

fluid, but it soon separates into two portions, the one solid, formed of fibrine and colouring matter, the other liquid, and composed of serum. But it may be asked, why does the blood continue fluid in the vessels of a living animal? Why does not any accidental retardation of its course produce a tendency to solidification? This, undoubtedly, depends on some agency of physical causes with which we are as yet unacquainted. When first viewed the blood seems to form a uniform mass, but if submitted to the microscope it presents myriads of small bodies of a lenticular shape (and not globular, as was formerly thought), floating in the midst of limpid serum. These little lenticular bodies are constantly rolling, one upon the other, and traverse tubes more delicate than the finest hairs, with the greatest facility. There is no product of science to be compared with these wonderful mysteries of our organisation, the whole of which is governed by a harmony of design, and an *ensemble* of actions, whose results alone we can attempt to analyse.

GLANDERS,
PRODUCED IN A MARE,
BY THE INOCULATION
OF MATTER TAKEN FROM THE
BULLÆ AND PUSTULES OF THE
MAN—PROST.*

TRANSLATED FROM THE FRENCH OF M. RAYER,

By T. H. BURGESS, M.D.

ON the evening of Prost's death (Feb. 12, 1837), M. Vigla gathered upon watch-glasses, a certain quantity of the sanious matter issuing from the gangrenous bullæ situated beneath the ear, and some pus from a pustule on the forearm, and also from an abscess on the back and shoulder. M.

* Prost, whose case has been already noticed in an English journal, in the form of extracts, taken from M. Velpeau's "Clinique," although in so very brief a manner as to warrant me in giving the full details of this interesting case as published in M. Rayer's work. The following is an outline of Prost's case, as given by M. Rayer:—A groom sleeping in a stable, and near an animal affected with acute farcy glanders; typhoid symptoms; subcutaneous abscess; pustular and gangrenous eruption upon the skin; pustular eruption in the nasal fossæ and larynx; small abscess in the lungs; gangrenous eschars on the glans, terminating in death; inoculation of a horse with the matter taken from the pustule and bullæ of Prost, followed by the development of glanders, as may be seen by the subjoined report of the proceedings.

Leblanc inoculated, in my presence, and in the following manner, a foundered mare, (which, although thus rendered unfit for service, still did not present any other symptom of disease) with the different portions of matter.

1st. At the right nostril, he inoculated the pustular matter by three punctures, of which two were within the nostril and one external; the two first punctures gave rise to a weeping of blood, but the other produced scarcely any.

2nd. Upon the conjunctiva of the right eye he applied a small quantity of the matter taken from the pustule.

3rd. At the internal and superior part of the right buttock he inoculated the pus taken from the abscess by three punctures.

4th. At the internal and anterior surface of the right axilla he inoculated with pus taken from the abscess by three distinct punctures.

The left side of the animal was inoculated in a similar manner.

1st. The left nostril was inoculated with the matter of the gangrenous bullæ by three punctures, of which one was within the nostril. The puncture gave rise, like those on the opposite side, to a slight weeping of blood.

2nd. To the left eye he applied the humour of the gangrenous bullæ.

3rd. The internal and anterior surface of the axilla of the left side was inoculated with the matter of the gangrenous bullæ by three distinct punctures.

4th. The internal surface and superior part of the left buttock was inoculated with pus by three punctures. In fine, the entrance of the nares and vulva were highly impregnated with pus.

I have observed (adds M. Rayer) the effect of these different inoculations with M. Leblanc, who kept a diary of the proceedings.

The following are my observations:—

On the 13th and 14th, no appreciable change could be observed in the state of the parts inoculated. On the evening of the 15th, at 7 o'clock, slight circular and circumscribed efflorescence and swelling around the punctures on the right buttock; at the centre of the swelling a depression was observed, corresponding to each puncture; painful tumefaction in the region of the left buttock where the punctures had been made, and the matter of the bullæ inoculated. This unœdematous and hard swelling, extended a little below the punctures but not above. The circumference of the punctures of the wings of the left nostril were a little tumefied; there oozed a small quantity of serous liquid from the internal wing. There was also effused a little serosity from the punctures of the internal wing of the right nostril; but the circumference of the punctures was not at all swollen. The

pulse was normal; 48 pulsations in one minute.

On the 16th, at seven in the morning, no change was observed. The evening of that day the symptoms of inoculation were a little more marked.

