

The retrospective address, delivered at the eleventh anniversary meeting of the Provincial Medical and Surgical Association, held at Leeds, August 2nd and 3rd, 1843 / by Thomas Shapter.

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Shapter, Thomas.
Provincial Medical and Surgical Association. Meeting (1843 : Leeds)
University of Glasgow. Library

Publication/Creation

Worcester : [Printed by Deighton and Co.], 1843.

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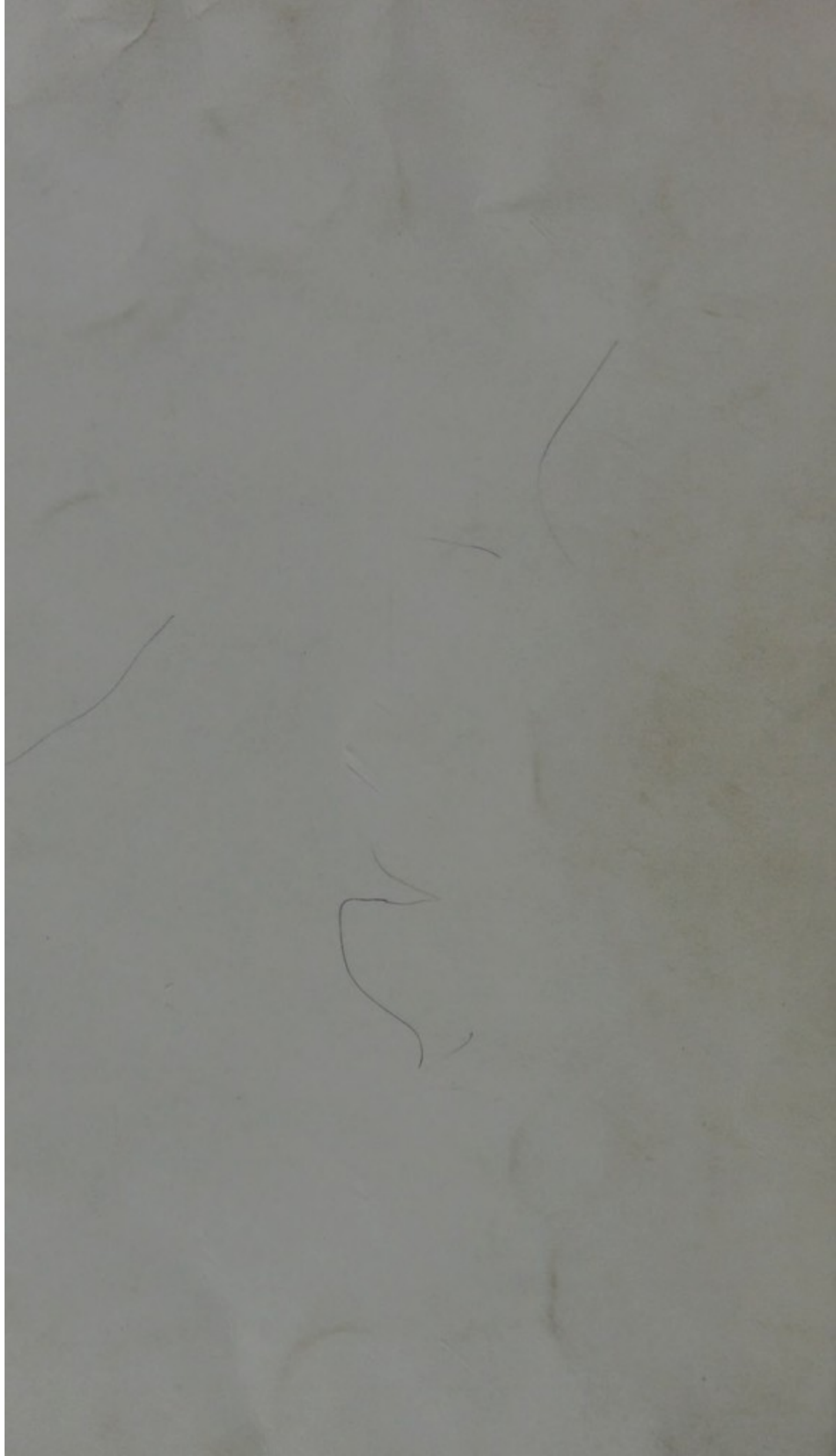
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THE

RETROSPECTIVE ADDRESS,

DELIVERED AT THE

ELEVENTH ANNIVERSARY MEETING

OF THE

PROVINCIAL

MEDICAL AND SURGICAL ASSOCIATION,

HELD AT LEEDS, AUGUST 2nd and 3rd, 1843.

BY THOMAS SHAPTER, M.D.,

PHYSICIAN TO THE DISPENSARY, EXETER.

WORCESTER:

PRINTED BY DEIGHTON AND CO., JOURNAL OFFICE.

1843.

RETROSPECTIVE ADDRESS.

THE ardent zeal and indefatigable industry, which have of late years characterised the labourers in the several departments of Medical Science, have not flagged nor lost aught of their intensity during the past twelvemonth, and the result has been a mass of information which involves in considerable difficulty the composition of such a digest of its purports, bearing, and utility, as it has been the pleasure of this Association I should now lay before them.

In carrying out this object I fear that some important matters may have been omitted ; that, in the anxiety to avoid this error, much that may appear vapid and useless is made to occupy your attention ; or that, through misapprehension, the views and opinions of others may not be accurately stated.

Though it may be my desire, in thus pointing out these sources of difficulty, to deprecate any too severe criticism, yet nothing is further from my purpose than to waste the short and valuable time allotted to our meeting in vain and profitless apologies. I shall, therefore, at once commence my task, with the brief observation, that though the labours of the year may not be characterised by any very prominent improvements, or the development of any very novel and striking views, yet they will be found to offer for your consideration many points of considerable value and interest.

