bus being detached from the vein and finding its way to the heart, as the autopsy proved. As you noticed in the history of this case, this man also had pleurisy and you might say that this was the cause of it all. And I should also think so, were it not for the fact that, on admission, all signs of pleurisy had passed away, and we only accepted the history of pleurisy because of the statement of the patient that he had been treated for pleurisy at a hospital, where we know that the physicians were fully competent to make the diagnosis, and we, therefore, are willing to take this as part of the clinical history of the case. We know that he did have catarrhal pneumonia, which must have appeared after the pleurisy had gone. He stated that he had been well after the attack of pleurisy and was again at his work. There is in the case a possibility that this thrombosis may be due to pleurisy because the man actually had pleurisy; but I can not accept this theory of the case for the reasons stated. The phlebitis came on during convalescence from pneumonia and, as I have said, it is the first case of the kind I have seen. Phlebitis, however, is not uncommon. I have seen it in many cases; dozens of times in acute fevers, such as typhus and typhoid. In cases of fever where the circulation becomes feeble, there is this tendency to coagulation of blood in the veins. It is most common as a sequel to parturition, and may be an expression of blood poisoning such as occurs in pyemia. I have never previously seen it in an acute inflammation of any viscus, and have searched medical literature without success for a similar case to the one now presented. You might say that it is a coincidence, and that the pneumonia and the phlebitis have nothing to do with each other, were it not that the phlebitis has appeared also in the left leg, which shows something in the man, or something peculiar to his condition which makes it possible for the phlebitis to occur.

Now, is it possible that this catarrhal inflammation of the lung was in reality only a part of an attack of influenza? It would be much easier to explain the occurrence of this complication if the patient were suffering from a general disease than if he had simply an acute attack of pneumonia. The patient states that he had two attacks of influenza before this illness. I can not, however, entirely accept this view of the case because when the man was admitted he had no pains in the bones or muscles; he had no headache, in short, none of the ordinary signs of influenza.

Whether it be due to catarrhal pneumonia or to influenza; how can we explain this phlebitis, this coagulation of the blood in the veins? It can only be through the circulation. All through the case feebleness of the heart's action has been observed. Notwithstanding the iron, notwithstanding the carbonate of ammonia, his condition has been throughout, as it is now—"feeble first sound, feeble pulse." It is possible that with this feeble circulation a certain condition of the blood was present which favored the formation of a clot, and that the phlebitis occurred in consequence of the plugging of the vein with a thrombus. Indeed, here I can find no other explanation. It has been said that the lowered state of the circulation in typhoid fever is due to a poison circulating in the blood, and possibly this may be derived from the ulcerations in the intestines, or in other words there

is set up a condition of septicemia. No such explanation can be offered here; we can invoke nothing but a poor condition of the blood and general feebleness of the circulation as the cause of the thrombosis. What is the prognosis in this case? The man will get well. The right leg has almost recovered, and the left is improving under the elevation of the limb, upon which I lay great stress, and the warm fomentations. His recovery is undoubted, but after he goes about there may be some stiffness, swelling or tenderness along the veins for a time, interfering with active exercise, so that convalescence may be slow; very much like what takes place after typhoid fever.

ORIGINAL ARTICLES.

A PLEA FOR ASEPTIC VACCINE VIRUS AND ASEPTIC VACCINATION, WITH A CASE IN POINT.

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On the continent every effort is made to secure aseptic lymph. Its asepticity can not be otherwise than probable, until the specific germ or tox-albumen of cowpox shall be isolated, and a laboratory product placed upon the market. However, it is not unreasonable to now require that a vaccination abrasion be treated as is any other abraded surface, viz: aseptically. Since the vitiation of bovine virus by twenty or more demonstrable germs can not as yet be excluded, added infection from skin and air can, at least, be prevented by the antiseptic preparation, operation and dressing of the arm.

Should an ulcer, erysipelas, lymphangitis or phlegmon appear, treat each as you would surgical complications elsewhere. Granting them to be infectious, it follows that their invasion and effects must be minimized.

In the proceedings of the Pediatric Section of the New York Academy of Medicine, reported in the January, 1894, number of the *Archives of Pediatrics*, Dr. J. Lewis Smith describes a case of fatal sepsis and death following vaccination. Dr. J. H. Fruit-night mentions a case of tetanus in this relation. Home and foreign literature contributes its quota of cases. The editorials in an early summer number of the *British Medical Journal* entitled, "Militant Antivaccinators" and "The Vaccination Craze," unintentionally reveal the same unfortunate state of affairs. Consequently, the relevancy and justice of this opposition can not be overlooked.

Dr. J. Lewis Smith's case is commented upon as follows: "Inasmuch as the symptoms of sepsis had not developed for a week or more, the inference was that the wound became infected subsequent to vaccination. The case taught the lesson that greater care should be taken to protect the vaccination wound against infection."