17th. At eight o'clock in the morning the tumefaction of the punctures has increased; the tumours are more hot, more hard, and more painful. Upon the lateral part of the superior lip, near the commissure, and almost on the margin of the lip, were observed two elevated bands, about an inch in thickness; that of the left side is a little more elevated and elongated than that of the right; it is also more painful; the surfaces of both are slightly irregular. The eyelids of the left eye are greatly swollen; the conjunctiva, which was very pale before the inoculation (the horse being blind in consequence of atrophy of the eye-balls), is a little coloured and red. The air expired by the animal has a disagreeable odour; the orifice of the nostrils is smeared with a serous liquid. At five o'clock that evening the state of the horse is nearly the same. The swelling in the left buttock is extended above the punctures; it presents the appearance of a flattened band; it is also prolonged inferiorly. The pulse still normal, being 48 pulsations in a minute. The animal eats well; [temperature of skin natural.

The 18th, at seven in the morning: the nodulated tumours of the right buttock are united by a band very hot and very painful, which extends inferiorly beyond the puncture, passing about two inches beneath it. There is considerable blearedness in the external canthus of the left eye. The band on the left commissure of the superior lip is prolonged upwards, and is also extended backwards; there flows from the nares a serous fluid, more coloured and more abundant than that which was observed in the evening. In general the circumference of those punctures that were impregnated with the matter taken from the bullæ are much more tumefied than those of the other punctures. The evening: no change worthy of any notice.

On the 19th, seven in the morning, nearly the same state as on the evening previous, only the circumferences of the punctures in the nostrils appear more tumefied, especially on the left side. The respiration is a little more difficult. At 5 in the evening the nasal bruit is more marked; all the tumefied parts are very painful. The animal eats little, and that little with difficulty.

The 20th, morning: exasperation of all the symptoms; the band on the superior lip is extended to the left as far as the ganglia, which are a little tumefied and painful. All the tumours are circumscribed, and terminate abruptly after the manner of tumours, called *farcy*. The animal, with

much difficulty, is enabled to open the lips to take her food. In the evening, nearly the same appearances.

The 21st: the symptoms of infection are still more marked, and the local pain is more particularly increased in those parts where the inoculation was made with the matter of the *gangrenous bullæ*. The disease still proceeded steadily in its course for some days, and on the twenty-first day from the period of inoculation, the animal was killed, after having presented the symptoms of *pustular glanders* and *acute farcy*.

The following day I laid before the Academy a series of specimens extracted from the body of this animal, in the presence of my honourable colleagues, of M. Dupuy, of M.M. Leblanc, Bouley, Vigla, and Desir, all of whom, excepting M. Bouley, had been present at the inoculation of the animal.

The excised portions presented the following appearances:—

1st. The pustular eruption of acute glanders in the nasal fossa; the eruption was less strongly marked than in the case of spontaneous acute pustular glanders that I have observed, but the nature of which has been recognised by able veterinary surgeons present at the autopsy, by my colleagues (M.M. Andral and Velpeau) of the *Hopital de la Charité*, and many other physicians present.

2nd. Large ulcerations were observable at the entrance of the nostrils, in the inoculated spots, and other ulcerations of less magnitude upon points of the septum of the nasal fossa.

3rd. Upon the eyelids were seen ulcerations consecutive of the pustules which were developed in the substance of the skin.

4th. Small hepatised spots in the lungs.

5th and last. Bands and tumours containing pus, and formed in the submaxillary and glosso-pharyngeal vessels and lymphatic ganglia, affected with a specific and glandered inflammation, the nature of which was happily disclosed by the peculiar and characteristic eruption of the nasal fossæ.

I conclude thus. Prost slept in a stable occupied by a glandered horse. Some days after the death of the animal, Prost had been affected with a mortal disease, chiefly characterised by a pustular eruption on the skin, in the nasal fossa and larynx, ecchymoses, and gangrenous eschars below the ears, on the glans, on the feet, &c. &c.; by a small abscess in the lungs; by large collections of purulent matter beneath the skin, and, as it were, infiltrated into the substances of the muscles; and, in short, by those symptoms that are generally denominated typhoid.

* * * * *

I add, in fine, that a horse whose nostrils were perfectly sound, being inoculated with the matter of the bullæ of Prost, and kept in M. Leblanc's stable, had been infected with glanders. In presence of such facts

and such exceptions, I conclude with the entire conviction that Prost had had the glanders.