In compliance with the practice of my predecessors I shall commence with that division of my subject which embraces the progress of the sciences of anatomy and physiology.

ANATOMY AND PHYSIOLOGY.

Heart.—It may be supposed that much addition to our knowledge of the normal anatomy of the heart is not to be expected in the present day. Dr. Ranking* has, however, submitted this organ to a series of measurements, from which some interesting inferences are deduced; without going into any very particular detail, it may be stated that he arrives at the following conclusions:—

1st. That the male heart is larger in all its proportions than that of the female.

2nd. That the length of a healthy heart to its circumference should be rather less than 1 to 2.

3rd. That the thickness of the right ventricular parietes is to those of the left nearly as 1 to 3.

4th. That the pulmonary artery is slightly wider than the aorta.

5th. That the right auriculo-ventricular orifice is considerably larger than the left, amounting to nearly an inch in both sexes.

Arteries.—Mr. Paget† has instituted a series of observations in order to prove the relative sizes of the trunks and branches of the arteries. It may be recollected that Mr. Ferneley‡ some few years since stated, contrary to the ordinarily received opinion, that the joint areas of sections of branches are, in general, equal to the area of the trunk. Mr. Paget shows, however, that there is not one constant relation of size between arterial trunks and branches; that in some cases the area of a transverse section of the trunk is less, in others more, than the sum of

* *Medical Gazette*, No. xxiv., 1842.

† *Medical Gazette*, July, 1842.

‡ *Ibid*, December, 1839.

the areas of sections of its branches ; but that for similar arteries in different persons the same relation for the most part holds good. Speaking generally, however, the old idea of the enlargement of the arterial canals, as trunks divide into branches, is the true one ; though the enlargement is less than had been supposed. A constant exception to this rule is offered by the common iliacs, which are themselves smaller in their area than either that portion of the aorta whence they proceed, or the sum of the areas of the arteries proceeding from them ; so that the stream is always contracted at these points.

The perfection with which, in every case that can be understood, the minutest arrangements of the body are adapted to a purpose, permits no doubt that these relations of size in the several parts of the arterial canal serve some particular end, and the one now alluded to deserves notice. The effect of such an arrangement must be to increase the velocity of the current, not only in the iliac arteries themselves, but in the arteries given off from the trunk above them, such as the mesenteric and renal ; and it is surely not improbable that the acceleration of the circulation through the kidneys, and through the organs from which the roots of the portal veins are derived, is the special purpose which so singular an arrangement serves.

With regard to the properties of arteries, an anonymous writer* contends that elasticity is characteristic of the large arteries, and contractility of the small, and that the respective structure of these vessels confirms such a conclusion ; for that, according to Henle, the inner portion of the external

* *Medical Times*, November 26, 1842.

coat consists of pure elastic tissue, forming a layer of considerable thickness in the large arteries, which diminishes in direct proportion to their size, while the middle or contractile coat increases relatively in size as the arteries decrease in calibre; and that this view is moreover supported by the functions required of these several portions of the arterial system, as well as by the observations of Berzelius, Nysten, Bichat, Wedemeyer, and Müller, who failed by the most powerful means to excite contractility in the larger arteries, while the experiments of Hales and Wedemeyer prove its existence to a great extent in the smaller ones.

The elaborate experiments on the functions of the capillaries, which have been made from time to time by Hales, Magendie, Carson, Arnott, &c., have been severely reviewed by Dr. Calvert Holland,* who asserts that they are too fallacious to ground any satisfactory conclusions upon, and cannot be adduced as proof of the direct action of the heart on the venous column; and further, that their several views are not supported by the natural conditions of the vessels of the circulation.

Pulse.—A variety of opinions have been entertained with regard to the relative frequency of the pulse at different periods of the day. The oldest and most prevailing of these is, that the pulse is slower in the morning than in the evening. From a series of observations which Dr. Stratton† has made, it appears that this view is erroneous, and that the pulse is really, in six mornings out of seven, quicker than in the evenings.

* *Edinburgh Medical and Surgical Journal*, April, 1843.

† *Ibid*, January, 1843.

Blood Corpuscles.—In the retrospect of my predecessor the labours of the more recent microscopical observers, on the nature and mode of production of the blood corpuscle, were duly set forth. The investigations of Dr. Martin Barry, Gerber, Remak, Quekett, Young, Gulliver, &c., from their novelty and importance, more especially engaged attention. During the past year, however, further observations have been made, and we shall devote a few pages to the consideration of them.

The *red corpuscle* is now for the most part allowed to be a primary nucleated cell, circular in form, flattened on its surface, and rounded at its edges, and having a diameter ranging from about $\frac{1}{3,500}$ of an inch to $\frac{1}{4,000}$ of an inch. Mr. Addison,* however, states their average size at $\frac{1}{2,800}$ of an inch.

Mr. Wharton Jones, in a paper read before the Royal Society, December 8, 1842, mainly with the view of combating some of the statements of Dr. Martin Barry, says that the red corpuscle consists of a vesicle or cell, with thick walls, but in a collapsed and flattened state, and having therefore a bi-concave form, and, in consequence of its thick wall being doubled on itself, presenting under the microscope a broad circumferential ring, which is illumined or shaded differently from the depressed central portion, according to the focal adjustment of the instrument.

