mon temperature, and is, in the central parts, rather hotter than ordinary. In this way the mean temperature of the blood is balanced between the greater production within and the greater loss on the surface of the body. If, on the contrary, the air be heated and rarefied, its effect on the lungs and heart is lessened; the production of heat in the left ventricle will be small, but the temperature will be longer retained. As long as the same air which is in contact with the surface is respired, no sensible change in the mean temperature of the system can take place, because the two opposite conditions, the one within, and the other on the surface, keep equal pace. This explanation of the stability of animal heat seems to be quite satisfactory. It may not appear superfluous to inquire after the purpose nature had in making this arrangement. The whole system is filled with blood. I have subjected this fluid, inclosed in thin intestines, without containing atmospheric air, to water heated to different degrees of temperature. 115° Fahr. caused a dilation to at least double the volume, as when just taken from a living animal. If a dilation of only one-tenth part of the usual volume of the blood were to take place in a living animal, rupture of the heart or other vessel, or apoplexy, at least, would be the certain consequence. Stability of the temperature of the blood is, therefore, an arrangement of the utmost importance to the continuance and safety of the life of the higher animals and man. We cannot withhold our admiration from the wonderful institutions of Nature in effecting her wise purposes, and by means so simple and sure.

The most difficult problem has been solved in the stability of the temperature of the blood, viz. to contrive to exclude one of the most irresistible laws, that of the equilibrium of heat, the effects of which would prove destructive to life in the higher animals and man.

Having now shown within these narrow limits the fallacy of the chemical theory of respiration, and laid down a new theory in its principal points, the author recommends both parts to the examination of those members of the profession who have the cultivation of their science at heart, and who are aware of the defective state in which the groundwork of medicine is still left.

90, Great Portland Street, London,
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OBSERVATIONS ON THE

STRUCTURE OF THE PLACENTA.

By HUGH LEY, M.D., *Physician-Accoucheur to the Middlesex and the Westminster General Lying-in Hospitals.*

THE recent death, in the ninth month of gestation, of one of the nurses of the Middlesex Hospital, having afforded me a favourable opportunity of examining the structure of the placenta, and its relation to the uterus, it has been suggested to me, that a detail of the results of my observations and inquiries might be at the present moment not altogether devoid of interest. The subject is one confessedly of great intricacy, and peremptorily demands that combination of "accuracy of observation with fidelity of narration," from the want of which Dr. W. Hunter was wont to allege in his lectures, that "all our great men lie like the devil." It will be my purpose, therefore, in the ensuing paper, to deal rather with facts than impressions—to dwell rather upon what I saw than upon what I may have thought; and I shall, as far as the nature of the inquiry will allow, studiously abstain from cavilling at, or even canvassing, the opinions of others.

This poor woman died almost suddenly, from disease of the heart; and as there had been no symptoms actual or preliminary of labour, the connexion of the placenta with its containing organ was undisturbed even by the contraction of the uterine fibres. The gravid uterus with its contents having been removed, for the purpose of examination, to the hospital, which was contiguous to her residence, the uterine vessels were first effectually cleansed of any blood which they might contain, by the injection into the right spermatic artery of a considerable quantity of warm water. Through the same vessel my friend and former pupil, Mr. Beevor, of Berners-street, then injected double size, coloured with vermilion, until no more would pass without the employment of such force as might endanger the occurrence of laceration and extravasation, which we were most solicitous to prevent. The pipe of the injecting syringe was then introduced into the artery on the left side, which would, however, only admit a small quantity, not exceeding one-eighth of what had passed by the first injection.

The uterus was now cut open, for the purpose of removing the child, for which the friends were waiting, that it might be buried with the corpse of the mother, when in its divided edges could be dis-

tinctly seen large veins traversing the parietes. Though not greatly distended, they were still abundantly conspicuous, and from their canals, even by very moderate pressure, could be squeezed out separate portions of injection.

