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ON

IMPETIGO CONTAGIOSA,

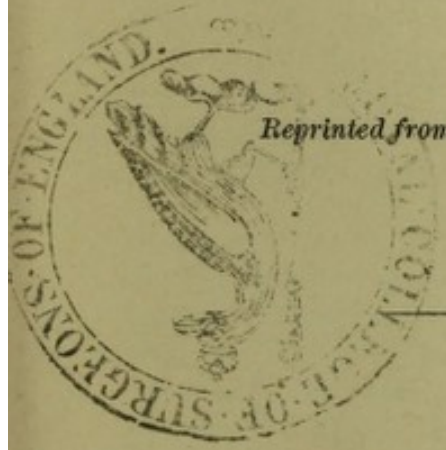
OR

PORRIGO.

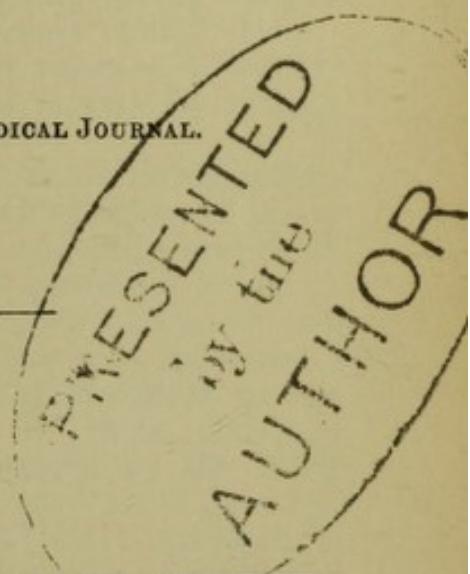
BY

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The history of the American College of Physics is a story of scientific progress and discovery. It begins with the early experiments of Galileo and Newton, who laid the foundations of classical mechanics. The work of Kepler and Descartes further advanced the understanding of motion and light. The 17th and 18th centuries saw the development of calculus by Newton and Leibniz, which provided the mathematical tools necessary for the study of physics. The 19th century was a period of great achievement, with the work of Faraday and Ampere leading to the discovery of electromagnetism. The 20th century has been a time of rapid advancement, with the development of quantum mechanics and relativity. The American College of Physics has played a significant role in this history, contributing to the understanding of the physical world through its research and teaching.

ON IMPETIGO CONTAGIOSA, OR PORRIGO.

CERTAIN diseases, which exhibit in the main the characters of a sporadic nature, occasionally put on an epidemic garb. We see examples of this truth among the out-patients of large hospitals and dispensaries, in the occurrence of a "run" of cases of this or that disease. During my connexion with the Farringdon Dispensary, I have met with a large number of cases of an affection which has no description in books, or has been defined only in a vague, unintelligible manner. Its apparently epidemic nature is explained, in some degree at least, by its contagious quality; though, no doubt, the predisposing causes are more active at one than at another time, giving rise to what the French term "an epidemic constitution". If, however, a case of the disease referred to occur, others will speedily be produced, merely by simple contagion.

Porriigo is the favourite modern name for the affection; but porriigo has been applied at different times to denote very many dissimilars, especially eruptions on the scalp, whether vesicular, pustular, or squamous. Under all circumstances, it will be much the best to discard altogether a term whose indiscriminate use has been a fertile source of confusion in the nomenclature of skin-diseases. To those *parasitic* diseases which have been designated by the word porriigo, the generic term *tinea* is applicable, as a decided simplification. If used at all, the word porriigo should be restricted in its application to the disease now about to be described, known by some as the contagious, by others as the scrofulous impetigo, the

porrigo Startinii, or contagious porrigo; but I agree entirely with the suggestion of my friend and colleague, Dr. Frodsham, that, *quoad* this disease, the word porrigo should be discarded and forgotten, and its place supplied by *impetigo contagiosa*.

At the outset, I had better state clearly that *impetigo contagiosa* must not be confounded with ordinary *impetigo*; they are absolutely distinct. Mr. Startin, if report be correct, fully recognises the existence of a contagious form of *impetigo*; but I am not aware of any published account from that gentleman's pen. In the BRITISH MEDICAL JOURNAL for November 28th, 1863, is a description, by my colleague Mr. R. W. Dunn, of porrigo. He says it consists of large dirty straw-coloured spots, flattened, of irregular shape, seeming as if they were stuck or glued on the part, without any inflammation at their bases; mostly seated on the scalp, but found also on all parts of the body. When the face is attacked, the spots are a little more regular; they discharge, and commence originally as papules, which become pustular. Mr. Dunn thinks it is of parasitic nature; from this opinion I entirely dissent.