The account of Mr. Addison, though in some respects similar to that of Mr. Jones, differs entirely as to the origin of the diversities of shade in the ring and centre of the corpuscle. He concludes that these appearances are due to the fact of the corpuscle consisting of two elastic vesicles, one within

* *Transactions of the Provincial Medical & Surgical Association*, vol. xi.

the other ; he infers this to be the case because the blood corpuscles (and we assume his observations applicable to the red corpuscle) exhibit when under the microscope an appearance of two circles, one within another. The area of the inner circle is sometimes seen lighter, sometimes darker, than that of the outer ; and sometimes the shading of the two circles causes the corpuscles to appear as if they were slightly hollowed out from the circumference towards the centre. The most conclusive evidence that Mr. Addison offers, however, of there being two circles is, that when the corpuscles are crowded together they become elongated and compressed into various shapes, and the outline or figure of the inner circle is equally affected with that of the outer one ; but the matter of the two circles is never seen to mingle, and when the pressure is removed both of them regain their pristine form.

Dr. Griffith* and Mr. W. Jones† have both objected to the statement of Dr. M. Barry, that there exists in the corpuscle a primordial fibre. The former thinks that the appearance, which he believes to have deceived Dr. Barry, is in all cases produced after the vitality of the blood is destroyed, and is dependent on physical causes alone for its production. He believes that the sac is generally cracked at the time of the production of the fibre, and the contents coagulated either by causes producing the ordinary coagulation of the blood or by the imbibition of a portion of corrosive sublimate when that is used ; and the latter (Mr. W. Jones) says that the beaded aspect presented by the double *contour* of the thick wall of the red corpuscle, when

* *Annals of Natural History*, February, 1843, p. 99.

† *Transactions of the Royal Society*, December 8, 1842.

it has been acted upon, either by mechanical causes or by chemical reagents, of which the effect is to corrugate the edge and to bend it alternately in opposite directions, has, in the opinion of the author, given rise to the illusive appearance of an internal annular fibre. The appearance of flask-like vesicles presented by some of the red corpuscles, with Dr. Barry's alleged fibre protruding from their neck, Mr. Jones ascribes altogether to the effects of decomposition, which has altered the mechanical properties of the corpuscle, and allowed it to be drawn out, like any other viscid matter, into a thread. On the other hand, Dr. Willshire* endeavours to show some analogy between this primordial filament of Dr. Barry and a dark line observed by him on the starch molecule; and Dr. Carpenter, whose opinion as a practised microscopist deserves attention, affirms that Dr. M. Barry† had pointed out to him among the corpuscles of newt's blood, preserved in their own serum, and without any reagent having been applied, many which had the form of a flask, with a projecting neck, and which might be still better compared to the body of a pair of bellows, with its projecting nozzle. The projecting portion appeared to be a filament, having a much higher refracting power than the general substance of the corpuscle. Dr. Barry also showed him, in a portion of blood to which corrosive sublimate had been added, a corpuscle which was evidently destitute of the ordinary nucleus, and which contained what appeared to be a filament presenting transverse markings that resembled those of muscular fibrillæ, the interspaces being oblique.

* *Annals of Natural History*, August, 1842.

† *Ibid*, April, 1843.

Between this conflicting testimony it is difficult to decide, and the matter must be left for further investigation.

With regard to the cause of the colour of the red corpuscle, some little difference of opinion also exists. The more general view entertained is, that the corpuscle owes its colour to the contained fluid ; but Schultz and others state it to be due to redness of the enveloping membrane itself, and that the fluid within is colourless. Dr. Rees details, however, in the last number of "Guy's Hospital Reports,"* some experiments which appear satisfactorily to confirm the former and more general opinion. By bursting the red corpuscles, through the property of imbibition which they enjoy, and which endosmotic property his experiments fully substantiate, he shows that the containing sacs are white and the contained liquor of a red colour. This contained liquor he also shows to comprise the whole of the iron of the corpuscle ; for neither the burst sacs nor the nuclei, if properly washed, yield the slightest trace of this metal.

There can be no doubt that great confusion has arisen upon the subject, from the terms red particle, red globule, and red corpuscle, being regarded as synonymous with hæmotosine or colouring matter, while, if Dr. Rees's view be correct, the fact is that the latter is a component particle of the former.

The colourless corpuscle of Mr. Addison, and which we believe to be identical with the parent cell of Dr. M. Barry, varies in size and appearance, has a peculiar and characteristic pearly aspect, enjoys the property of refracting light, and, like the

* 2nd Series, Part 1, April.

red corpuscle, contains a very clearly defined central portion or vesicle, its outline appearing like a delicate filament just within the outer tunic of the corpuscle. The interval, between the outline of the central portion and the outer circumference of the corpuscle, is very small and without colour. Sometimes there is no interval between them, and then the corpuscles have an uniform molecular aspect. The central portion has, at all times, a molecular or minutely granulated aspect; and frequently one, two, or more granules, during the observation, become distinctly visible in it. This author views the colourless corpuscles as highly organized vesicles or cells, circulating in and forming an essential portion of the blood.

Mr. W. Jones states that Dr. M. Barry has confounded the colourless with the red corpuscles; and in combating his conclusions, that the colourless corpuscles are merely a group of discs, describes them as globular in shape, strongly refractive of light, granulated on their surface, of less specific gravity, and of somewhat larger size than the red corpuscle; so that we conclude, if these observations of Mr. Addison and Mr. Jones be correct, and there is every character of their being so, that the colourless corpuscles differ from the red in being globular, generally larger, and firmer in structure, granulated either on their own surface or on the surface of their inner vesicle, in this inner vesicle being relatively larger, in its possessing a refractive power, and being of a less specific gravity.

These corpuscles have been described by different writers as lymph globules, the white globules of

the blood, blood corpuscles of the second form, exudation and pus corpuscles. To these latter they doubtless have a very great resemblance, but it appears now to be conceded that they possess differences which stamp them as not being identical.

Though the question of the existence of nuclei in the blood corpuscle may still be considered under dispute, yet it would almost appear that every new observer strengthens the evidence in favour of their reality. Dr. Rees describes, that on bursting the corpuscle, a white globular substance is set free, which he considers the nucleus, and that it is identical with what has been called by some the corpuscle deprived of colouring matter.

