vitors, and think only of the *blight* they are incidentally permitted to fix on us. But further, according to modern view, these *principles* not only exist externally (epidemic and endemic), but also are reproduced in, and emitted from, bodies undergoing disease (contagious.) In epidemic sore-throat (and the same probably holds good of several other diseases, for "a more or less sore throat is a constant concomitant of all the acute specific diseases"), the pharyngeal region appears to be the site of the local symptoms; here it is that pathological change is going on in contact with the air, and hence it is that we should expect contagia to be emitted. The same reasoning applies to the laryngeal region in croupal cases. Now, where the carcass is, there will the vultures be gathered together; and thus, not content with neutralising poisonous matters external to us, these organisms, in obedience to a splendidly designed scheme, seem, as it were, actually to descend upon the parts whence these poisons would be scattered broadcast, and kill them in the bud. Speculations such as these may be idle and need corroboration, still I hope they are not altogether irrelevant or useless; for, if we are enabled to look from these supplemental effects, these lesser evils, patent to the eye of sense, to the higher order of harmony to be seen only by the mental eye of thought, we are induced to temper our sorrow with gratitude; and, while deploring and bearing as patiently as possible the trials and afflictions permitted to vex us here below, our faith is strengthened in, nay, we are even allowed to enjoy a foreshadowing of, that condition of perfection which shall one day be revealed to us.

Contagion. Perhaps there is no subject in connection with diphtheria so unsettled and unsatisfactory as that of contagion. By some the disease is believed to be eminently contagious; by others, to a limited extent; by others, again, not at all. By adopting the specific disease theory, some of these views must necessarily be wrong; by adopting the theory hoped to be substituted, they all may possibly be right. The contagiousness of the local sign is not, so far as I am aware, supported by a single fact which cannot quite as readily be placed to the score of its undoubtedly epidemic character. Capability of inoculation, in Bretonneau's sense of the term, is, I believe, generally discarded. That the substance, if placed in contact with a part of the body undergoing disease, might help to bring about the production of a like morbid product, admits of easy comprehension; but that it could induce anything like a disease of the general system, we have certainly no evidence to lead us to suppose. The contagiousness of the general disease is often so intermingled with, and bears such a direct proportion to, its epidemic character, as to be not always readily made out. We may not be able satisfactorily to diagnose such general disease, owing to the absence of positive signs; still, knowing the fact of extensive epidemic prevalence being invariably associated with more or less contagious properties, we have grounds for considering such diseases always, to a greater or less degree, contagious. I would suggest, then, that the contagiousness or not of a diphtheric case depends mainly on the contagiousness or not of the general disease; and, knowing such diseases to be most various, we can, by adopting this view, understand how any particular case may have this property to a great degree, slightly, or not at all. I am glad to be strengthened in this opinion by Daviot, who concludes a masterly summary on the subject of contagion as follows: "I repeat the proposition which seems to me to reconcile conflicting opinions, that we cannot regard pharyngeal diphtherite as contagious when it exists alone and independent of all eruptive fevers; but I think

that, when it is complicated with those evidently contagious affections, it may become so, but in an indirect manner." (*Syden. Soc. Memoirs*, p. 361.)

[To be continued.]

ON IMPETIGO CONTAGIOSA, OR PORRIGO.

By W. TILBURY FOX, M.D. Lond., Physician to the Farringdon General Dispensary.

[Continued from page 498.]

III. Our third query was this: Does vaccination give rise to impetigo contagiosa? and, if so, in what manner? The solution of this question, of course, supplies the positive answer of the first question—viz., the nature of the disease.

We must consider the following features of the disease.

1. The special aspect of the eruption—the depressed centre, the consecutive crop, the purulent contents (their aplastic character), the isolation of the spots, etc.
2. The character of the subject attacked is that produced by the action of bad hygiene and low social position.
3. The peculiar obstinacy of the disease.
4. The tendency to the occurrence of unhealthy inflammation.
5. The peculiar dull red tint about the circumference of the sore; the same tint forming an almost diagnostic feature in the healing of the part after convalescence.
6. The adherent character of the scab.
7. The implication oftentimes of the mucous surfaces, which take on an unhealthy inflammation.
8. The contagious and inoculable character of the disease.
9. Its frequent occurrence after vaccination.
10. The links between apparent modifications of vaccinia and impetigo contagiosa.