Characters. The disease varies considerably in aspect, according to its seat, as I have narrowly observed. It occurs mostly on the face, where it is generally unilateral, and seated especially about the angle of the mouth and side of the nose; also on the limbs, anteriorly and posteriorly; on the trunk especially, about the shoulders, the neck, and the buttocks. The constitutional symptoms which usher in the complaint are generally sufficient to make the friends declare the child "poorly", unable to take its food properly, "mopish", and the like. The local characters of the disease show themselves as little white, apparently vesicular, or more truly pustular points, just tinged at their bases with slight redness, and generally possessed of little pain. These points, which are always isolated and distinct at the outset, speedily enlarge and umbilicate to a more or less perfect degree. Now and then, coalescence takes place between two or more pustules. This is seen especially on the face. The next change is the assumption of the characters of a perfect pustule, which may desiccate, leaving a dark dry scab, depressed in the centre generally, through or from beneath which

oozes out a little thick pus or puriform discharge. Each spot increases in a perfectly centrifugal manner, until, in about a week, it attains the size of a shilling or so. A characteristic aspect is then presented; the disease looks like a flattened bleb, whose central part is depressed and shrunken; the contents giving an opacity; while the margin of the bulla, as it now may be termed, is formed by a perfect ring of varying breadth, which has the look of wet soddened white leather, just as though the central part were circumscribed by a collar composed of upraised and blebbed epidermis; and this circumferential ring enlarges *pari passu* with the bleb.

It becomes an interesting question to determine the exact value to be attached to the umbilication in impetigo contagiosa. I hold it to be almost diagnostic. Of course, it is only seen perfectly in the early stages. In pemphigus, the uplifting of the cuticle and the subsequent distension is *extreme* and perfect, and the contents are serous; in impetigo contagiosa, some differences exist. It has been said that the umbilication is simply due to the presence of a sweat-gland, tying down the centre of the bulla or pustule, whichever it may be. This, however, is certainly an erroneous explanation. The depressed condition is secondary to distinct distension, and is brought about by the peculiar nature of the disease and the character of the secreting surface. At the outset, the secretion is pretty free, but presently becomes lessened and more plastic, while the surface which pours it out tends to ulcerate; hence the part where the disease commenced—viz., the central part of the bleb or pustule—will be less distended, perhaps begin to desiccate, while the secretion is going on freely at the extending circumference, so as to produce the comparative aspect known as umbilication.

The so-called bleb or pustuloid may attain to a considerable size. The contents are peculiar; there is generally more or less pus; and always, at the early stage, at the bottom a little pellet or *bouton* of mucous consistency (aplastic lymph), which can be removed, and then leaves to view a little conical pit of ulceration. The discharge dries into crusts, tolerably thick, which adhere for many days, and then fall off, leaving ulcerated surfaces. If the crusts be detached by the finger, a nasty sticky puriform fluid is seen to

cover the surface of the ulcers; these latter give out a greater or less amount of discharge, which again concretes in crusts. Fresh pustulations occur, so as to prolong the disease for a period of from three to six or eight weeks. Each spot lasts a variable time—ten days or more—leaving, in process of cure, a dull red stain. The scabs may become quite black from the commingling of dirt with the discharge.

The disease is always characterised by the presence of *circular* umbilicated *quasi-bullous* spots, which increase centrifugally, and become covered by yellowish flat crusts, which cover over superficial ulcerations of an unhealthy kind, leaving, in process of cure, dull red stains.

Modifications. There are several modifications worth considering. There may be but one solitary spot. A short time since, I saw a most typical example in a patient of Dr. Frodsham. The crust was of about the size of a florin, or nearly so. This solitary spot may be seated on the face or head; rarely on the trunk, except as the consequence of direct contagion or inoculation. When seated on the head, the crusts are very perfect, inasmuch as the hairs help out the matting together of the mass. On the scalp, the disease possesses the characters ascribed to it by Mr. Dunn. The so-called porriginous spots always commence as small elevated isolated points. They are always a primary form of disease; the crusts are circular, or nearly circular, isolated, yellowish, adherent, granular, and pretty dry.