The observation of Mr. Addison, that the corpuscle contains an inner vesicle, has already been alluded to, but he further states that this inner vesicle contains a peculiar matter, forming the central portion of the corpuscle, which gradually increases in size and development, and is perfectly distinct from the coloured portions. Even Mr. Gulliver, though repeating his assertion,* that the same test, which shows the presence of a nucleus in some of the lower animals, fails to do so in man, (unless it be in very young embryos,) admits that this does not prove that the corpuscles of mammals contain no central matter. And Mr. W. Jones allows that the colourless corpuscles are decidedly characterised by a nucleus, but denies it to the red corpuscles. He says in the unaltered red corpuscle there is no appearance of nuclei; but when to the blood some agent has been added, for instance,

* *London and Edinburgh Phil. Mag.*, August, 1843, p. 107.

acetic acid, minute shining particles, about one-fourth or one-fifth of the diameter of the corpuscles, come into view, but not in connexion with them. These minute particles float about quite free, and exhibit molecular movements, and consist of nothing but particles of fibrin in albumen precipitated by the re-agent.

With regard to the origin, progress, and powers of reproduction of the blood corpuscle, Dr. Barry states that, like the ovum, it is first a disc, or what is now called a cytoblast, *i. e.* a cell germ. In shape it is originally elliptical and flat, having in its centre a colourless concave portion, around which lies the red colouring matter. It first becomes round, continuing flat, then assumes an orange form, and lastly becomes a globule; during these stages it increases in size, and at the same time the globule becomes a cell, and contains a colourless pellucid semifluid substance constituting the corpuscle with its nucleus. This nucleus divides into and gives off globules; each globule, appropriating to itself new matter, becomes a disc; and each disc, undergoing changes like the first, gives origin to other discs, a group of which constitutes the colourless corpuscles of the blood, for, with the changes now mentioned, the red colouring matter is consumed. The corpuscles are propagated by means of parent cells—a parent cell has its origin in a colourless corpuscle, this colourless corpuscle being an altered disc. As the parent cell is forming the new discs within, it gradually becomes red; the discs are eventually liberated to give origin in like manner to new discs, or to be appropriated some other way. These views however are by no means generally admitted.

Mr. Macleod, who appears particularly to have devoted his attention to this part of the subject, divides the changes observable in the corpuscle into three stages.* I. The granules enlarge and become clearer in the centre, but when they have arrived at twice their original size (which they quickly do) the central part becomes dull. This dullness slightly increases, and in a short time is seen to be distinctly granular, whilst the borders of the corpuscle are observed to be well defined, smooth, and clearer than the central part. The enlargement of these bodies, with the granular appearance of their centre, seems not to depend on the aggregation of granules round a central one, but on a property which they have in themselves of enlarging and presenting that figure. During all this time they are quite spherical and are of good consistence, as they do not lose their form by considerable pressure. II. The central portion becomes less opaque, and gradually ceases to appear granular, the external portion at the same time separating in some degree from the central part or nucleus. The blood corpuscle in this stage of development has the appearance of a slightly flattened round cell, formed of a somewhat delicate but elastic membrane. During the time that the elastic membrane is separating from the nucleus, the intervening space becomes flattened. This flattening goes on to such an extent as to leave a depression between the nucleus and border. The edges of the corpuscles are flat, appearing as if they had been cut off abruptly. The convexity of the nucleus, the flattened edges of the corpuscle, and the concavity intervening between these two parts, are distinctly

seen when any of these bodies, at this stage of development, are observed turning upon themselves. During all these changes the blood corpuscles are perfectly circular. III. One side of the corpuscle is seen gradually to elongate itself, until it has gained a pear-shaped appearance; the opposite side then elongates itself in the same manner, and to the same degree. At the same time that the envelope is becoming elongated, the nucleus undergoes a similar change, so that every part of the corpuscle becomes narrower than before, with the exception of the middle, which remains of the same size. During these changes, the concavity which was observed to exist in the second stage, in the space which intervened between the nucleus and the border, is seen gradually to disappear; at the same time that this change is going on, the borders, which were like those of a guinea piece, become rounded, so that there is a gentle convex declivity (as he expresses it) between the nucleus and borders. The nucleus during all the above changes remains convex, and never presents a granular appearance. Subsequent to the first and beginning of the second stages, Mr. Macleod has never seen any opening in the centre of the nucleus, the envelope appearing to pass, uninterruptedly, over its surface. The envelope itself continues gradually to increase in strength from its first appearance to the complete formation of the corpuscle.

Mr. Addison considers the granules, molecules, and red and white corpuscles, as each possessing a certain degree of independent vitality, and representing different stages of the same object, the blood cell; which may be considered as

undergoing a regular series of changes, until at length it becomes colourless and filled with granules, and that these granules, as long as the cells containing them are swimming in the *liquor sanguinis*, possess the usual endowments of those granules seen in the interior of other simple cells—that is, of being reproductive objects or germs.

Dr. Rees, whose views are not altogether dissimilar, calls in aid of this hypothesis the relative specific gravity of the fluids with which the blood corpuscle comes in contact. He says* that there exists, in the blood corpuscles of a smaller size, the endosmotic power, inherent in the larger ones, of imbibing a fluid containing iron; therefore, if this theory be true, in order fully to complete the process, it would be necessary, first, that a red liquor, containing iron, should be applied to the membrane of the corpuscle; secondly, that this liquor should be of a less specific gravity than that contained within the corpuscle. These conditions really exist; for the specific gravity of the fluid (mixture of chyle and lymph,) which enters the blood by the thoracic duct is 1,024,† while that of the *liquor sanguinis* is 1,052; and the iron which exists in the chyle is not contained in the crassamentum, which forms by coagulation, but is in a state of perfect solution, probably as a lactate in the serum; so that the iron is presented to the corpuscle in a fluid, and in a form capable of being easily dissolved.