Will it satisfy the requirements of the above propositions, to regard the disease as a form of impetigo developed in a strumous subject? We may be certain of one thing; that it is a *specific* inflammation, dependent upon a *specific* cause; and that *specificity* resides in, or is possessed by, the contents of the pustules. Now the history of scrofulous inflammation does not warrant us in saying that a scrofulous form of skin-inflammation is contagious. We are led to believe that there exists an intimate relation between impetigo contagiosa and vaccinia, from many data; not only from those already adduced—viz., the frequent occurrence of the disease after vaccination, and the similarity between it and "bastard vaccinia"—but also from the fact that impetigo contagiosa possesses spots oftentimes exactly resembling vaccinia, and yet occurs in such a way and at such times as to preclude altogether the idea of direct connexion with any such cause. Assuredly, the best description that one could give of some of these cases, would be to state them as instances of ordinary impetigo modified by the vaccine virus—a compound affair, in which there are complete and intimate connexion, mutual action, and subsequent modification. A strumous form of inflammation (impetigo) modifies vaccinia, and the umbilicated pustule breaks out into unhealthy superficial ulceration. Most decidedly, a good many cases start from the period of vaccination; and indeed, in adult life, the disease may frequently be traced to direct contagion with children.

The contagiousness, the specific character, the possibility and probability of tracing the origin of the disease to vaccination, are arguments that well de-

serve attention. Vaccination has now become an universal practice; and it becomes a most important question, What, if any, is and has been the modifying influence of the universal practice of vaccination upon existing disease?

This much is true, as Dr. Ross endeavours to show in his paper in the *Lancet*, February 14th, 1857; that "there are various forms of eruptive disease consecutive to and caused by vaccination"; and this gentleman added, that they "are subordinate to the specific laws of vaccination, and are evidences of the complete impregnation of the system". Their type is vesicular; the size of the vesicles varies from that of a millet-seed to that of a crown-piece, "and looking as if one vesicle were contained within another". An usual size "was that of the cowpock at the eighth day, being a vesicle with a central depression and circumferential redness". Dr. Ross thinks that the virus oftentimes remains in the system for a time, and that its activity does not always cease with the process of desiccation; these secondary eruptions show themselves on the fifth, tenth, or fifteenth day, and rarely continue more than a few days. He sums up thus: "Vaccinia, under certain circumstances, is followed by a secondary eruption, special in nature, though various in forms, which observes fixed periods of evolution, and is an integral part of the original affection." Now, I think it will be granted that there is a great deal of truth in Dr. Ross's remarks.

In the French Academy, some interesting discussions have lately taken place with reference to the relation and nature of the vaccine virus, and the various modifications of eruption resulting from its action. It would appear that an erythematous disease of the horse, constituting one variety of the *grease*, is capable of giving rise in the cow to the cowpox; at any rate, there is an erythematous-pustular and ulcerative disease in the horse, which may give rise to cowpox; and many leading authorities think that the vaccine virus may show itself in different cases under different aspects, some of which certainly resemble the instances in man called bastard vaccinia, which in its turn is allied, if not identical, with impetigo contagiosa. In the January issue of the *British and Foreign Medico-Chirurgical Review*, p. 258, the subject is further referred to in a short summary head "On the Origin of Cowpox and the Nature of the Vaccine Virus", quoted from the *Gazette Médicale de Paris* for November and December 1863. It appears that M. Bouley has produced a vaccine pustule "by inoculating with matter taken from the vesicles of an aphthous stomatitis occurring in a horse". The udder of a cow, inoculated from the pustule, produced vaccine vesicles, whose contents were used to successfully vaccinate several children. Hence the inference before expressed. It further appears that Dr. Auzias Turenne and M. Mathieu have carried out successfully a series of inoculations of animals with matter taken from a horse, on whose body and mouth pustules were discovered; a second horse was vaccinated from this animal; the vulva of a cow and the ear of a bull were "done"; the result being the production of a magnificent cowpox. The matter obtained from the bull was used to vaccinate a zebra, a Javanese mare, a Siamese horse, and a Shetland mare, with like results. M. Depaul stated as his convictions, that: 1. Vaccine virus has no separate existence; 2. It is identical in nature with the variolous poison; 3. Equine and bovine species are subject to a disease like to the human variola; 4. Also other animals—*æ*, pigs, sheep, goats, dogs, etc.; 5. Circumstances are the same in character; 6. The variola may be sporadic or epidemic; 7. The disease may be transmitted from the horse to the cow, or *vice versa*; 8. From the cow to man, and probably from the

horse to man; 9. From man to the cow, the horse, and other animals; 10. The *maladie aphteuse* of animals is variolous. Other conclusions, following from some of the foregoing, are omitted.