I have seen this form of impetigo associated with strumous ophthalmia, and with otitis, both of an acutish kind. More than this, I have seen the mucous surfaces affected; all these states being dependent evidently upon the cause which gives rise to the impetigo.

On the face, it is not unusual to notice several separate foci of disease, running together into an irregular, oozy, cracked, scabbed patch. In this state, it is not unlike eczema impetiginodes; but almost invariably the peculiar umbilicated pustuloid or peculiar ulceration will be found. Again, on the surface (and head especially), there is usually little if any redness around the bases of the different spots; though they may be as large as a shilling. Occasionally, however, there is a marked exception to this rule; and there

may be an intense inflammatory areola. I have seen a considerable degree of inflammation of the derma and subcutaneous cellular tissue, the erythema having a dull red hue.

In situations where the cuticle is thick, it occasionally happens that the bulla, instead of becoming umbilicated, is upraised in the centre, and filled with a thin puriform fluid; but, under these circumstances, there is an opening at its centre, through which the contents ooze out. The discharge does not observe any regularity, but takes place capriciously. Now the pustuloid (or bleb) is apparently desiccating; now it rapidly fills; and the covering or operculum is always white, looking soddened, as though the parts had been scalded. The spots are solitary; and I have always seen this either at the point of the elbow or the back of the joints of the fingers.

Now and again, the separate pustuloids are confluent; but even here their distinct individuality can be made out, and there is no crusting over to such a degree as to make it appear as one large pustule.

The degree of ulceration varies. It is always tolerably superficial, and presents a soddened, pasty, gelatinous aspect, due to the character of the secretion. The edge of the patch of ulceration is sometimes peculiar. It is often that which is seen in other diseases called "scrofulous", particularly when the sore itself is the seat of diminished or scanty discharge; viz., indurated, elevated, of a dull red hue, and slightly inverted, like some instances of lupus; only this state is of short duration, comparatively speaking. In other words, the ulcer, which is circular, may be bounded by a well defined, rounded, raised, and dull red margin of thickened integuments. It is from this feature, among others, that one is led to infer the existence of a scrofulous taint in the totality of the disease.

Microscopic Characters. I have made some very careful microscopic examinations of the crusts and secretion of impetigo contagiosa. In an early state, when the isolated points first make their appearance, there are present a few pus-cells perhaps, but chiefly a homogeneous blastema, with more or less fat, epithelial *débris*, and the like. In the more fully developed condition, the same elements are seen, but with a decided comparative preponderance of pus-cells.

The scabs are composed of foreign substances (cotton, fibres, etc.), epithelial cells in different degrees of development, homogeneous plasma, pus-cells, fat, hairs, and parasites (animal and vegetable). I have never detected any sign of the presence of the *acarus scabiei*; but have noticed most perfect specimens of the steatozoon (*acarus*) *folliculorum*; and in several instances the spores and filaments of *trichophyton*, but in others not a trace; and, from all considerations, I believe the presence of the latter is an accidental phenomenon. It is worth mentioning, that the small hairs in the crusts are invaded and split up by the fungus—a state which, whatever may be said to the contrary, is, practically speaking, diagnostic of the presence of a parasite, provided the hair so split up be a well developed one. In the *Transactions* of the Pathological Society (vol. vi) may be found the brief description and figures of a supposed new fungus observed by Mr. Hutchinson in the course of “contagious porrigo”. “Although”, he says, “a vast number of cases were inspected, I was, however, successful in only two in finding anything beyond the usual constituents of purulent crusts.” He adds: “Having failed to find, in so very large a proportion of the cases examined, anything at all similar to the bodies illustrated, I cannot, of course, suppose that the observation is of any value in relation to the pathology of the disease.”

One word more about the umbilication, as it has been termed. In some cases it scarcely, perhaps, amounts to more than is entitled to be called depression; but the tendency to marked depression in the centre, as compared with the circumference, is certainly the characteristic of the spots of *impetigo contagiosa*; and this feature is, as I have explained, dependent upon the peculiar behaviour of the secretory power of the disease. When thick crusts form, of course the aspect of umbilication is obliterated.