Upon inspection of the fetal surface of the placenta, whilst it remained attached to the uterus, it appeared even through the membranes to be uniformly red. The whole mass presented its usual external characters. The flat empty white vessels were ramifying under the membranous expansion, but the entire surface preserved its regularity of form; it was neither more elevated nor more depressed at any one part than when, recently expelled from the uterine cavity by living efforts, it contains only blood. A portion of the membranes of the ovum being peeled off, the appearance underneath very closely resembled that of the surface by which the placenta is attached to the uterus. A distinct layer of decidua, manifestly thicker at the edge than elsewhere, was continued over this aspect of the placenta. It differed in nothing but its thickness from the same membranous substance upon the uterine surface; of this, indeed, it was obviously a continuation, and afforded the most unequivocal evidence of the accuracy of Dr. W. Hunter, and more especially of his editor, Dr. Baillie, who has thus minutely described it:—"The layer of the decidua which lies between the chorion and the placenta, is in one case much thicker than another; it sometimes forms a smooth, tender, opaque membrane, but is more frequently reticulated, especially towards the edges of the placenta, looking somewhat like lace." This reticulated character was rendered beautifully manifest by the distinctness with which the small masses of red injection could be seen through this portion of decidua. The nodules were minutely subdivided, and varied both in their magnitude and their direction. Some appeared not larger than corni, or canary seeds; others were nearly as large as grains of wheat, with a form also regularly defined, and much resembling the latter of these grains, being oblong, with rounded narrow extremities. In their direction they differed somewhat. In general they had no determinate arrangement, but in some instances they seemed to have a linear distribution, conveying the idea to some who saw them that they might be vessels. These small masses were intersected by colourless semi-transparent lines, which defined their form, limited their extent, and conveyed to my mind the impression that they were membranous septa; and whilst they had no

remote resemblance to the cut surface of the interior of an orange, they amply verified Dr. Baillie's description of a "*reticulated*" and "*lace-like*" appearance. But though the substance of the placenta was thus minutely injected, its fetal surface was uniformly smooth and concave; nowhere could be seen large and irregular masses such as extravasation would produce; at no one point, either of its surface or its very edge, to which the injection had equally penetrated, did it appear to be broken down upon the one hand, or elevated and distended upon the other, to the extent of producing the slightest irregularity.

By a force not exceeding, if even equal to, the weight of the placenta, and avoiding all pressure upon its substance, a portion of the edge, equal to about three inches in one direction, by more than an inch in another, was then separated from its attachment to the uterus. This brought into view those small but "very numerous" bloodvessels, described by all who have had opportunities of investigating this subject, and varying in size from mere filaments to the diameter of a crow-quill. These, as the separation proceeded, were seen to be elongated to the extent of nearly half an inch before they were torn by the force employed, and stretching across the angle formed by the already separated surfaces of the placenta and uterus. They generally gave way at their point of attachment to the tender decidua upon the surface of the placenta, and their remaining portions receded, apparently by their own elasticity, to such an extent that it was difficult, and in the majority of instances impossible, afterwards to trace their orifices. It must be obvious, however, that if these vessels were torn, or if they had been cut, as they were in a case recently examined by Mr. Owen, to prevent the effects of violence, such orifices must of necessity exist, though they may be in many instances invisible, from the torn or cut vessels retiring completely within the substance of that irregular layer of spongy and lamellated decidua which remains attached to the uterus.