Brain and Nervous System.—Dr. John Reid‡

* *Loc. cit.*, p. 323.

† *Philosophical Transactions*, p. 1, 1842.

‡ *London and Edinburgh Medical Journal*, April, 1843.

and M. Perchappe* have given very extensive tables showing the relative weight of the brain to the whole body, and of its several parts to each other. They both agree that the female head is smaller than that of the male, not only "en masse" but in all its separate parts. The weight of the cranium is also less in the female. There appear to be grounds for the supposition that the brain arrives at its maximum weight sooner than the other organs of the body—it continues to increase up to the age of 40, remains stationary till 70, and then begins to decline; and Dr. Reid concludes, from a few measurements of the length of the corpus callosum, the depth of the grey matter, the length, breadth, and depth of the corpus striatum and thalamus, that the relative size of the parts is the same in the young as in the adult, but the weight of the brain to the other organs and to the entire body is much greater in the former than in the latter. M. Perchappe says that in both sexes the weight of the brain is evidently in relation to the stature; and Dr. Reid, carrying these observations further, asserts that, in the female, the average weight of the cerebellum is, in relation to the encephalon, a little heavier than in the male; and it would also appear, that between 25 and 55 years of age, though the average male brain is absolutely heavier than that of the female, the average female brain, as compared with the weight of the whole, is somewhat heavier than the average male brain.

M. Mandl† has investigated with much minute-

* *Academy of Sciences*, October 3, 1842.

† *Ibid*, June 6, 1843.

ness the intimate structure of the nervous system. His observations are interesting, somewhat novel, and opposed to the conclusions of former investigators. He states that the centro-spinal nerves are composed of transparent fibres undulating in a parallel direction, but never anastomosing with each other. These transparent fibres are composed of single filaments, which have only a diameter of from 0.001 to 0.002 of a millemetre, and of filaments with a double outline whose diameter varies from 0.02 to 0.05 of a millemetre; in these latter, at the internal border of each line, an external one is seen. From acting on them with water and other reagents the external line appears to belong to a sheath, inclosing the internal one; this latter, which was transparent at first, becomes coagulated and destroyed by the reagents used, and assumes a globular form, giving rise to the erroneous opinion that the nervous structure is globular in its nature.

The white substance of the brain consists of filaments with a double outline, which decrease in diameter as they approach the grey substance.

The nerves consist both of fibres with a double and with a single outline, and are never composed entirely of one only of these classes of fibres,—they being always mingled together. There may be, however, a preponderance of one or the other, according to the nerve examined. Between the anterior and posterior roots of the spinal nerves no distinctive characters are observable.

M. Mandl moreover says, that the contents of the encephalon comprise several distinct elements, as the grey and white matter and the “*corpuscles gris*

et ganglionnaires," and concludes that the nervous system is composed of two portions, a white and grey; that each of these consists of a centre and periphery; that the central portion of the white matter is found in the white substance of the encephalon and spinal marrow, and its external and peripheral part in the centro-spinal nerves; that the central portion of the grey matter is found in the grey substance of the nervous centres, and its peripheric part in the ganglionic system.

In both divisions the elementary fibres are most distinctly recognised in their respective peripheries; and each part of the nervous system contains fibres of the other portion.

With regard to the termination of the nerves, M. Mandl observes—I. That at whatever age an animal is examined, the nerves are always seen to end in loops. II. Nerves of young animals are not always provided with a sheath. When the parenchyma is forming during the development of an animal, it commences by the production of some corpuscles between the primitive fibres of the fasciculus, so as to separate one or more of the elementary fibres from the rest of the fasciculus. In proportion as the corpuscles are developed, the primitive fibres, which at first were only slightly separated from the direction of the fasciculus, become more and more apart, so as to form at last a true loop. From these observations it would appear that the number of primitive fibres in old and young animals is the same, as M. Mandl has never been able to discover any fibre dividing into two. III. The retina is composed of two portions: the internal, or that next

the vitreous fluid, is composed of the same elements as the grey substance of the encephalon ; the other, the external or white portion, besides the vessels and the expansion of the optic nerve, contains the particular elements which the author calls small rings (*baguettes*.) At their outer surface there is an oily lobule, of a yellow or red colour, whilst their inner is terminated by a very fine filament.

Dr. James Stark, who has more recently laid his researches before the Royal Society, does not very materially differ from M. Mandl. He concludes, that the nerves consist, in their whole extent, of a congeries of membranous tubes, cylindrical in their form, placed parallel to one another, and united into fasciculi of various sizes ; but that neither these fasciculi nor the individual tubes are enveloped by any filamentous tissue ; that these tubular membranes are composed of extremely minute filaments, placed in a strict longitudinal direction, in exact parallelism with each other, and consisting of granules of the same kind as those which form the basis of all the solid structures of the body ; and that the matter which fills the tubes is of an oily nature, differing in no essential respect from butter or soft fat, and remaining of a fluid consistence during the life of the animal, or while it retains its natural temperature, but becoming granular or solid when the animal dies, or its temperature is much reduced. As oily substances are well known to be non-conductors of electricity, and as the nerves have been shown by the experiments of Bischoff to be among the worst possible conductors of this agent, the author contends that the nervous agency can be

neither electricity nor galvanism, nor any property related to those powers; and conceives that the phenomena are best explained on the hypothesis of undulations or vibrations propagated along the course of the tubes which compose the nerves, by the medium of the oily globules they contain. He traces the operation of the various causes which produce sensation in giving rise to these undulations, and extends the same explanation to the phenomena of voluntary motion, as consisting in undulations, commencing in the brain, as determined by the will, and propagated to the muscles. He corroborates his views by ascribing the effects of cold in diminishing or destroying both sensibility and the power of voluntary motion, particularly as exemplified in the hybernation of animals, to its mechanical operation of diminishing the fluidity, or producing solidity, in the oily medium by which these powers are exercised.

