Microscopic examinations of the nodules and portions of the skin removed at each operation, as well as the sputa, showed the presence of the anatomic tubercle and tubercle bacilli, the latter varying in quantities. From the clinical symptoms, the bacteriologic examinations and the ineffectual results of anti-syphilitic treatment, there appears to be no doubt of the disease being true lupus vulgaris. The source of infection seems as certain in these cases, as it does in those reported by Besnier, Wolters and others. And as such they may be of some little value in further study of this interesting disease.

NOTE.—Since the above was written Prof. Joshua VanCott has submitted a partial report of the findings in specimens from the cases. He says: "Great difficulty was experienced in getting the tissues (finger) decalcified; but finally sections were obtained which revealed the typical structures of tubercle, many epithelial cells, and small round cells in a connective tissue net-work, with areas of coagulation necrosis and giant cells whose nuclei were characteristically arranged around the peripheral portions of the cells from the findings. I hope to be able to stain the tubercle bacilli" [bacilli were found in earlier specimens.—J. M. W.]. "In the event of not finding them, the histology taken in conjunction with the definite clinical history render it certain in my opinion that these ulcers were tubercular."

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FURTHER OBSERVATIONS ON URTICARIA.

Read in the Section on Dermatology and Syphilography at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

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In a paper which I read before the last meeting of this ASSOCIATION in Baltimore I gave the results of some experimental observations on the pathology of urticaria. A brief account of these results would not be out place before discussing the present paper. I mentioned that the cases chosen were those of urticaria factitia. Wheals were produced artificially by drawing down the finger nail sharply over the skin and small portions were excised at definite periods after stimulation, viz., at two minutes, five minutes, eight minutes, ten minutes, fifteen minutes, twenty-five minutes, forty minutes and sixty minutes; the results obtained were particularly interesting in that the whole pathology could thus be followed out in detail. It was found that in fifteen minutes after stimulation a complete picture of acute inflammation of the whole derma was presented by these sections. There was an extensive emigration of polynuclear leucocytes, exudation of serum, small quantities of fibrin, particularly in the neighborhood of the vessels, pronounced dilatation of the lymphatic vessels and a large number of lymphoid (morphologically speaking) cells around the blood vessels, whereas the epidermis remained practically normal.

My present paper concerns observations of three additional cases of urticaria factitia and the examination of spontaneous wheals together with the application of improved technique. In the three cases of urticaria factitia with which I experimented I excised portions of the wheals fifteen minutes after stimulating the skin, because it was found in previous cases that the results obtained were particularly pronounced at that stage. In all three cases the sections showed again the typical picture of acute inflammation of the skin, but some were more pronounced than others. There was not only extensive emigration of polynu-

clear leucocytes but always an increase in number of the lymphoid cells, and what is rather extraordinary, an apparent increase in the number of the *mastzellen*, which were stained after Unna's method. Other factors present in the sections were pronounced dilatation of the lymphatics, the presence of fibrin and a large amount of serous exudation. Nuclear fragmentation not only of the polynuclear leucocytes was observed, but even of the fixed connective tissue cells, a point which was brought to my attention by Dr. Welch. This phenomenon of fragmentation seems to indicate the presence of an irritant of some kind in the tissues in the area of the wheal.

In connection with the *mastzellen* I used a slight modification of Unna's stain. He recommends that after staining the sections in his polychrome methylin blue solution that they be discolored with his glycerin-ether mixture. The latter I was not able to obtain, so I used a very weak acid solution of alcohol and decolorized carefully for a few seconds, alternating with water. The results obtained showed a most satisfactory and double staining of the *mastzellen*, the granules of which were red and the nucleus blue.

The observations on the spontaneous wheal of about two hours' duration showed practically the same results in an acute inflammation of the whole derma.

My experimental work on these three additional cases of urticaria factitia and one case of spontaneous wheal have confirmed my earlier observations on the pathology of the wheal, viz., that it is a true inflammation of the skin.

We now come to the consideration of the cause of the wheals, either arising spontaneously or produced artificially, and here a question at once arises, viz.: What is the irritant which causes a wheal to appear and where does it come from? The fact that not only an acute inflammation of the whole derma occurs when a wheal is produced, but that there takes place nuclear fragmentation of the emigrated polynuclear leucocytes and even of the connective tissue cells, clearly suggests that an irritant of some kind must have been brought to this region.

The explanation that it is due to stimulation of the vasomotor nerves is not at all tenable, because the factor of simple dilatation of the blood vessels resulting from stimulation of these nerves would not cause inflammation and certainly not fragmentation of nuclei; neither was the injury produced by the finger nail sufficient to cause these results, as was proved by control experiments in previous cases.

Dr. Welch made a valuable suggestion to me while examining my specimens. He thought that there must be a toxemic condition of the blood at the time wheals could be produced and that some of the toxin was set free into the tissues of the derma, thus constituting a sufficiently acute irritant to set up inflammation with the accompanying marked nuclear disintegration. After due consideration it appears to me that this theory will explain all the phenomena of urticaria and its accompanying wheals, not only in the factitious form, but also in many other varieties of urticaria.

I mentioned also in my previous paper that indican or some of its salts were present in large quantities in the urine of some of the cases of urticaria factitia which I examined, and since this would point to the presence of proteid decomposition in the intestine, it might be possible that the toxin in some of the cases was of a chemic constitution. This theory would also

explain why it is that saline purgatives relieve acute attacks of hives so readily by expelling the toxin poison. It does not necessarily follow that one kind of toxin alone is the producer of wheals, but, as is well known, certain drugs will sometimes produce them, *e. g.*, quinin, tartar emetic, etc., and the decomposition products from certain fruits, *e. g.*, strawberries, etc.