Through the smoother decidua upon this detached surface of the placenta, as upon the fetal aspect, could be seen its interior equally and uniformly injected. As, however, here the membrane was thicker and more compact than the decidua immediately beneath the chorion, the precise arrangement of the portions of red injection was less manifest. But in an investigation of this kind, upon which there has been much of controversy, negative facts are by no means unimportant; and it would therefore be improper to

omit the observation, in which all who were present and minutely examined the parts concurred, that there were no large irregular masses or layers of injection between the placenta and the uterus, and not the appearance cognizable to the senses of either laceration or extravasation. The only portions of disentangled injection which came into view, we saw escaping, as pressure was applied to the parietes of the uterus, from those large openings upon the interior of the uterine cavity, known to most of the anatomists of the middle of the last century, and very particularly adverted to by my friend Dr. Robert Lee, in his communication to the Royal Society. These apertures could be distinctly traced by the introduction of a probe, though they were partially, and in many instances almost entirely, covered by that portion of deciduous membrane which, still attached to the surface of the uterus, presented a lamellated character easily separable into layers, and led obliquely to the openings, which, in conformity with the opinion of the Hunters, I am inclined to consider rather as the extremities of the uterine veins than holes in their sides, as would appear to have been the notion of the two professors, "*primus et secundus*," Monro, of Wallace Johnson, and possibly, though far from certainly, of Dr. Robert Lee; or than "caecal appendices" to the veins, as they were believed to be by Astruc.

Having thus acquired as much information as it appeared probable we should obtain from mere inspection of the placenta, which had been hitherto only injected from the spermatic arteries of the mother, it was determined to inject next the vessels of the umbilical chord, for which purpose I returned to the hospital at the expiration of a few hours. In the interval, however, some one had carelessly or mischievously separated the whole placenta from the uterus, and in doing so had produced a longitudinal fissure upon its uterine surface of about two inches in length. On the most minute examination, however, of this rent, we could detect no large deposit of coloured size near the part, nor upon the corresponding surface of the uterus, nor in the flat vessel which contained them both; nor was there an approach even to evidence, or anything to lead to the suspicion that it was produced by the force of the injection; on the contrary, it was the opinion of all present, some of whom were more conversant with anatomical inquiries than myself, that the laceration was, beyond all doubt or question, the result of rough handling subsequently to the first injection. Nor can I refrain from saying,

though I do it with great deference to the opinion of others, that in the case described by Dr. D. Monro there was anything like convincing proof that the injection of the placenta was the result of either laceration or extravasation. That there was a layer of injection between the uterus and the placenta, is unquestionable; but the description of the appearance leads me irresistibly to the conclusion, that the placenta had been filled before this layer was thus deposited, and that it was thrust out of the sinuses by the subsequent injection upon the second day, which was the explanation offered of the fact by his brother, Dr. Alexander Monro.

The uterine surface thus detached from the uterus exhibited its lobules, with their intersecting sulci, even more distinctly than they are seen in the uninjected placenta; and in several parts could be perceived, with the naked eye, small apertures of an oval form, with edges perfectly smooth, regularly defined, and thicker as well as more opaque than the contiguous parts of the decidua which they penetrated. They varied somewhat in their size, and in more than one instance appeared arranged in pairs, at the distance of less than half an inch from each other. They seemed to have membranous continuations of a tubular character, into which a round-headed probe dropped, almost by its own weight, nearly to the opposite or fetal surface of the placenta. These apertures much resembled others which may always be detected in considerable number passing through that portion of the deciduous membrane which, like the pia mater amongst the convolutions of the brain, dips into the sulci which separate the lobules, and which openings only require the placenta to be placed in the same convex position which it occupies in the uterus, to make them manifest even to the most sceptical.

The pipe of a syringe was now placed in one of the arteries of the chord, and, by very moderate force, a yellow injection was thrown in, until it was seen to return by the umbilical vein, the celerity of the passage of the injection, and consequently its force, being, by the resistance arising from the pressure which the weight of the placenta produced upon the trunks of the fetal vessels, placed downwards, that we might see the progress and effect of the injection upon the uterine surface. As the vascular part of the placenta became filled, the lobules with their sulci, which always pass obliquely towards the interior, became even more conspicuous than before, in consequence of the moderate and uniform elevation of the centre of each of these natural subdivisions of the