Glanders in the Human Subject.

M. Rayer has published, within the last few months, an interesting and valuable memoir upon the subject under consideration.* In this work the learned writer devotes the first chapter to the history of the disease, from its first discovery in man, down to the present period. He passes in review the various English, French, German, and Italian writers, who have treated of this important, though novel disease.

Dr. Copland, the able writer of the "Dictionary of Medicine," who has treated, with a master-hand, almost all those diseases which have as yet come within the limits of his work, is poor in his article on this subject. Dr. Copland dates the history of this disease from an article published in "Rust's Journal," in 1821, the particulars of which he laid before the *Medico-Chirurgical Society* shortly after. M. Rayer goes further back, and dates its commencement from a paper published by M. Waldinger, Professor of Veterinary Medicine at Vienna, in 1810, "who states that the greatest precaution is necessary in dissecting horses who died from glanders, or farcy, as the severest injury, and even death, often arise from inoculation."

Dr. Lorin published some observations on this disease in 1811, in which he mentions that a veterinary surgeon had his fingers affected with inflammation, in consequence of operating on a farcied horse. Dr. L., after employing several remedies in vain, resolved on extirpating the little tumours, which he did, and filled the wounds with pledgets of lint, imbibed with turpentine, which cured the patient in fifteen days. Sidow, a veterinary surgeon, published a paper in 1817, in which he stated that glanders was transmissible from the horse to man, causing the worst kind of ulcers. In 1821 Professors Nauman and Holbach, of Berlin, being interrogated as to this point, denied the contagion of glanders.

The first positive observation (adds M. Rayer), regarding this disease, was published by Schilling, veterinary surgeon at Berlin, in 1821, under the title of "Gangrenous Erysipelas, arising most probably from Animal Poison." This is the case, I presume, which Dr. Copland alludes to, and from whence he dates the origin of the disease. Professor Alexander, of Utrecht, also published a paper, in which are well described the various symptoms of "*acute farcy glanders*." More recently (continues M. Rayer), Dr. Elliotson, of London, and Professor Wolf, of Berlin, have ably treated of this

disease. M. Rayer cites a number of other writers upon this subject, amongst whom I may mention the name of Weith, 1822; Coleman and Travers, 1826; Prinze, Bayle, Brera, Kerans, Tarozzi, and Vogeli; some of whom (adds M. Rayer), have confounded this disease with "*Gangrene*," "*Putrid fever*," "*Typhus carbonex*," and "*dissecting-wound inflammation*."

M. Rayer sums up all the information that he has gleaned from the writings of the above-named authors, which, together with his own experience in this disease, enables him to come to the following conclusions:—1st. That man is liable to the infection of glanders, a disease which has been, until lately, supposed to be peculiar to the horse, the ass, and mule. 2nd. That farcy, which appears to be only a modification of glanders, may co-exist with this disease in man, the identity of which has been proved by inoculating the virus of the two diseases, as with that of farcy you may produce glanders, and *vice versa*. 3rd. That inoculation is not absolutely necessary for the production of glanders, or farcy, as sometimes the simple cohabitation with glandered animals seems to produce this disease effectually, from which we are led to infer that it is contagious. 4th. That glanders, in its acute form, from all that we can infer, appears to be an incurable disease; and up to the present all therapeutic means have failed against it.

M. Rayer's first case (the particulars of which are given in a full and distinct manner), is that of a groom named Prost, who slept in a stable where existed a glandered horse. The man became affected with all the symptoms of glanders. He was admitted to the *Hôpital de la Charité*, in February last, and died from the effects of this disease, after the lapse of a few days. This case occurred during my attendance on the above-named hospital; and I read with peculiar interest, in M. Rayer's memoir, his graphic description of the rise and fall of this intractable disease, as it occurred in Prost. Since that time I have seen two cases of well-marked glanders in the human subject, one of which is now at *St. Thomas's Hospital*, under the care of Mr. Tyrrell, who purposed inoculating some of the inferior animals with the glandered matter; the particulars of which this distinguished surgeon will, I have no doubt, lay before the profession in due time.

