the corpuscles seem to pass out indifferently at all parts of the wall of the capillary, and with no approach to anything like a regular arrangement such as one might expect to occur if they were extruded through pre-existing stomata at the junctions of epithelial cells; because the increased tension in the vessels seems adequate to account for the passage outwards of fluid from them, but not of corpuscles contained in this fluid, which, by the ordinary laws of fluid-pressure, would be pressed upon equally in all directions, unless one of their surfaces were absolutely in contact with the wall of the vessel; and, lastly, because the mode in which the corpuscles are observed to become applied by their flat surfaces to the capillary walls is the very reverse of that indicated by Dr. Cohnheim as the favourable position* which the corpuscles assume for forcible extrusion through pre-existing pores—for all these reasons it seems to me that his explanation is untenable. With regard to Stricker's supposition, that the corpuscles are passed through by virtue of some "active" condition of the capillary wall itself, I have been able to observe nothing either for or against it; it seems a pure hypothesis, with not much to be said in its favour. And I think the evidence adduced points rather to the passage of the corpuscle outwards by reason of some active condition which the corpuscle itself assumes, its adhesion to the wall of the capillary being produced by the throwing out of a small amoeboid projection, which tends to adhere to and commence the perforation of the elastic and yielding capillary wall. This view is favoured also by the fact that, when more than half of the corpuscle is lying outside the vessel, this portion has often the most irregular shape and sometimes appears more or less subdivided.†

Having formed this opinion from observation of what takes place in these processes, I afterwards found a paper in a recent number of Virchow's *Archives* (Ein Beitrag zur Lebensgeschichte der rothen Blutkörperchen, xli, pp. 396-411), by Dr. Friedrich of Heidelberg, fully describing certain remarkable changes of form, also protrusions of processes and subdivisions which he had seen taking place in red corpuscles found in the concentrated bloody urine of a patient suffering from renal disease; and also notable alterations of shape of red corpuscles taken from a patient supposed to be suffering from leukaemia. These phenomena he believed to be vital rather than physical, and excited by certain abnormal irritative conditions acting upon the corpuscles. Max Schultze (*Archiv für Mikrosk. Anat.*, bd. i, 1865, s. 25) also, and Dr. Beale (*Trans. of Microscop. Soc.*, 1864), have observed notable alterations in the shape of red blood-corpuscles when subjected to a high temperature; but these, as the respective observers conjectured, were probably changes occurring after the life of the corpuscle had been destroyed. Dr. Beale hints, however, that similar changes of form may occasionally take place during life. Bearing in mind, also, two characters of the red blood-corpuscle, as described by Dr. W. Roberts (*Proceed. of Roy. Soc.*, 1862), after the action of magenta and tannin respectively, it seems well that the attention of future observers should be directed to these peculiarities, and to the particulars above mentioned, in order to determine more certainly than has yet been done how far amoeboid movements and contractions do take place in the much-examined and much-written-about red blood-corpuscle. Presuming that these corpuscles do pass through the walls of the capillaries in the manner I have indicated, it seems to me that they may be made to assume this active condition either by changes in the nature of the blood-plasma, or by some unknown action of the tissues outside the vessel upon the corpuscles within, such as has been assumed to exist in inflammation. In the scorbutic condition and in the state of mechanical congestion, I should imagine that changes in the nature of the blood-plasma would be the most potential—such changes in these two conditions being perhaps not altogether dissimilar. Certainly I have noticed in both these conditions, that most of the corpuscles which can be seen to penetrate the walls of the capillaries present an easily appreciable and similar alteration from their normal structure. This consists in the presence of from two to four small clear spots, looking like vacuoles, in each red corpuscle. What significance the existence of these may have, as pointing to an abnormally active co-existing condition of the corpuscle, must be left for future observation to determine.

I have two specimens to exhibit to the Society: one in which the femoral vessel remained tied for about four or five hours yesterday; and one in which the femoral vein is at present tied, and in which almost complete stasis of blood exists throughout the web.