placenta. There was no regular diffusion of the yellow matter under the decidua; but the successive appearance of yellow spots near to the surface at length gave a tint to the whole, the yellow gradually intermingling with the uniform redness previously observed. This tint was more particularly observable towards the centre of each lobule, and at many points near to the surface there manifested itself a most beautiful arborescent appearance, from exceedingly minute vessels, as the injection was passing through their canals. Through the lacerated portion, and there only, the injection escaped in great quantity, oozing largely from the small vessels, and spiriting from the larger like blood from an artery divided in the living body during an operation. But since, as I have before taken occasion to state, none of the red injection was hanging about, or had been apparently forced into the rent, so now none of the same injection could be recognised, either forced before, or intermingled with, the yellow fluid as it escaped from the torn vessels, thus affording the strongest collateral evidence that the laceration was not the result of the force of the first injection through the vessels of the uterus. Now also, upon examination of the apertures already described as penetrating the decidua, they, like the lobules and sulci, were even still more distinct than before, and their membranous continuations, somewhat funnel-shaped, passing towards the foetal aspect of the placenta, became well marked and indisputable. Whatever may be the nature and office of these openings, of which probably the state of our knowledge will not allow us to speak with confidence, at least the apertures themselves were obvious to the unaided senses; and I am happy to have the opportunity of appealing, in corroboration of the accuracy of my description, to Dr. Granville, who is in possession of a portion of the placenta which contained two of the most distinct of them, to my friend and colleague Mr. Arnott, and to Messrs. Corfe, Beevor, and Elwyn, all of whom saw them, and expressed in the strongest terms their opinions that they were natural openings, rather than the results of laceration, to which they bore not the most remote resemblance. My impression with regard to them was, that they were probably connected with the return of blood from the interstitial substance of the placenta, for which office they appeared admirably adapted.

The placenta was now left till the following day, that the cooling and consolidation of the size injection might be perfected, when, upon inspection of the foetal

surface, was seen the beautiful ramification of the trunks of the umbilical vessels before they plunge, in the form of large tubes, into its substance; and it was interesting to observe the exact correspondence which each large trunk, or congeries of large vessels (for occasionally there was more than one), bore to the lobule or natural subdivision of the placenta opposite to its entrance, which was always nearly in the centre of each globule. This arrangement of vessels very closely resembles that which we find in the human kidney, in which organ each branch of the renal artery, which divides before its perfect entrance, is distributed upon a lobule or natural subdivision which constitutes a distinct discerning organ. This arrangement of vessels also strongly favours the notion, evidently gaining ground both in this country and upon the continent, of the close analogy betwixt the cotyledons of the brute creation and the lobules of the human placenta. This peculiar distribution is beautifully shown in a successfully macerated placenta which Dr. Granville did me the favour to show me, and in which each of these main trunks is seen to ramify towards its summit with extraordinary minuteness, so as to be gathered into as many distinct bundles as it may be fairly inferred there must have been lobules, and looking, when the membranes which they pierced were rendered convex by allowing them to hang over the hand, like so many gooseberry or currant bushes in a garden, or (as Dr. Granville expressed himself) like so many stunted oaks in an old forest. The intervening membranous surface was perfectly bald, and, occupying a very considerable space, led to the irresistible inference that whilst the bloodvessels remained, a large quantity of interstitial substance, equal nearly, if not quite, to half of what was required to make up the bulk of the placenta, had been removed by maceration, as well as both surfaces of the decidua.

Having cut through the substance of the placenta from its foetal to its uterine surface, and in a direction parallel to the course of its large vessels before they enter, the two injections appeared much intermingled, though the red predominated towards the uterine, the yellow towards the foetal aspect. This is in exact conformity with what Dr. Wm. Hunter had observed, who referred it to the displacement of the first by the second injection. Both being rendered fluid, from the whole mass being surrounded with warm water, to favour the passage of the substance injected, the gradual filling of the vessels of the funis pushed the injection previously intro-

duced towards the opposite or uterine aspect, exercising, in short, an influence analogous to that by which it was believed by John Hunter, that the blood which had done its office in the cellular part of the placenta, was returned into the venous orifices upon the interior of the uterus; the turgidity of the placenta assisting "to squeeze the blood into the mouths of the veins of the uterus, that it may again pass into the common circulation of the mother."* Still, however, the red injection evidently and largely preponderated in the textures immediately connected with the decidua upon both surfaces of the placenta. These, even now, appear almost uniformly red, the decidua having indisputably received its injection from the uterine vessels, from which all agree that, at least for the purpose of nourishment, this membrane receives its supply of blood.