Causes. The disease exhibits no preference for sex. It attacks adults sometimes, but children most generally, and particularly those of the lower orders, of scrofulous habits—the fat, flabby, pale, thick-nosed, and light-complexioned ones. Want of cleanliness, light, and air, and wholesome food, help out its evolution. The disease not unfrequently follows in the wake of, or appears to be caused by, vaccination; at

other times, it has no direct dependence whatever on this. In a person predisposed to the disease, it is not unlikely that any local irritant would call it forth into tangible existence.

Nature of the Disease. This part of the subject is replete with difficulty; and great care must be exercised in sifting and interpreting the evidence, for any hasty assumption must inevitably do much mischief. We have to deal with a disease which is eminently contagious. Now, it has been observed, that an eruption of the kind under notice is observed after vaccination. The unbalanced state of system produced by the action of the vaccine virus is favourable, no doubt, to the occurrence of any disease to which there is a predisposition, or which is waiting to show itself. Moreover, the vaccination may be the means of introducing specific poison into the system. Hence we have several interesting questions suggesting themselves for discussion.

I. The contagious property of the disease: What is its nature?

II. What, if any, are the relations between impetigo contagiosa and the eruptions secondary to vaccination?

III. Does vaccination give rise to impetigo contagiosa? If so, by what means—by the introduction of a special poison, or by modifying existing disease?

These are questions well worth consideration.

I. Of the contagious character of the disease there can be no shadow of doubt; facts are very decisive upon the point. It has possibly been noted by others than myself, that most dermatologists admit, in a hesitating way, the likelihood of the existence of a contagious form of impetigo, especially in children; but, so far as we are taught, there is no decided opinion in the affirmative expressed in books. Of course, it is only in hospital and dispensary practice that the proper evidence is likely to be obtained. My attention was first decidedly drawn to the point by the case of a little boy who had contracted (unmistakably) the disease from the bite of a playmate affected with the disease. The mother of the child scratched her neck with the steel of her bonnet; and the wound, coming into contact with a spot on the forehead of the child when lying on its mother's neck,

received some of the purulent discharge, and a well marked spot of impetigo contagiosa was developed. It has also been a matter of constant remark with me, how very frequently the disease extended from one to several members of the same family by pure contact—from children to mothers, from playmate to playmate, etc. So distinctly and clearly is this the fact, that the testimony of parents and others is *spontaneously* offered; and, making all due allowance from whims and fancies, there still remains a decided and irresistible amount of evidence in favour of the opinion which these folk hold.

From the uncertainty of the above, an appeal was at once made to the certainty of the experiments of inoculation upon the arms of myself and others. I took some of the viscid contents of the pustuloid, and introduced it to a scratched surface on the anterior aspect of the forearm of a woman. Within twelve hours, the edges of the scratches were red, slightly swollen, and itchy. The next day, a slight blush was seen; the centre of the little patch looked elevated into a little red point; and in forty-eight hours it presented the appearance of a little yellowish head. On the third and fourth days, a well marked areola was present. Desiccation now commenced; the centre, before depressed, puckered together; and a little oozing took place from beneath one edge. The size of the spot was one between those of sixpence and a shilling. The parts around felt hot and stiff. The future progress of the inoculation is that of the disease itself. Either healing occurs, or an oscillation takes place between suppuration and scabbing, or the surface ulcerates superficially. I desire to call attention to the very important fact of having most carefully examined the contents of the pustuloid bleb which has afforded the matter used in the inoculation, and affirm most positively the absence of any element whatsoever of a vegetable parasite. The inoculated disease is positively not due to the transplantation of a fungus, but of a fluid possessed of special properties. One very important conclusion flows from the facts mentioned, and it is this; *that impetigo contagiosa is in no sense parasitic*. This is one great step gained on the negative side of the question.

II. The second question, expressed in general

terms, embraces the alliances and similitudes of the disease. Its contagious quality separates it in one respect, by a very broad line, from ordinary pustular and vesicular affections, such as ecthyma and pemphigus. Can it be ranked at all among the acute specific diseases? Scarcely so; but actual observation would certainly seem to show that some, at least, of the examples of "anomalous forms of vaccinia", belong to impetigo contagiosa. My attention was called by Dr. Harley, during a conversation, to some cases published by him in the *Medical Times and Gazette* for August 1863, which he styled "Bastard Vaccinia", with a query. Briefly stated, they are as follows.

