to meet the demands required for speed of pace in animals used for racing. It has been stated that certain gymnastic exercises of the arm in drilling soldiers lead to hypertrophy of the heart. Now, it would be interesting to inquire if in such cases as the above the capillaries become more muscular, and that in proportion to the size of the heart. If this question could be answered in the affirmative, it would at once settle the value of Sir W. Gull's theory of inert "fibro-hyalin" matter; though even now, I believe that Dr. George Johnson's explanation of it, as a microscopic illusion, will be found to be correct. The beauty of Dr. Johnson's preparations is deeply impressed on my memory, as I had two distinct opportunities of examining them, once assisted by himself, and I can vouch for the accuracy of the engravings given with a paper referred to by Dr. Johnson, April 16th, 1870, in the BRITISH MEDICAL JOURNAL.

ON THE TREATMENT OF SMALL-POX BY VACCINATION AND INJECTION OF LYMPH.

By ROBERT GRIEVE, M.D., Hampstead Hospital.

MR. FURLEY, in the JOURNAL of the 8th instant, while describing some instances of small-pox treated by vaccination and the injection of lymph, takes occasion to criticise the cases published in the JOURNAL, in which vaccination in small-pox was tried at the Hampstead Hospital. There are points in his paper upon which I wish to make a few remarks. He differs from the opinion of Mr. Marson, and also that held by me, that the influence of vaccinia over variola when concurrent is *nil*, unless the former have been induced within the first five days of the period of incubation of the latter. I may state that my belief on this point is formed after observation of a very considerable number of cases of these diseases when co-existent. I have a difficulty in reconciling Mr. Furley's language on this point with what he has stated in another journal, where he says that he has found vaccination in small-pox in adults *almost inoperative*. It is well known to all accustomed to the treatment of small-pox, that vaccinated children very rarely, almost never, have that disease severely. Will Mr. Furley inform us upon how many unvaccinated children he has tried the cure by vaccination, and with what results? Mr. Furley asks: "Is it Dr. Grieve's experience for one-third of his cases to abort?" In vaccinated subjects, it is my experience that three out of four abort—that is to say, run a highly modified course, and that this proportion is even much larger amongst those who have four or more good cicatrices of vaccination, as it is less in those imperfectly protected. In unvaccinated subjects, the disease very rarely indeed aborts; but of the six, here five were vaccinated, so that under ordinary circumstances three ought to have aborted. Although this has been my experience of small-pox, I do not agree with Mr. Furley that necessarily it is a peculiarly happy one, for I think it will be found to be the experience of many others. I may remind Mr. Furley that three out of the six died, our general mortality is not fifty per cent., and, as he says, there are no cases without a lesson; what lesson does he draw from this? He falls into an evident error as to the period of the disease at which vaccination was tried; he says they were not vaccinated until the fifth and sixth days, evidently thinking it was at that stage of the eruption; while it was the second and third days of the eruption, or the fifth and sixth days of the disease. I saw nothing in the progress of these cases to cause me to alter the opinion that vaccination after the appearance of the small-pox rash is utterly useless. In order to give a full trial to the treatment, seven more cases were operated upon by the latest of Mr. Furley's methods—namely, the hypodermic injection of lymph in quantity. I take the opportunity of expressing the belief formed upon the results in these cases, that not only is its curative action absolutely nothing, but that in a certain number of instances most serious consequences have resulted from its use. Two only of those cases are as yet completed, both by death. One was from *variola hæmorrhagica* uninfluenced by the operation; the other had severe small-pox with bronchitis in the earlier stages; afterwards, erysipelatos inflammation of the arm operated upon set in, resulting in supuration and sloughing of the cellular tissue. Diarrhoea came on, and convulsions shortly before his death. Another man has also had severe inflammation and supuration of the arm, with serious constitutional symptoms; and in three others, abscesses either have formed or are forming in various parts of the body. These results are not such as to encourage me to continue the practice, but rather have determined me to discourage it by all means in my power.

I refrain from criticising Mr. Furley's cases, but I ask him to publish, not as he has done, a selected cure or two, but the history of every patient treated by him, with full particulars of their ages and

condition as to primary vaccination. In the absence of such details it is impossible to form any reliable opinion as to the success or non-success of his plan of treatment. I am afraid this is but another instance in which a lucky succession of cases of variola curta has led to the belief that at last has been found the long looked for specific for small-pox.

CASE OF IMPALEMENT ON A BRUSH-HANDLE, WITH PERFORATION OF THE DIAPHRAGM.

By JONATHAN HUTCHINSON, F.R.C.S.,
Senior Surgeon to the London Hospital.

ON the afternoon of Saturday, May 13th, 1871, I saw, in consultation with Dr. Brereton, of Old Ford, the subject of the following narrative.

Mrs. W., aged 27, had on the morning of the same day received a severe injury from a fall backwards on her own stairs. It was believed that she had put her foot on a bobbin which one of her children had left on one of the steps, and which caused her to fall suddenly and with great force backwards in a sitting posture. In her fall she felt something enter her body near the anus, and on recovering herself she found the lower part of the handle of an ordinary parlour hearth brush projecting close to the bowel. With great courage and resolution she extracted the whole of this without assistance, although she had, as she said, to change her hand twice on account of its length. Having extracted it she felt faint, and sat on the stair until her servant came and helped her upstairs to bed. She did not faint away, and she told me afterwards that she had at the time no very severe pain, but only considerable difficulty of breathing. Dr. Brereton saw her within half-an-hour of the occurrence. He found that her clothes had not been anywhere perforated by the brush-handle; there was a punctured wound close to her rectum, and no evidence of hæmorrhage going on. He estimated the quantity of blood which had been lost at about half a pint, for her clothes were in part saturated. The shaft of the broom was smeared with feces almost up to the part where it had broken off close to the broom-head. Thus it appeared certain that a length of at least sixteen inches had entered her body.

When I saw Mrs. W. in the afternoon, about eight hours after the accident, she was in bed, looking very pale, but not complaining of any great pain. She allowed me to examine her abdomen pretty freely, and, although tender in parts, it was remarkably little so. I found her right chest quite tympanitic, and was obliged to infer that the diaphragm and lung had probably been wounded. Although perfectly conscious, and with a countenance but little expressive of anxiety, she had no pulse at the wrist. The laceration by which the broom had entered was on the left side of the bowel, and would admit two fingers. There was no bleeding whatever, and there did not appear to be much to be done in the way of treatment. Death took place in the following night, about twenty hours after the accident.

At the *post mortem* examination we found that the track taken had been first through the skin, and then into the rectum an inch or two above the anus, and thence through its anterior wall just behind the uterus, into the abdominal cavity, after traversing which the implement had passed through the gall-bladder and liver, through the diaphragm, and had entered the lung. The pleural cavity contained a considerable quantity of air with some blood and serous effusion. The peritoneum was everywhere greasy with recent lymph, and contained probably about a pint of clotted blood mixed with bile and small portions of fecal matter.

The appended woodcut shows the form of the implement with which this fearful injury was inflicted.

I was puzzled at first to explain how it could have gained access to the body without damaging in the least the clothes. Dr. Brereton suggested, and probably correctly, that the brush was lying on the stairs with its handle pointing upwards, and that the woman's petticoats caught its tip and tilted it under them just before she sat down on it. As an illustration of a very unusual kind of accident, the case is of some interest. Nor is it wholly without medico-legal value as an instance of what it is possible for a fearfully wounded person to accomplish. This poor lady actually drew out of her body a weapon eighteen inches long, the point of which was in her lung, and which had to be extracted through her diaphragm, liver, gall-bladder, and the whole