Of the interior structure little could be made out without the aid of glasses of magnifying power. With lenses of moderate power I then examined small detached portions of the placenta, my attention being first directed to the red injection. This appeared to be minutely subdivided into small masses or nodules, which, although the whole cut edge was rendered slightly convex by pressure upon the two surfaces, still retained the position which they occupied, notwithstanding the compression to which the whole portion was subjected whilst held with the fingers, or with forceps, that a strong light might be directed upon it. Nor can I here refrain from noticing the striking contrast between the effects of compression respectively upon the uterine sinuses and the interior of the placenta. The pressure from the fingers and thumb, in simply holding up the parietes of the uterus, squeezed out the injection from its sinuses, the apertures upon the interior surface of the uterus offering no resistance; whilst the same injection, compressed to an equal degree in the interior of the placenta, was still detained, notwithstanding the incision which had been carried quite through the organ which contained it, and into which it has been alleged to have been merely extravasated. The difference forces conviction upon my mind, that, in the latter case, a cellular apparatus entangled the injection. The small masses or nodules which I have described were also seen and distinctly recognised by Messrs. Beevor, Corfe, and Elwyn, who were present at this examination, and

the illustration used by all to convey an idea of what we saw, proved that the appearance which presented itself to each of us was similar, or identical. So one described it as like the corpora cavernosa penis, without being aware that this was the illustration repeatedly used by the Hunters in explanation of the mode of circulation; another considered it to resemble the minutest cavities in the cellular tissue of the lungs, injected with red injection; whilst to myself, the textures in the human body which it instantly suggested were the hyaloid tunic in the eye, and the peculiar membranes which entangle fat and marrow in their interstices. All, therefore, in their illustrations and expressions, avowed their impressions of the existence of a cellular tissue, and consequently agreed in the belief that the red injection was therein deposited, and that this tissue, formed of a most delicate pellucid membrane, must have so entangled the injection as to prevent its escape upon the application of pressure. All, too, saw circulating upon and amongst these granules the minute ramifications of those bloodvessels which had been filled with the yellow injection. I have since repeatedly, and often in the presence of others, examined, through a microscope of considerable power, different portions of this placenta; and each succeeding examination tends but to corroborate the accuracy of my first observations. The minute subdivisions of the red injection into granules, or nodules, is most conspicuous, and they are evidently entangled in and about a membranous substance, which strong spirit has, with the decidua upon the surfaces, rendered less transparent and of a pearly lustre, whilst close to, and often upon, these minute masses, may be equally distinctly traced the slender lines of yellow injection contained in the ultimate ramifications of the vessels of the chord.

The examination of recent placenta, immediately after their expulsion from the uterus, affords also very strong corroborative evidence of the existence of this cellular tissue. For this purpose it is requisite to select a placenta which has been subject to very little pressure in its expulsion and extraction. The vagina, then, must have been capacious and relaxed; a single and slight uterine effort must have sufficed for its expulsion from the cavity of the uterus, and only the smallest assistance by traction of the navel-string have been required to invert the placenta, and thus preserve its internal surface from violence in its course. Without attention to these points, the placenta will be nearly drained, and its internal texture appear to

* Observations on certain Parts of the Animal Economy, p. 135.