A child, aged 2 years and 3 months, vaccinated January 9th, on February 9th was brought to Dr. Harley, covered on its face and neck by a number of vesicles, which, at first glance, appeared exactly like vaccination-vesicles. The report was, that the vaccination took well; but, about three days after it was done, several "spots" appeared behind the left ear, and others on the face during the course of the next few days. Nothing is said as to the quality of the matter. Behind the left ear there was a large sore, caused by the coalescence of the vesicles; and round its lower margin the discharge had dried and formed a thick yellowish scab. On the left arm were three large erythematous-looking spots, with red bases, and covered by dense yellow crusts. These were the original vaccination-vesicles. There were three smaller vesicles, in a less advanced stage, at the tip of the shoulder; and on the neck were several having the exact appearance of vaccine vesicles on the eighth day. In some, the pit in the centre was quite visible; in others, not so well marked. On the head were a few vesicles, and on the surface about twenty, with all the appearances presented by the true vaccine vesicles from its earliest to its latest stage. The disease lasted about a month.

The second case occurred about three weeks after vaccination. The inoculation with some of the discharge reproduced the disease; but the pustule was very much more advanced in its different stages.

The third case was quite independent of any vaccination.

I believe that these and like instances give us the

clue to the nature of *impetigo contagiosa*. Certainly the resemblances of the two classes of cases are most decided. *Vaccinia* is a very regular disease as to time and intimate changes; its periods of incubation, eruption, pustulation, maturation, and desiccation, are marked by most certain limits of known and expected occurrence; but the cases quoted of so-called "bastard *vaccinia*" are peculiar in several particulars. In them, the disease is made up of successive crops of eruption; the changes are more rapid, and irregular in point of time, and cannot in all cases be immediately connected with the introduction of the vaccine virus into the system. The great resemblance is the umbilication in the two instances. I saw, not long since, a case of true *impetigo contagiosa*, in which there were eleven umbilicated small bullæ over the knee, with spots of *impetigo contagiosa* on other parts of the body; the former bearing an exact resemblance to some instances of *vaccinia*, yet totally unconnected therewith. In these instances of so-called bastard *vaccinia*, it seems very strange that vaccination should take "well", as people have it, and then be followed by a profuse eruption of *vaccinia* just afterwards. It will be noticed that, in one of Dr. Harley's cases, inoculation was comparatively much more advanced in its developmental stages than *vaccinia*—a state of things which tallies most completely with that of the inoculation of *impetigo contagiosa*.

We have logically arrived at thus much: that the disease is not parasitic; and that it bears great resemblance to, if it be not identical with, so-called bastard *vaccinia*, meaning by that term the eruptions consequent upon vaccination.

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 deserve 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 erythemato-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 in-

stances 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—*ex.*, 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 versâ*; 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 aphtheuse* 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 porrigo 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.

Diagnosis. Impetigo contagiosa or porrigo contagiosa, differs from the *contagious furunculoid* described by Dr. Laycock in the *Edinburgh Medical Journal* for Oct. 1856. Dr. Laycock thinks that the furunculoid forms, viz.: simple furuncle, effusive inflammation of the derma (phlyctenæ), suppurative inflammation (ecthyma), carbuncles, gangrenous inflammation, phlegmon (diffuse inflammation of the cellular tissue) and whitlow are associated as to cause with epidemics of eruptive diseases, due to the action of virus prevailing epidemically. A good many of these forms are erysipelatous; the character of the result depending upon the nature and extent of the tissue affected—commu-

nicable from one to another, and from one part to another, it is affirmed. Reference is only casually made to this class, with the view of showing that confusion has been carefully and completely avoided.

No confusion of the disease with variola or typical vaccinia can arise; but the disease may very fairly be confounded with pemphigus, ecthyma, rupia, eczema impetiginoides, and impetigo simplex.

Pemphigus. Impetigo contagiosa is umbilicated on the surface; the contents are puriform, not watery; the blebs are all round, and not oval or distended, as in pemphigus. The smaller pustules are conjoined. The scabs are yellow, flat, and adherent. The disease, too, affects the face and the scalp, where it is seen to develop as isolated spots, commencing from little pustules. Lastly, it is contagious, and often traceable to vaccination. All these latter features are wanting in pemphigus.