Doubtless great and general carelessness prevails in this respect, but the criticism is not far-reaching enough, in that it fails to touch the root of the evil, the contamination of the virus itself. Reference has been already made to the unavoidable microbic pollution of the lymph. A little study, or better still,

a visit to a vaccine station, will convince one that there are other and many extrinsic sources of defilement. Here, in America, there is no certainty that the cow is prepared or the virus secured in accordance with the dictum of surgical bacteriology. The vaccine stables are private commercial institutions subject to, absolutely, no federal, State or municipal regulation. It is not sufficient that the stock be select and healthy, and the stables hygienic; the most rigid adherence to antiseptic principles in the bovine inoculation, subsequent dressing, and securement and preservation of the lymph, should be demanded as well.

An epidemic, if not pan-endemic, of sore arms imperatively calls for organized effort on the part of the profession, in order to effect improvement in the present vaccine supply. Proper investigation, organization and legislation with reference to this, so important a subject necessitates time, while its exigency requires immediate attention. The emergency might be dealt with through the agency of accredited representatives of the local medical societies. These agents might instruct owners and managers of vaccine stations as to the requirements of the profession; the refusal or acceptance of these requisites to be met on the one hand by a boycott, and on the other hand by the offer of a premium for purer virus. My earnest consideration of this subject was stimulated by a case of thrombo-phlebitis, pyemia and death that occurred in my practice two years ago.¹

A nursling, although marasmic and feeble from prolonged confinement to a ward that had been quarantined for an outbreak of measles, was vaccinated because of a smallpox endemic in the institution. The operation was antiseptically done but, to my astonishment, almost every member of the large ward developed some vaccinal complication.

A recent visit to the stable from whence the virus was then obtained explains these manifestations.

The arm of this child, however, presented nothing abnormal and the wound over the left deltoid was about healed, when the nurse called my attention to an abscess on the superior antero-internal aspect of the left arm. Other abscesses rapidly and successively appeared in the left axillary, infra-scapular and pectoral regions, and finally another was found over the lower part of the internal saphenous vein. Nodulation and ecchymosis, involving the affected vein and contiguous tissue, occurred in each instance. Nasal and aural hemorrhages and the rapidly progressive prostration simply confirmed the original diagnosis.

At the autopsy, I found a thrombus in the cephalic vein but a short distance from the normally foveolated scar. The relations of the cephalic to the basilic, subscapular, thoracic and axillary veins demonstrates the infection, atrium and course. Its transmission through the heart and lungs into the general circulation needs no further explanation. Though not creditable, the case has taught me many lessons, and I trust will rouse the profession to a realization of the septic condition of the vaccine virus in general use.

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¹ Reported with other cases in my article, "A Contribution to the Study of the Accidents of Vaccination," in the June number of the North American Practitioner.

Blank Applications for membership in the Association at the JOURNAL office.

THE TREATMENT OF ULCERS OF THE LEG.

Read in the Section on Dermatology and Syphilography at the Forty-fourth Annual Meeting of the American Medical Association.

BY LOUIS FRANK, M.D.

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The treatment of ulcers of the leg has at all times been the *crux medicorum* and has heretofore, as a rule, been assigned to the field of the surgeon, although in most cases a true affection of the skin. The vast number of remedies advocated for the relief of this pathologic condition only speak for the difficulties offered in its treatment. The entire old arsenal and an array of new remedies, as iodoform, salol, dermatol, euophen, aristol, ichthyol, etc., have been successively brought forth as remedies, par excellence, in the therapeutics of ulcers of the leg. The cause of the failure in the accomplishment of the required result lies not so much in the non-efficaciousness of the above named drugs as in the faulty adaptation to the pathologic condition of the parts. A close study of the relations and the etiologic condition ought to convince us that a particular drug is incapable of meeting all the requirements, which the treatment of the chronic ulcer of the leg demands. Even a simple ulcer on any part of the body, caused by a local lesion, requires, according to its indications, a treatment which can not be followed out by one particular remedy; how much more a chronic ulcer of the leg, which usually presents such a varified appearance of pathologic complications.

We can easily understand why one particular remedy is incapable of fulfilling all indications in relation to the cure of an ulcer, and why it is absolutely necessary to study the pathologic appearances which an ulcer at the time presents, to apply the proper measures. At one moment we will find the ulcer shallow with a necrotic base; at another time its surface covered with exuberant fungous granulations, and our treatment must be directed accordingly.

The causes which lead to the formation of ulcers of the leg are principally the unfavorable anatomic relations of the parts. In the first place its arterial circulation is diminished on account of its greater distance from the heart; second, the centripetal circulation of the venous system is impeded by the pressure of the venous vessels during walking or standing. Under the influence of this stasis and the peculiar tension of the skin on the anterior border of the tibia, a very trifling lesion, as the bursting of an eczematous vesicle, the opening of a furuncle or any mechanical insult will result in the formation of an ulcer.

The manner in which an ulcer begins, varies according to its origin on the surface or in the depth of the skin. If it develops on an inflamed portion of the skin, a condition of stasis being present, an infiltration of wandering cells takes place in the superficial layers of the cutis, the papillæ are enlarged and the connective tissue of the papillary layer is softened and macerated. The epithelial layer of the superficial stratum fails to regenerate itself, the cellular layer of the rete Malpighii is exposed and a suppurating surface, whose upper layer consists of wandering cells and the lower of the enlarged papillæ, appears. Beneath this layer of necrotic or pus infiltrated tissue the base of the ulcer is always hyperemic. If the ulcer takes a favorable