The facts mentioned are novel to many, no doubt, and of great importance. They show certainly that variola and vaccinia assume unwonted garbs at times, and they justify us in our inquiry as to the vaccinal nature of impetigo contagiosa and the influence of the vaccine virus upon already existing disease. I have no pet idea to cherish, no hobby to tempt me unconsciously to bend facts into any desired direction.

We may learn somewhat from the negative side of the question. Is it at all likely that vaccination is merely the exciting cause of impetigo contagiosa? It would appear not; for there is no known disease to which it is comparable upon this view of the question—not pemphigus, not ecthyma, not rupia, not eczema, remembering only its contagious quality.

Then, does vaccination introduce any special poison into the system, other than itself? The same line of argument applies. It is not syphilis. Struma is not so transmitted. Erysipelas would not preserve the type so fully and fairly.

All its external characters ally it closely to vaccinia; viz., the results of inoculation; the aspect of the pustules (external and internal); the contagious quality; the seat of the disease; its general symptoms; its associations, and the like. But then there are marked minor differences; and we are forced to the ultimate conclusion, either that the disease is a mere modification of vaccinia, or that it is a mixed disease. Of course, this turns upon the fact of the interpretation of the physical appearances resembling vaccinia being correct. This has been settled before in the affirmative. Clinically, we notice the following points.

1. Some spots exactly resemble vaccinia in outward aspect and pathological behaviour.

2. The disease follows directly in the tail of vaccinia.

3. Sometimes we have spots on the head presenting the aspect of impetigo; and others on the general surface, of typical vaccinal character.

4. In the face, the disease may resemble eczema impetiginodes, in conjunction with characteristic appearances elsewhere; but the former may be the sole disease, and be produced from the typical disease.

Hence we may allow the existence of two degrees; one in which the vaccinal, and the other, the impetiginous character predominates, with an intermediate stage. The former is typified by bastard vaccinia; the latter by the abortive forms, so to speak, seen in some members of families in whom the disease prevails; while the ordinary forms represent the remaining or more common class. It does not seem possible to explain the contagious nature of the disease in any other way, in unison with the teaching of its course and behaviour. If it were vaccinia only, why, after a thorough impregnation of the system—in other words, when the vaccination has "taken well"—should a free eruption take place, each spot of which tends to break out into superficial ulceration? What is the condition which makes such an impression upon the secondary vaccinia? Its associations would certainly make us seek for it in an impetiginous tendency.

The conclusion then, to which facts seem to point, would be this: In the present state of our knowledge, to define clearly typical vaccinia, and to include under the head of impetigo contagiosa or true porrigo cases of bastard vaccinia, and the other instances of disease which have been described in these remarks as impetigo contagiosa; and to recognise the latter as chiefly a mixed disease, in which the vaccine virus is modified by, or rather modifies, an impetiginous

condition of body; the mixed disease or impetigo contagiosa (or porrigio contagiosa), possessing now the vaccinal, now the impetiginous phase in excess, at other times both in a tolerably equal degree. In some of the cases, we are unable to trace the influence of vaccination or of the vaccine virus; and then, at the first blush of the matter, we should feel inclined to look upon the disease as simply impetigo breaking out into a state of unhealthy (strumous) inflammation and ulceration; but then, as difficulties present themselves in the specific (contagious and inoculable) character of the disease, the depressed centre and the aspect of the contents of the pustules, among other things; and, seeing the close relationship of vaccine and variola, it does not necessarily follow that the disease could not be traced through the power of contagion, back to vaccination, or the action of its virus as a starting point.

Syphilis has a well known influence and modifying power over other diseases, and is perhaps the best example of the kind that could be adduced—but not the only one. Why may not vaccinia also have a like action? Certainly it has a profound influence over the system, and Dr. Ross uttered no doubt a truism of some moment, when he wrote that the activity of the virus did not cease with desiccation. At this stage of the argument, we must necessarily ask ourselves, what then becomes of the vast amount of virus obtained from all quarters, and introduced into, and spread abroad among the human species by the process of vaccination? for we must admit, that the activity of the virus does not wholly cease with desiccation in vaccinia.