Ecthyma is made up of phlyzacious pustules. There are no umbilicated pustules or blebs, but more induration at the base. The eruption does not occur on the head and face, as a rule; it is not contagious; and it does not break out in the *superficial* wet-leather-looking ulcerations, with a dark red blush about them. The ulceration is *deep*, and the areola well defined, in ecthyma. Besides, the history of the case is different from that of impetigo contagiosa.

Rupia. Impetigo contagiosa never possesses the scabs of rupia, the bloody or sanguinolent contents of the apparent blebs. The latter, in rupia, are not umbilicated. Rupia does not occur on the face or head, in the way that impetigo contagiosa does; but it has a history of great debility or of syphilis, and occurs chiefly in adults; whereas the other is almost peculiarly limited to the child.

Eczema Impetiginoides. Impetigo contagiosa, when on the face near the mouth, may assume the aspect of eczema impetiginoides; but we mostly find scattered around the edge of the patch little minute pustules, which show the origin of the disease, perhaps in conjunction with characteristic pustuloids or ulceration elsewhere. But impetigo contagiosa may be positively limited to the face; and then careful examination will show that the patch is made up of the fusion together of little circular ulcerations. There

are not only cracks, but distinct ulcerations of a circular form.

Scabies. I have positively seen the disease mistaken for scabies. When seated about the back, buttocks, or legs, it may certainly present a rough likeness to the severe form of scabies seen in unhealthy subjects—a form of disease which is quite familiar to those who have attended Dr. Jenner's *cliniques* on skin-diseases. But scabies does not occur on the face, and but very rarely, if at all, on the head; though it is certain that it may give rise to eczema capitis by mere sympathetic irritation. At all events, impetigo contagiosa develops from pustules; it possesses no vesicles with cuniculi; nor can the acarus be found. It does not attack the buttocks of children by preference. Itching may be absent. The eruption is not multiform, yet characteristic in the pustuloid stage. The contagious quality of the lymph is distinctive; inoculation will settle any dispute in forty-eight hours.

Impetigo Simplex (non-contagiosa), a degree of eczema, is not confined to age; is not so amenable to treatment; always follows or accompanies eczema; *always* develops out of the latter, on the scalp. In other words, it is not a *primary* form of disease, and it is non-contagious. There is more redness around the base of the pustule in impetigo simplex.

There may be but one spot in impetigo contagiosa, and that is usually absolutely characteristic.

The character of the eruption (its circular form and umbilication, etc.); the isolation of the several spots, as a rule, on the general surface; its connexion with vaccination; its occurrence chiefly in the child, and on the face and head particularly, assuming in the latter situation the aspect of circular, isolated, well defined, flat, yellow granular-looking scabs, developed from primary pustules; the implication oftentimes of the mucous surfaces; its contagious quality especially; the results of inoculation; its similitudes; the character of the ulceration and the tint of the areola,—mark impetigo contagiosa as an essentially distinct disease. *Impetigo rodens*, I suppose some would name the severer cases; but this designation really refers to a mixture of several ulcerating diseases.

The subject of impetigo contagiosa was brought before the notice of the Harveian Society, in Decem-

ber last year, by myself; and, in the accounts in the medical journals, Dr. Hillier is reported to have said that "I had mixed up several diseases under the head of porrigo". Now, it is evident that not only was my differential diagnosis and description of the disease very full, but that the confusion, if any, existed in Dr. Hillier's own mind—probably brought about by the hold which the unfortunate word "porrigo" obtains over dermatologists. There can be no question that many of Willan and Bateman's cases of "porrigo larvalis" were instances of the disease now under notice. The references made to porrigo tonsurans and porrigo scutulata, etc., were introduced into the discussion in the face of the opening remarks of my paper, which were framed to show the absolute separateness of parasitic disease and (as I called it) impetigo contagiosa. Dr. Hillier's remarks afford additional proof to my mind that the word porrigo is a most undesirable one in the nomenclature of skin-diseases, though the great authority of Mr. Erasmus Wilson still sanctions its retention, restricting its use to the parasitic group. Porrigo, if it be a derivative from *porrigere*, to stretch or spread out, is certainly very descriptive of impetigo contagiosa of the scalp; but it would appear to signify rather "squamous"—"a porro, quia, ut porrum in tunicae involucra, ita cutis velut in squamas resolvitur," as lexicographers have it. All confusion will be best avoided by rejecting *in toto* "porrigo".

