin, and threatened soon

to give way. She complained much of pain, cramp, and itching at night. In the midst of a large brown patch of skin was a serpentine track, following the course of one of the tortuous veins, which had not lost its natural colour. I have noticed this peculiarity in other cases of serpentine varix. Her health very good.

February 7th: Compresses of wet lint, corresponding in size and shape with the various dilatations, were adjusted beneath the usual straps and bandage, and she was directed to moisten them with cold water twice a day.

February 24th: All the diseased veins greatly improved. No pain, itching, cramp, or uneasiness. She spoke of being almost always on foot, and could stand and walk with perfect comfort. The small sore healed.

March 17th: The leg had been bandaged for a fortnight. The clusters below the knee much diminished in size. In the largest of the two she had felt some pain, and, on examining it carefully, I discovered that a prominent cell was obliterated by the formation of a coagulum.

May 19th: The bandage had several times been left undisturbed for three weeks without inconvenience. The veins of the leg generally appeared to have recovered their normal condition, the clusters alone showing any remains of disease.

During 1854, I saw this patient twice. She still wore the bandage, applying it herself once a fortnight; but a knotty tumour below the knee, hard and impervious to the blood, was the only vestige of the former diseased condition of the veins.

CASE VIII.—*Varicose dilatation of the internal saphena, of twenty years' standing; serpentine varix on the dorsum pedis; cured by compression:—*

Ann Drury, aged fifty-six, treated August, 1852, for chronic ulcer, at the Hospital for Diseases of the skin. (Case reported, Essay on Ulcers, p. 95, 2nd Edition.)

After the sore had healed, she continued her attendance for the cure of the dilated veins. The trunk of the saphena interna of the left leg, and two branches ascending from the inner ancle, had been enlarged for twenty years, during eighteen of which she had suffered almost constantly from ulcers. The branches lay buried in two furrows, with indurated ridges on either side of them, so that no kind of bandage, employed alone, could exercise any compressing power upon them. The serpentine branch of the dorsum pedis occasioned severe pain, and she likewise complained much of a varicose cluster lying on the inner border of

the foot. After blistering their margins, the deep furrows above the ancle were filled with narrow graduated compresses of lint, beneath the wet straps and bandage, and compresses were applied upon the branches on the top and inner side of the foot, as well as on the trunk of the saphena. They were renewed once a week,—sometimes only once in a fortnight,—entirely removing the pain she had suffered; and, on the 3rd of February, 1853, the veins were quite reduced to their natural dimensions.

The graduated compresses within the sulci were then discontinued, and three months later, (May 12th) these hollows no longer existed; the trunk and branches of the saphena being scarcely perceptible, even when she bore her whole weight upon the foot. The enlarged veins on the dorsum pedis and inside of the foot had also disappeared.

For cases of Eczema consequent on varicose dilatation, which yielded readily under the employment of support, by means of wet strapping and the bandage, I must refer the reader to my Essay on "The Treatment of Ulcers and Cutaneous Eruptions on the Leg."

THE END.