* Though I cannot myself think that this cross position of the corpuscle in the capillary would be at all favourable for its forcible extrusion by increase of fluid pressure: the tension of fluid would be equal on each side of the corpuscle, and the lateral tension would produce an equivalent pressure of fluid against the walls of the capillary, though not of the corpuscle contained in this fluid.

† Since this communication was made to the Pathological Society, I have seen (April 27th) pretty rapid and most manifest alterations in shape of many red blood-corpuscles after they had passed out of the capillaries and were lodged in the mesenteric tissue of the frog.

ON ACUTE TUBERCLE.

By E. L. FOX, M.D. Oxon.,

Physician to the Bristol Royal Infirmary, etc.

WHILST we owe much to the minute investigations of microscopical observers, there is some danger lest diseases should be divided too finely for any practical purpose, if we depend on these investigations alone, without taking other points into consideration. This seems likely to be the case in the present line of thought on the subject of phthisis; and I venture, therefore, to submit the following suggestions. If scrofula and tubercle be such totally distinct diatheses, is it not remarkable that more than a third of the adults who suffer from tubercle have been subject to swollen or suppurating cervical glands at an earlier period of life; that miliary tubercle of the lungs, or meninges, is associated, as a rule, with cheesy degeneration of the bronchial glands; and that tuberculous ulceration of the intestines, especially in cases that so closely simulate typhoid fever, is constantly accompanied by a similar degeneration of the mesenteric glands?

Niemeyer states that this comparatively frequent coincidence of tubercle in the lungs with the presence of cheesy products in other organs, cannot be regarded as accidental. "The eruption of tubercle," he says, "usually occurs at the time the cheesy knots begin to soften. Tuberculosis is, in most cases, a secondary disease, originating in an unknown manner through the influence of cheesy morbid products upon the organism."

Again, acute tuberculosis differs from chronic phthisis merely in the intensity of symptoms. The pathological appearances in the brain, lungs, and intestinal canal, are identical, saving only the difference due to the more or less rapid formation of a cavity. The symptoms of acute tubercle, and of those acute exacerbations, so common from time to time in the progress of a case of chronic phthisis, are extremely similar; notably in the high temperature, which constantly may sink four, or even six, degrees in twelve hours, and rapidly recur to its former height without any evident cause. I have observed this pretty often in acute tubercle, and in ordinary phthisis with a more chronic course; and Dr. Sidney Ringer's published cases bear evidence to the same fact. If, as I am inclined to believe, every acute disease has its own special scale of temperature, which, within certain limits, is diagnostic; this fact is of no slight importance in establishing an identity of nature between the two conditions. The intestinal ulcerations is very similar in both, and seems, as in typhoid fever, to be due to an attempt of nature to get rid of the poison from the system. Hereditary influence appears, also, to be as frequently connected with the history of the one as of the other. Of course, it is a matter of constant experience that the acute form is less amenable to treatment than the chronic. If, then, this be so, it is at least open to question whether so great an identity of symptoms does not establish an identity of nature between two diseases that just now are being considered as very distinct.

HÆMORRHAGE INTO THE PONS VAROLII.*

By ISAAC HARRINSON, Esq., Reading.

I HAD been attending Mrs. D., a spare woman, aged 39, for attacks of vomiting, to which she had been liable for some years, and which were supposed to be bilious. At my visit, December 11th, 1867, she was in bed, and while there she began to retch and strain hardly. After one desperate effort she exclaimed, with a face livid with turgidity, and with an expression stamped with alarm, "What's that?" "What a noise?" putting her hand to her right ear. She nodded assent to the question whether she had pain there, fell back, and never spoke again. During the first hour there were frequent, curious convulsive, and twisting movements of the body. The left arm was turned quite round and inwards. In the intervals the left leg was paralysed, and the face and pupils were unaffected. The vomiting, or rather the effort to expel mucus, which rapidly collected, and which she appeared unable to swallow, continued. She moaned, with a peculiar appearance of restlessness and distress, and her eyes were open; her aspect was not heavy, stupid, and comatose; her breathing was quick, not laboured. After the first hour, relaxation of the whole muscular system gradually supervened and increased, and she died in six and a-half hours from the attack. From the first she was unable to swallow, and no treatment was attempted.

* Read at the Reading Pathological Society, March 1868.