Another point worth noticing is the occasional rarity of impetigo contagiosa. Always keenly alive to anything of interest in skin-disease, during the whole course of my stay at University College I rarely saw impetigo contagiosa. Now and again cases occurred which have been categorised as impetigo; and yet which, in some way, would not fit the ordinary descriptions of the latter, but which are now capable of appreciation. Nor have I seen the disease so well developed, or in such an amount and extent, as during the past year at the Farringdon Dispensary; and, therefore, it is not at all unlikely that many who read these remarks may at first demur to them, and, indeed, imagine that at present there cannot be sufficient data from which to arrive at a trustworthy conclusion. Indeed, if my memory serve me, the objections already made have come from those who,

although engaged in extensive skin-practice, have yet seen comparatively little of the disease.

Treatment. Clinically speaking, we find, in treating the disease—

1. That many cases get well if left alone; but this is a tedious affair.

2. That a more efficacious plan of treatment is that in which the internal administration of cod-liver oil and iron is combined with the local use of soothing applications—*ex.*, zinc ointment.

3. That a still more successful plan is to give cod-liver oil and iodide of potassium internally, and to apply externally sulphur ointment—a plan of treatment recommended and sanctioned by my colleagues.

I think we may safely conclude that the latter is the “basis” of successful treatment. It must be remembered that the disease occurs among the lower orders, and especially in delicate and strumous subjects; that it also follows vaccination, and is eminently contagious. Nature is able sometimes to carry on the suppurative and desiccative processes quietly, and to overcome further mischief by the establishment of convalescence; but there evidently is a low state of vital power, which antagonises this good effect, and leads to ulceration; hence we must always enjoin a tonic plan of treatment. At the outset, we may have a good deal of febrile action; this must be kept within due bounds by the ordinary means.

The local treatment is most important. The chief point is to remove all scabs (*pediculi*, according to my own observations, are rare). The scabs must be removed, and the medicaments applied to the subjacent sore surfaces. Sulphur ointment is the best. Solution of nitrate of silver, the solid salt itself, zinc ointment, iodide of potassium ointment, acetate of lead lotion, or benzoin, may also be used. Sulphur has probably no very special charmed action in this disease, any more than in other cases—*ex.*, lichen, psoriasis, pityriasis, etc.

We must be careful to prevent all methods and modes of contagion; but, with the exercise of the greatest care, the disease will in all probability spread from one to several members of the same family.

CASE I. (August 24th, 1863.) R. G., aged 6 months, was vaccinated eight weeks ago. The operation

succeeded admirably; but the spots never actually healed up. Four weeks ago (a month after vaccination), a place "broke out", about the size of a three-penny-piece, on the arm; it was like "a little flat bladder. At the present time, there is one on the nose; one on the left thigh, of the size of a split pea: and another, about as large as a fourpenny-piece, on the right leg, with a cluster of the size of a florin, made up of five circular slightly confluent pustules; at the back of the thigh is a place of the size of a shilling. The centre in each is depressed, the edge raised into a border about one-eighth of an inch broad. There is not the least history or evidence of syphilis. There is no blush around the little bullæ. The patient was ordered quinine and zinc ointment.

Aug. 28th. There was another spot on the belly, and one on the knee. The other spots are now surrounded by an annulus of soddened-leather aspect.

Sept. 11th. The eyelids are swollen. The face is one mass of scab, of ordinary "porriginous" character. There is a fresh place on the arm, which looks like an angry bulla, depressed in its centre. The old spots have enlarged by centrifugal increase, and are partly scabbed over. The one on the belly has attained the size of a shilling. They discharge a viscid secretion, especially in the morning. The general health is "good" (?) There are spots on the head.

Sept. 14th. The patient has high fever; the urine is febrile. The spots have increased in size; are inflamed; and they discharge freely. The leg is red, swollen and œdematous, tender, and hot. Saline aperients were ordered.

Sept. 18th. The patient was better in every way.

Oct. 5th. The places have scabbed over with flat crusts, and some have dropped off, leaving dull red dusky stains.

The child quickly recovered, under tonics and zinc ointment. Sulphur ointment did not agree with it.