Dr. Macartney, in a communication to the Royal Irish Academy, states that medullary fibres, (or sentient filaments, as he terms them,) assuming a plexiform arrangement, exist in every part of the brain; but that the most delicate and intricate plexuses are to be found inclosed in the grey or coloured substance, which he therefore assumes to be analogous to the ganglia of the nervous system, in which there is also a close reticulation of the nervous fibres. He further considers, that in these various plexuses, and more especially in those occupying the coloured substances, the sensorial powers of the brain reside; and that the magnitude and form of the entire brain, and of its several

parts, are merely subservient to the number, extent, and connexions of them

In the subsequent part of this paper he considers the comparative condition of the intimate structure of the brain in the chimpanzee and in two idiots, from which he deduces that the brain in these latter is less developed than in the former, and that the first deviations from the perfect brain of man appear to be with respect to the following parts:—The locus niger, the corpus fimbriatum, the white striæ in the floor of the fourth ventricle, the decussation of the pyramids, the distinction of the anterior crura of the fornix, the corpora olivaria, the degree of intermixture of the sentient or white filaments in the arbor vitæ, the corpora candicantia, and the existence of calcareous granules in the pineal gland. It is remarkable that many of these parts are not found in the first stages of fœtal life, and some of them not until after birth. The pineal gland, according to Meckel, is not perfect until the seventh year of infancy. The same parts also first decline, and ultimately disappear in animals, according to their scale of organization; and further, it is chiefly with respect to these parts that varieties of structure are observed in the brains of different rational human beings.

Dr. Macartney therefore very properly observes that, if we are ever to arrive at correct notions of the functions of the brain, it must be by careful dissections of the interior parts of the cerebral organ, and by ascertaining the correspondence between the minute structure and the endowments and dispositions of the different individuals; taking into ac-

count, at the same time, the influence of the various organs of the body, instead of ascribing to certain parts on the surface of the brain distinct and often opposing faculties, as Gall and Spurzheim have done. Dr. Macartney further observes that all the plexuses of the brain are continuous with each other; that no part of the nervous system is isolated, and consequently the different parts must exercise a mutual influence on each other; that the spinal nerves, as well as those of the brain, are not inserted in the same way as the roots of plants penetrate the earth, which has been heretofore believed, but that they are united with the parts from which they are supposed to arise, and that the spinal nerves form a chain of communication with each other after they enter the spinal marrow. It is in consequence of the integrity of the whole nervous system that the various sympathies, both natural and morbid, exist between the different organs of the body. If the continuity of the sentient or nervous filaments were to be intercepted at any one place, their functions would be arrested at that point, in the same manner as the division of the nerve destroys sensation and voluntary motion in the parts to which the nerve is sent.

M. Foville has also added somewhat to our information on the decussation of fibres at the base of the brain, almost sufficient indeed to clear up the difficulty, that has hitherto existed, in accounting for the completeness of the paralysis of one side of the body when the opposite side of the brain is impaired. He has succeeded in demonstrating "a decussation at the commencement of the spinal cord, not through

an extent of a few lines only, or by only a small number of filaments, but through the whole distance which separates the basis of the crura cerebri from the medulla spinalis, properly so called."

Mr. Viner Ellis,* noticing the differences, in the accounts by anatomical writers, of the posterior divisions of the spinal nerves, and which he assumes are owing to an uniform arrangement not having been observed, says that in the neck and sacral region each posterior division consists of a single trunk, from which spring muscular and cutaneous nerves; whilst in the back and loins it is divided regularly into an external and internal branch, which same type of distribution exists in all the nerves, with some exceptions at the extremities of the spinal column.

On the functions of the par vagum some valuable additions to our knowledge are offered by Mr. Spense and M. Stilling: the former shows that a few of the filaments of the par vagum are non-ganglionic, or motor, passing over the superior ganglion of this nerve and joining themselves to the internal root of the accessory. The white nervous cord, so formed by this junction, can be traced down over the inferior ganglion of the vagus to which it gives one or two delicate filaments, and, at last, seems principally to pass into the formation of the inferior laryngeal nerve.

M. Stilling says, in accordance with the above dissection, that the par vagum is both motor and sensitive; that the superior laryngeal nerve is solely sensitive, having no effect in producing mo-

* *Medical Gazette*, February 20, 1843.

tion in the glottis ; and that the recurrent is motor and sensitive also, though in a less degree than the superior laryngeal. The glottis and the whole larynx derive all their sensation from the first-named branch, the trachea from the recurrent branch, and the lungs from the branches of the par vagum, which they receive. The glottis depends for motion on the recurrent branch, and not at all on the nervus accessorius, while the quality of the voice is dependent on the condition of the superior laryngeal nerve and the degree of harmony between this and the recurrent branch.

M. Guarini* has published a monograph containing some experiments and observations on the *corda tympani*. He adopts the opinion that the nerve is not derived from the cranial branch of the vidian, but takes its origin from the facial. He concludes, therefore, that it is, like the facial, a motor nerve. In the second place he shows, by dissection, that the *corda tympani* is distributed principally to the fibres of the lingual muscle ; and, he thinks, that it communicates a motor power to them.

From a series of experiments which are detailed the author comes to the conclusions that the hypoglossal is not the only motor nerve of the tongue, and that by its influence upon the lingualis muscle the *corda tympani* is subservient to the articulation of sound.