I examined lately a typical pronounced case of urticaria pigmentosa, which I exhibited before the Johns Hopkins Medical Society, and as almost always occurs in this disease wheals could easily be produced. I excised a number of these wheals at certain periods of time, *viz.*, at four minutes, eight minutes and fifteen minutes, as well as a portion of the skin. The results show that even in the eight-minute sections the *mastzellen* were increased in number in the neighborhood of the vessels. This latter observation I should wish to confirm by further experiment before I would give as being final. A few polynuclear leucocytes were also observed and a pronounced quantity of serous exudation.

Unna made the suggestion that the increased number of *mastzellen* found in wheals might come from the blood but he did not prove this important fact.

In conclusion I now quote a sentence from Prince Morrow's system of genito-urinary diseases and syphilology and dermatology (1895) written by Dr. E. B. Bronson, which is as follows: "Though urticaria has been commonly classed with inflammation there is little more reason for this than for regarding a simple rubor or a mechanical edema as inflammatory." I have found, and my statement is supported by Dr. Welch, that in all cases of urticaria which I have examined, eight in number, I have seen a typical picture of inflammation which varied in severity. I have chosen for my work the most pronounced cases because the results were most marked and more easily studied. There is no doubt then that all varieties of urticaria must be classed as inflammatory affections, as Duhring has done in Vol. I of his last addition on cutaneous medicine and surgery.

Unna's theory of spasmodic contraction of the muscular coat of the veins situated in the deeper portions as the cause of the production of the wheal is not at all acceptable and appears distinctly improbable, judging from the standpoint of the causes of inflammation, and also does not agree with my observations, which proved rather the contrary, *viz.*, that the veins were dilated.

EXCISION AND SKIN-GRAFTING FOR TUBERCULAR DISEASE OF THE SKIN.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association held at Atlanta, Ga., May 5-8, 1896.

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I have only a few words to say upon this subject. My experience is limited to two cases, and these are naturally insufficient for the formation of an opinion as to the merit of the method. Given a localized tubercular lesion of the skin, of not too great area, the pathologic condition would seem to justify the suggested treatment. Actual metastases, as in "cancer," are not to be expected, neither do we anticipate such an insidious creeping along the lymphatic channels. We do have a localized inflammatory condition, with tubercular structure and usually few bacilli.

The ordinary treatment is slow and generally pain-

ful. In lupus vulgaris, especially, the scar often presents a recurrence of the disease. If we can, under thorough antiseptis and asepsis, totally remove the disease, without infection of the wound with the tubercle bacilli, and then by grafting minimize the resultant scar we have a method superior to the old.

Surgeons and some dermatologists recognize the value of excision, but I believe the procedure unpopular with the majority of dermatologists. Thorough excision, with care not to re-infect the wound surface, followed by proper grafting should enable us to end the treatment of a not too extensive case within two weeks. Ordinary methods, especially in lupus vulgaris, often occupy years. White, in advocating excision, says that the bacilli may finally find their way to vital organs if the local disease persist too long. Here it might be asked if the general tubercular condition certainly has its origin from the local lesion or are not all the tissues, in cases ending thus, in so favorable a condition for the bacilli that they receive them just as easily through other channels?

My two cases were treated at my clinic at the Atlanta Medical College. The first was that of a mulatto girl aged 15, with a history of suppurating tubercular glands in the neck, for a year, which finally healed about a year before the appearance, five years ago, of the disease upon the lip. The lesion was upon the surface of the left segment of the lower lip, being about the size of a silver quarter, occupying nearly half the thickness of the lip. It was an ordinary lupus vulgaris, with fine nodules, covered with thin scales, save in the center which was crusted and papular. There was a marked, firm, red, raised border.

The patient was anesthetized and as strict asepsis as practicable was employed. The button "point," of the Paquelin cautery at a dull red heat was used to cauterize the tissues diseased and kill the bacilli. The entire patch was then carefully dissected away, allowing sufficient margin of healthy tissue, and to the depth of about one-half the thickness of the lip. Small grafts were then taken from the previously prepared thigh, and properly applied. About 80 per cent. of these lived. A few more grafts were applied two weeks later, to points left vacant by the slipping of some of the first. The success of the treatment was vitiated by some error in asepsis in later dressings. After some weeks a faint vesicular point was noticed at the inner edge of the healed surface, but this soon disappeared spontaneously. There was also a tendency to keloidal growth of the cicatrix, but secondary contraction soon relieved it.

My second case was that of a white boy of 12 years, in a poor general condition. Occupying the dorsum of the right wrist was an oblong, transverse, flabby, irregular ulcer with an unhealthy base and soft, indolent, pale, undermined edges—in short, the lesion formerly described as a scrofuloderm. I believe the duration of the disease was over a year.

Under anesthesia and with asepsis, a free incision, well outside the margins of the lesion, ovally, without lifting the knife, was carried around the diseased tissues. A clean dissection was then made from the annular ligament, care being had not to allow the lesion, or anything which had been in contact with it, to touch the wound. Large grafts were shaven from the skin of the thigh and applied in the usual manner. The grafting was a failure, but a good, flexible scar was obtained. In addition to the usual dressings, a splint was used to restrain motion.