CASE II is very instructive. It was seen August 28th, 1863, for the first time. E. B., aged $2\frac{1}{2}$, was bitten in the arm by another child affected with so-called "impetigo of the head" (seen). On the arm is a patch, of about the size of a shilling, in the site of the bite; and this patch, when compared with others which exist elsewhere, is clearly seen to be the most

advanced in duration and changes; in fact, here the disease evidently first showed itself outwardly. Immediately contiguous are four or five little blebs, of about the size of threepenny-pieces, circular, raised slightly, and looking like little flattened blisters; they are not confluent. The fingers of the right hand are also affected. On the forehead is one bulla, and on the cheek another. The child is ill and fretful. The history given by the mother is this: that, on the fifth day after the bite, the child was awakened by fever and vomiting; it could not sleep. The marks of the teeth then became hard; they "gathered", and ran into sores. On Sunday (20th), the eighth day after the bite, the third day of the eruption, the child began to "break out" all over, first the bites, then the fingers and thumb, then beneath the elbow, on the forehead, and chin. The bite, as the mother described it, "came out like scalds". Some of the spots are scabbed, in the way imagined to be characteristic of "porrigo". There is very little discharge; but the spots, which have assumed a pustuloid aspect, contain a gelatinous fluid, filling up an ulcerated pit. The general health has always been good. The mother has a spot on her neck. Another little boy, a brother, has two very characteristic spots of so-called "porrigo" on his abdomen.

CASE III was that of the father of two children who had been under my care for "porrigo". He was an intelligent man, who described the history of the disease very well indeed. He had a spot on the back of the left hand, at the root of the little finger; and one also at the point of the elbow. He noticed the disease as a "bladder-like humoury head", which kept spreading centrifugally. At first the spot was of the size of a shirt-button; now it is as large as a shilling, dull red at the base. Yellow matter oozed away at first; now there comes "pale blood", or matter. The patient did not feel ill. The spot at the right elbow-joint enlarged for ten or twelve days, with a little "humoury ring"; the centre of the spot being depressed, and the lymphatic gland above the right elbow being enlarged. (Oct. 23rd, 1863.)

CASE IV. A. D., aged 12 months, was seen on Monday, October 29th, 1863. On the previous Tuesday, one of the eyes became inflamed—"blood-shot"; the lid became rapidly swollen, with at first little

discharge, the lids sticking together; and at the same time a great many "pimples" made their appearance on the face. Last Saturday (Oct. 27th)—*i. e.*, two days since—the child seemed ill, feverish, and cross, and was attacked by a severe cough. On one of the shoulders, near the root of the neck, appeared four umbilicated bullulæ, of about the size of split peas, slightly confluent, with two others quite isolated. They have the aspect of scalds. There is a great "running" at the nose. The eye is inflamed, and discharging pus. The external part of the ear (the pinna) is sore; and on the inner aspect is one pustular spot, of about the size of those on the back, depressed in the centre, looking just like some examples of variola. With cod-liver oil and zinc ointment, the child got well; the later progress of the case showing the peculiar crusts of "porrigo".

This was a good example of so-called bastard vaccinia—a transition stage, it would appear, between vaccinia and impetigo contagiosa. The changes as to time and character were different from those of variola or vaccinia; and yet, in external aspect, one could not fail to see some relation. The disease lasted about a month. I have never seen the exact like of the case before, and at first it puzzled.

CASE V. E. D., aged 2 years, seen September 3rd, 1863, was vaccinated four months ago. The operation succeeded admirably, and the sores left healed up perfectly. The child is in good health, and there is no evidence of scrofula in the family history. It appears that an elder brother was laid up with small-pox, and this child was vaccinated in consequence. There is a "porriginous" spot on the left arm, at the seat of vaccination; also on the right arm, between the buttocks, on the head, and on the right thigh. There are on the left arm six circular spots in the six separate punctured (vaccinated) places; they are dull red, quasi-squamous, depressed below the surrounding integuments, feel harsh; their colour goes by pressure. There is no copper stain; and immediately joining is a yellow crusted spot. Just above the elbow is a circular patch, made up of aggregated spots, and freely crusted, of about the size of a shilling. On the forearm are two more; and above the wrist another place, of the size of a sixpence. Between the buttocks, the two spots are about as large

as a shilling, and possess a raised thickened edge, with depressed centres, and an ulcerating surface. Cod-liver oil, administered internally, was the sole remedy used.

The above five cases are quoted as illustrations rather of the more uncommon instances and aspects of the disease.

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