be made up almost entirely of white strings (the bloodvessels). It will contain very little blood, the greater part having been squeezed out by the reiterated contractions of the uterus, the pressure of the vagina, or the rough handling of the practitioner. Not so, however, under the more favourable circumstances I have enumerated: such a placenta, washed by the most gentle shaking in tepid water, into which it should be at once put, without even allowing it to rest upon any solid body, and before the blood has time to coagulate, will present upon its surface a dark purplish colour, and if gently torn by bending the foetal surface back upon itself, avoiding all pressure upon the part which gives way, the lacerated surfaces look like a torn mass of currant jelly, confined in some texture which allows but little to escape, and that little drop by drop, like the vitreous humour from its hyaloid membrane, or the transparent gelatinous fluid from a similar membrane in a large navel-string; or, if further illustration be required, like lymph from a vaccine pustule. The vessels are not immediately visible; but if, with a little water dropped gently from the hand upon the rent, the blood be then washed, the whitish vessels stretching across the rent, most of them being entire come into view, and resemble exactly those which are at once visible upon tearing in a similar way a placenta which has been the subject of more compression. This experiment I have again and again repeated, and always with the same result. In both placenta, however (as well that which is drained of its blood as that which is still full), the circumstances connected with the vascular part were similar; the vessels of the navel-string had been tied upon the birth of the child in both. In one, however, blood remained entangled in some texture so as to hide the vessels; in the other the bloodvessels came immediately into view. In the former the placenta had sustained little or no pressure—in the latter the compression was considerable; in the former the blood remained—in the latter it was gone. No one can well doubt that the pressure had caused the blood to escape in the latter case. But it may be asked, whence did the blood escape? Not from the vessels, because these were tied, and they do not penetrate the deciduous membrane so as to allow the escape in that direction. It must, then, have been from the interstitial texture exterior to the coats of the vessels which the experiments and observations of the Hunters prove to have a direct communication with the maternal, but not with the foetal vessels, and which,

there cannot be a shadow of doubt, also held the red injection in the placenta which I have described. To me, too, it appears almost equally manifest that this peculiar substance has more or less of a cellular character, and that the blood which, in the recent placenta, it was seen to contain, inasmuch as that blood was exterior to the coats of the vessels, and not within these canals, must of necessity have come from the mother.

I am well aware—for it were folly to affect ignorance upon such a subject—that this view of the structure of the placenta has been of late much controverted. It has been said, upon authority for which I entertain, and would wish therefore to show, respect, that “the placenta consists *SOLELY* of a congeries of the umbilical vessels covered on the foetal surface by the chorion and amnion, and on the uterine surface by the deciduous membrane.*” But this description is incomplete and inaccurate; it omits altogether that layer of decidua which I have shown, upon the authority of others, as well as by my own observation, to exist between the chorion and the foetal surface of the placenta, and excludes even those white filaments which run in various directions, and connect together the ramifications of the umbilical arteries subdivided to an almost indefinite extent; the existence of which is admitted in the same paper.† These, indeed, appear to me virtually to concede the existence of an interstitial substance of a cellular tissue; for if “the ramifications of the umbilical arteries” (*and veins?*) subdivided to an almost indefinite extent, “are connected together by white slender filaments, running in various directions,” it is clear that these filaments must be at the least as numerous as the vessels which they connect—that they must interlace each other in every conceivable direction, and must have spaces between them; which spaces are neither more nor less than the cells of the Hunters, or “the cellular texture” seen by Dr. Nimmo, in the Glasgow preparations, full of injection; which, however, he believes to have entered at some weak point of the second layer of decidua upon the placenta, by a laceration which, however, he seems to have been unable to detect. Nor is this interstitial substance very differently described by William Hunter, who represents it as consisting of “a thousand irregular processes, which pervade the substance of the placenta, as deep as the chorion or

* Dr. R. Lee, in *Philosophical Transactions*, 1832, p. 60.