The suggestion that the *corda tympani* is a motor nerve, and derived from the facial, is by no means new, though the part to which its influence is sup-

* *Medical Gazette*, October 21, 1842.

plied has been a subject of much discussion. M. Guarini's experiments appear to have been conducted with much care, but require repetition before we can consider the inferences drawn from them as quite established.

Dr. Bidder, of Dorpat,* has performed some experiments on dogs, in order to ascertain the possibility of uniting nerves of different functions with one another, from which he concludes that the doing so is in the highest degree doubtful; and shows that the tendency of divided nerves to preserve their natural relations is strongly marked, though every obstacle may have been offered to it.

Muscle.—Nothing very material during the past year has been recorded on the intimate structure of the muscular system, which, in the two or three years immediately preceding, occupied so much attention. The statement made by Dr. M. Barry, and noticed in the able address of my predecessor, that muscular fibre was, in fact, a bundle of spirals, though at first meeting with some opposition, now appears to be allowed to be correct.

Dr. Guéneau de Mussy† has published some very interesting investigations on the disposition and relative arrangements of the muscular fibres of the stomach. Modern anatomists admit three layers: the first, superficial or longitudinal; the second, circular; and the third, parabolic. Our author considers that there are four in reality, if the number of these layers is to be determined by their direction

* *Müller's Archives.*

† *Gazette Médicale*, June, 1842.

and origin, and that two of these are superficial and two deep-seated. He further states that one of the superficial and one of the deep-seated layers arise respectively from the œsophageal and pyloric extremities of the viscus, the fibres radiating from either end and vanishing in its body, or intercrossing with each other. Without going into the minute details of the course and direction of these fibres, it may be stated, that in the left and cardiac portions of the stomach the superficial fibres are perpendicular to the great axis of this viscus, the deeper seated are parallel, a precisely inverse disposition being observed in the right or pyloric portion. When the œsophageal fibres contract, the fundus of the great cul de sac is brought near the cardia; at the same time the band of the minor curvature diminishes the distance between the two orifices—an arrangement which M. de Mussy is of opinion must singularly favour vomiting; the longitudinal pyloric fibres and the band of the smaller curvature causing the longitudinal contraction of the viscus, the contraction in the direction of the diameter being owing to the circular fibres. The parabolic fibres, acting in the same direction, tend to efface the cavity of the great cul de sac, and to propel the food to the pyloric extremity, while the superior fibres embracing the œsophageal orifice assist the lower fibres of that tube to close it, and prevent the regurgitation of food.

Connected with the subject of muscle we may here consider some interesting observations on the iris, presented by Mr. Hall to the Royal Society. He considers the radiated plicæ, which are seen on the

uvea in mammalia, as not being muscular; but he agrees with Dr. Jacob in regarding them as being analogous in structure to the ciliary processes. The white lines and elevations apparent on the anterior surface of the human iris he supposes to be formed by the ciliary nerves which interlace with one another in the form of a plexus. The iris, he states, is composed of two portions: the first consisting of a highly vascular tissue, connected by vessels with the choroid, ciliary processes, sclerotica and cornea, and abundantly supplied with nerves, which, in the human iris, appear, in a front view, as thread-like striæ, and which are invested, on both surfaces, by the membrane of the aqueous humour. They are more or less thickly covered with pigment, which, by its varying colour, imparts to the iris on the anterior surface its characteristic hue, and by its darkness on the posterior surface renders an otherwise semi-transparent structure perfectly opaque. The second component portion of the iris consists of a layer of concentric muscular fibres, which fibres, in man and mammalia generally, are situated on the posterior surface of the pupillary portion of the iris, but in birds extend much nearer to the ciliary margin, and consequently form a much broader layer. In fishes and some reptiles they do not exist at all. The author then proceeds to inquire into the bearings which these conclusions may have on the physiology of the iris. He thinks that the phenomena of its motions can receive no satisfactory explanation on the hypothesis of erectility alone, or on that of the antagonism of two sets of muscular fibres, the one for dilating, the other for

contracting the pupil. He is convinced that the contraction of the pupil is the effect of muscular action, but does not consider the knowledge we at present possess sufficient to enable us to determine the nature of the agent by which its dilatation is effected. He, however, throws it out as a conjecture that this latter action may be the result of an unusual degree of vital contractility residing either in the cellular tissues or in the minute blood vessels of the iris. It is from elasticity, he believes, that the iris derives its power of accommodation to changes of size, and its tendency to return to its natural state from extremes either of dilatation or of contraction ; but beyond this, elasticity is not concerned in its movements.

Lungs.—The opinions of anatomists have been much divided as to the manner in which the bronchial tubes terminate, whether in a series of communicating cells or in a single “cul de sac :” the latter opinion, founded on the results of Reisseissen’s investigations, prevails. Nevertheless, the more elaborate observations of M. Bourgery and Mr. Addison show that they are communicating cells. The former coincides with Helvetius and Haller in considering the air cells to have a general inter-communication throughout a lobule, but he differs from them and all previous observers in his account of the *canaux labarynthiques*, as he terms the lobular passages. He describes these as anastomosing in every direction with each other, and as turning back at the boundary of a lobule to re-enter its interior and terminate in some of the deeper

canals. Mr. Addison suggests that there is some inaccuracy in these views of M. Bourgery; for at an early period of his investigations he remarked that no bronchial tubes could be traced ending in a cul de sac; on the contrary, communicating air cells were readily seen with a lens in every section of the lungs. Several of Reisseissen's experiments were therefore repeated, and others instituted, from which ample evidence was derived that the bronchial tubes, after subdividing into a multitude of minute ramifications, which take their course in the cellular interstices of the lobules, terminate in their interior in symmetrically-branched air passages and freely communicating cells.