Glanders in the human subject is not, in my estimation, a disease of such rarity as we are led to suppose, from the scanty history of it upon record; for it would appear that this disease, or rather the symptoms of this disease, have been frequently described by writers, but under other and different names, and who have erred only in not searching more deeply into the *history* and *cause* of the affection they were about to

* Entitled, "De la Morve et du Farcin chez l'homme," par M. Rayer.

describe. Thus we have (says M. Rayer), the exact symptoms of glanders described by authors under the various names of phlebitis, of secondary syphilis, of scrofula, and variola. In dispensary practice, more especially, where diseases are glanced at, and then prescribed for, this disease is very liable to be overlooked, or confounded with those diseases it most resembles; independent of all those obstacles, there seems to be one still greater than any yet mentioned; I allude to the prejudice with which the dignitaries of the profession look upon anything new, anything which they themselves overlooked in the heyday of their glory, all of which they are pleased to designate nothing more nor less than an *innovation*, tending to disturb the dreary somnolency of an exclusive body. Thus quinine, iodine, auscultation, and the beautiful "Theory of the reflex function," have all in their turn, and of late years, been decried loudly and vehemently by a misguided minority of our profession. They were looked upon by the gentry of the old *regime* as tending to quackery and innovation, and as such should be blasted in their infancy.

Now the subject under consideration is viewed by this class in the same light, and one individual (holding no inferior station in the literary department of the profession), lately being interrogated respecting glanders, contented himself by stating, that very little is known about the disease, and we must wait for more data to work upon. Here, again, we have a fine example of "*darkness visible*." This individual, I should presume, has adopted the motto of the philosopher, who says,—"*Malheur, malheur à l'homme sensible qui a osé déchirer le voile de la faculté, et refuser de se livrer cette illusion théâtrale si nécessaire à notre repos! son ame se trouve en vie dans le sein du néant; c'est le plus cruel de tous supplices.*"

I have witnessed a case where the glandered matter of a horse was introduced into the paw of a dog, by means of a bistoury. After the lapse of a few days the dog became indisposed; he appeared drowsy and dull; this was followed by the symptoms of a disease I believe peculiar to dogs, and vulgarly called "*snuffles*." There was a profuse discharge from the nose; and the dog, when made walk, appeared to be giddy, and staggered from side to side. He was killed at the end of a few days, and the lining membrane of the nose was found to be inflamed, and ulcerated spots were observed now and then during the examination of those parts. There were no enlarged lymphatics, or any other of those lesions generally seen in the posthumous examinations of glandered bodies.—T. H. B.

TREATMENT OF OVARIAN DROPSY WITH POTASSA FUSA.

To the Editor of THE LANCET.

SIR:—During an extensive public and private practice of many years, I had frequently to regret the inefficacy of our art in the treatment of ovarian dropsy. Often have I seen the disease in young females, whose health in every other respect appeared to me to be perfectly good, and who could they have been cured of this affection might have lived to old age. While treating a case of what I have called encysted dropsy of the thyroid gland in a young female (and which I have briefly related in the 5th volume of the "Transactions of the Provincial Medical and Surgical Association," p. 282), I was very forcibly struck by the analogy subsisting between this disease and encysted dropsy of the ovarium; and I thought it possible that the efficacious mode of treatment adopted in the one case might apply to the other. I know that suppuration has been induced in the ovarian sac by other modes of proceeding, and the results have been such as not to encourage our adopting them. But the one by the potassa fusa has not, that I know of, been tried. I am also aware of the objections which may be urged to an attempt of this kind,—such, for instance, as the fluid being contained in several cysts, and the difficulty of limiting the inflammatory process set up in the peritoneum. The adhesion of the ovarian sac to the peritoneal membrane lining the abdominal muscles is no ground of objection, as this process must take place during the action of the caustic, and previous to the establishment of suppuration within the ovarian sac. I will now explain the mode of action of the proposed remedy.

A slough of more or less extent is made with the potassa fusa, in the integument of the abdomen, over the enlargement constituting the ovarian dropsy. This, after a given time, is thrown off, leaving an ulcerated surface. The caustic is again applied, and another slough is given off, and thus the practitioner proceeds, repeating the application until the peritoneum begins to feel the influence of the remedy; adhesive inflammation is set up in it, and in the membranous bag containing the fluid, and, ultimately, suppuration of the sac itself. Having thus established the suppurative action, emollient poultices are then to be applied, and the case is to be treated like that of any other encysted abscess, having its origin externally. This may now be more or less considered; the adhesions forming a kind of wall, or barrier of communication, between the abscess and the general cavity of the abdomen.