† *Phil. Trans.*, 1835, p. 59, 60.

inner surface, and are everywhere so blended and entangled with the ramifications of the umbilical system, that no anatomist will, perhaps, be able to discover the nature of their union.* Indeed the only distinction in the description of each is, that Dr. R. Lee represents them merely as *connecting filaments*, without tracing them to their source, or hinting at their distribution and its consequences, whilst Dr. Wm. Hunter, with that minuteness which characterizes him, declares them to be productions of the decidua, "shooting out into innumerable floating processes and rugæ, with the most *irregular* and most minutely subdivided cavities between them that can be conceived." Dr. R. Lee, then, errs only by omission, but, as far as he goes, rather corroborates than controverts, the accuracy of Dr. William Hunter; which appears, moreover, to be further established, if that were requisite, by the experiments which I have had frequent opportunities of making upon the recent, and also by repeated microscopic observations upon the injected, placenta. In the smallest fragment even of the latter, these processes, constituting no small portion of the mass examined, were still detected. Whether the incision was carried vertically, horizontally, or obliquely, in the direction of or across the vessels, the membrane, semitransparent, and pearly, from the spirit, was still abundantly conspicuous, and probably identical with the white filaments admitted by Dr. R. Lee; with "the thousand irregular processes," and "the innumerable processes and rugæ, with the most irregular and most minutely subdivided cavities between them," of Dr. Wm. Hunter. These processes, however, though distinct in every part, were even more obvious, because greater and more numerous, in the direction of the edges and of the sulci; which latter may be justly considered as the edges of so many "placentulæ," and have always a very oblique direction, much corresponding with those portions of decidua which are still attached to the uterus, which present a lamellated appearance, and which lead towards those openings of the uterus which enter obliquely into the veins or sinuses.

It thus appears that the placenta is made up, not only of the ramifications of the vessels which proceed from the umbilical chord into its substance, but of two layers also of deciduous membrane—the one upon the uterine, the other upon the foetal surface; that, connected with these layers, and proceeding from them, minute processes are continued through every

part of its substance; that these processes, shooting in every direction, and therefore decussating each other, must of necessity leave cavities or spaces between them; that these spaces may be filled by injection thrown into the spermatic arteries of the mother, without the slightest evidence of laceration or extravasation; and that, in the recent placenta, these spaces are full of fluid blood, which is exterior to the coats of the vessels, and therefore must come from the mother.

These are facts within my own knowledge, because established by my own personal experiments and observations; and they seem not unimportant as contributing to the settlement of a question which has been recently agitated with the keenness and acrimony of personal controversy.

I may not, perhaps, have added largely, if at all, to our previous stock of knowledge upon these subjects; the facts which I have recorded, have at least a claim to authenticity. In some points they differ slightly from the descriptions of the Hunters; but even these differences tend rather to supply omissions than to correct inaccuracies. In the main points they afford very unequivocal evidence of the anxiety of those great physiologists, whose character has become a species of public property, to be minute in their researches, and accurate in their statements and conclusions; and although they must be acknowledged to be somewhat at variance with the opinions of some of my contemporaries, I am fain to acknowledge that hitherto I have seen and heard nothing which is calculated to convict those great luminaries in physiology, of error or misconception, in the doctrines which they have advanced, upon the intricate subject of the structure and office of the placenta.—*Now first PUBLISHED.*

FRACTURE OF THE PATELLA.—"A gentleman came to me the other day from the country," observed Mr. Brodie, "with a fractured patella, and which, from mismanagement, had been drawn about an inch and a half above the knee. There was I suppose union by ligament. Indeed I believe union by ligament always takes place in these cases, whether the fractured ends of bones be separated far apart from each other or not. In the one case the ligament is thinner, and more stretched out; whilst in the other it is of a thicker, stronger, and firmer consistence. I do not believe that this ligament ever ossifies. I believe that where pieces of bone have been found in it, it has been from the patella being broken into many pieces."—*Mr. Brodie at St. George's Hospital.*

* Wm. Hunter on the Gravid Uterus,