The view which I have illustrated in these remarks is by no means closed to innovation. In attempting a solution of the matter of impetigo contagiosa, the conclusions have been necessarily arrived at by a process of strict logic, it is hoped, and from premises which are the correct interpretations of our present stock of facts. Of course, at first sight, the usefulness of Jenner's great work would appear to be assailed; but such an idea can only be entertained as the result of very imperfect thought. The vaccination of a healthy subject, with good and true lymph, must remain the great godsend it ever has been; but, like all other parts of the great machinery of civilisation, it has become associated with a certain degree of alloy which gives rise to deviation from its original purity; and surely the investigation of the subject (imperfectly sketched now), can only tend to the more full perfection of vaccination. Indeed, by it, we shall be enabled to decide what cases, what character of lymph, and what source are to be chosen in the operation. I repudiate then, emphatically, the opinion that the discussion of the subject has been made upon insufficient data, or that it is likely to impair the utility of Jenner's great discovery. Nor is the idea that old prejudices are likely to be thereby fostered and strengthened, worthy of notice. These are much more likely to be annihilated by that free criticism which removes the errors of past doings, and filters out the truth.

[To be continued.]

VACCINATION. A deputation of the Epidemiological Society, consisting of Dr. Milroy (president), Dr. Waller Lewis, Dr. Mackay, R.N., Dr. Francis Bowen, Dr. Camps, and Mr. J. N. Radcliffe (honorary secretary), had an interview with the Lord President of the Council and Vice-President, on Friday the 12th inst., and submitted to them a report on small-pox and vaccination. They recommend "That the Council should at once take steps to press upon Her Majesty's Government the very urgent necessity of amending the vaccination laws."

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

MONDAY, MARCH 28TH, 1864.

R. GREENHALGH, M.D., President, in the Chair.

INDIGESTION IN EARLY PHTHISIS.

BY E. SYMES THOMPSON, M.D.

THE author observed that indigestion in phthisis was regarded by some as a part of the malady dependent on impure blood; by others, as but a casual complication, tending, by its depressing influence, to the production of tubercle. In fifty cases of undoubted consumption, tabulated with a view to this inquiry, dyspeptic symptoms were found to exist at the commencement in about one-half. In one-fourth, the disease seemed to follow inflammation of the lungs or of the pleura. Cough was the first symptom noticed in one-fourth; and shortness of breath in about one-eighth of the cases. Hæmoptysis, though frequently an early symptom, was rarely the first.

Without referring to the derangements of the later stages of phthisis, except to state that those who early suffer most from dyspepsia are subsequently prone to diarrhoea, the author passed to the consideration of the first variety of indigestion—especially common in hereditary cases—in which the general feebleness of the digestive functions is traceable to a want of constitutional vigour. The food is slowly digested, produces a sense of fulness and pain in the epigastrium, and between the shoulder-blades. The gastric juice may be copious; but it is too weak to perform its function: hence arise waterbrash and sour eructations, or the secretion is diminished; the mucous coat becomes dry and abraded; and the red glazy tongue, flushed face, and epigastric oppression, afford evidence of the diseased condition. In these cases, the feeble organ must not be overcharged; by diluting the food, we may hasten its passage through the pylorus. Milk is the simplest diet; and, when mixed with lime-water, passes uncoagulated through the stomach. But when the digestive power of the small intestine is deficient, animal food, which is the longer retained and more completely digested in the stomach, should be preferred to vegetables, and fat must be interdicted. Where solid food can be borne, a little nicely cooked meat, with aerated bread toasted, may be taken in the morning, when the stomach is most vigorous. Stimulants should only be given when they help digestion. Nauseating physis, violent exercise, cold, and anxiety, must be avoided; but gentle out-door exercise, cold or tepid sponging, with friction of the skin, encouraged. The good effect of active occupation of the mind and body, though acknowledged in ordinary dyspepsia, is often disregarded in consumption. Food is best taken in small quantities at frequent intervals; for it has been shewn by Dr. Edward Smith, in his recent Lettsomian lectures, that the pulse rises often ten or twenty beats after a full meal; but when nourishment is taken in small quantities throughout the day, it is far more equable. Allusion was then made to a paper read before the Royal Medical and Chirurgical Society in 1861, in which Dr. SYMES THOMPSON had shewn the great importance of keeping the pulse at a low and even standard, and the influence of ozone, compared with digitalis and other sedatives. If acidity of stomach exist, it is due, not to an excess of gastric juice, but to a deficiency in its solvent principles, the mineral acids given at meal times relieve it, alkalis being prescribed in the intervals. Pepsine