It would also appear that in the fœtus, the lungs have neither air vesicles nor air cells. The ultimate bronchial subdivisions are tubular, and have a regular branched arrangement, ramifying symmetrically in all directions, and terminating in closed extremities, which are generally situated at the boundary of the lobules. After respiration the bronchial subdivisions experience a great and important change: the delicate membrane composing them offers only a feeble resistance to the pressure of the air, and it is consequently pushed forward and distended laterally into rounded inflations, forming a series of communicating cells, which, meeting on all sides those of the adjoining subdivisions, are moulded by pressure against each other into various pentagonal and hexagonal forms. The cells thus formed are immediately occupied by minute air bubbles, in the multitude of which all trace of the symmetry of a branched arrangement is quite

lost. The symmetrically-branched air passages, thus formed by respiration, are no longer tubes.

The membrane of the air cells is exceedingly tough, thin, and elastic : it is a continuation of the membrane lining the interior of the bronchial tubes, and numerous granulated vesicles or cells are distributed upon it, which appear to constitute the normal form of epithelium.

The blood vessels lie exterior to or between the lobular passages ; and as the membrane forming one of these passages is pressed by the inspired air into close contact with that of the adjoining ones, it follows that the capillary blood channels ramify or run between the membranous layers ; and any increase of the diameter of these channels must separate these layers, so that two contiguous channels soon run into each other.

M. Bourgery,* having examined the respiratory capacity of the lungs at different ages, observes that

1. *Cæteris paribus*, the respiration is more energetic the younger and thinner the subject, and that no other condition of strength or health is equivalent to the influence of youth.

2. At the same age, the column of the respiration of the male doubles that of the female.

3. The plenitude of respiration in both sexes occurs at the age of thirty.

4. The column of air required by an individual in an *ordinary* respiration augments gradually with the age.

5. During a forced respiration the aerial capacity of the lungs presents two periods—the one ascend-

* *Academy of Sciences*, January 23.

ing from infancy to thirty years, the other descending from thirty to old age. Thus, the young man has in reserve for violent exertion an immense respiratory faculty, while the aged person is quickly "winded." The respiratory faculty is gradually worn out by the laceration of the capillary aerial and sanguineous canals; this laceration occurs, in a greater or less degree, in all powerful respiratory efforts. It begins at an early period, and increases gradually to old age, as a simple consequence of repetition of the respiratory act. It is increased by all diseases of the lungs. In its most aggravated form this state of the lung causes a circulation of imperfectly oxygenated blood, and reduces the decrepid octogenarian to the locular lung and imperfect respiration of the reptile.

The views of M. Bourguery are confirmed by the experiments made by MM. Andral and Gavarret, in order to discover the quantity of carbonic acid gas exhaled from the lungs in man. Their conclusions are interesting—1st. The quantity of carbonic acid gas, exhaled in a given time, varies according to the age, sex, and constitution. 2nd. In the male, as well as in the female, the quantity is modified according to the age, independently of the weight of the individuals experimented on. 3rd. At all the periods of life, between the age of eight years and extreme old age, the male and female are distinguished by the difference in the quantity of carbonic acid gas exhaled by their lungs in a given time. All things being otherwise equal, the male always gives forth a much more considerable quantity than the female; this difference is especially

marked between the ages of sixteen and forty, at which periods the male furnishes nearly twice the quantity of carbonic acid gas from the lungs that the female does. 4th. In the male the quantity of carbonic acid gas is constantly increasing from the eighth year to the thirteenth, the increase becoming suddenly very great at the period of puberty; from the thirtieth year the exhalation of carbonic acid gas begins to decrease, the diminution becoming more marked as age advances, so that, at the extreme point of life, the exhalation of this gas may not be greater than it was at the tenth year. 5th. In the female the exhalation of this gas during infancy increases according to the same laws as in the male; but at the period of puberty, on menstruation appearing this exhalation, contrary to what happens in man, is suddenly arrested in its increase, and remains stationary as long as the menstrual function is duly performed; when this ceases, the exhalation of the gas from the lungs is increased in a remarkable manner, after which it decreases, as in the male, in proportion as the female advances towards extreme old age. 6th. During pregnancy, the exhalation of the gas equals the quantity given forth when menstruation has ceased. And 7th. In both sexes, and at all ages, the quantity of the gas exhaled is greater when the constitution is strong and the muscular system well developed.

Liver and Bile.—In 1829, M. Amussat* propounded the view that the ascent of the bile, along the ductus choledochus to the gall bladder, depended on the

* *Academy of Sciences*, September 26.

narrowness of the duodenal opening of the duct, and on the spiral arrangement of the valves of the cystic duct, observed in man and the monkey only. These views he now re-asserts, adding, contrary to the opinion of many anatomists who deny the existence of muscular fibres in the gall bladder, that this organ as well as the excretory biliary ducts is furnished with them, and that the apparatus composed of these parts discharges its contents, not only under the influence of pressure, but probably also of contraction ; that the spiral arrangement of the cystic valves has the double effect of favouring the ascent of the bile and of preventing its discharge too suddenly ; that the narrowness of the orifice of the ductus communis, as compared with the calibre of the duct itself, is the physical cause which compels the bile to ascend to the gall bladder.

M. Bouisson* illustrates the effect that the free agency of the respiratory organs has upon the secretion of bile by showing that slow asphyxia causes venous congestion in the liver, and increases considerably the secretion of bile, which, he states, is produced from the venous blood of the liver ; that it influences the composition of the bile, making it more dark, consistent, and as if mixed with blood ; and finally, by arresting the functions of the lung, develops the supplementary function of the liver, which throws off the excess of carbon by means of the bile.

Berzelius has reviewed his analysis of bile, and comes to the conclusion that, in a physiological point of view, its most remarkable principles are

* *Academy of Sciences*, May 8, 1843.

bilin, cholepyrrhin, and mucus, and that the ancient comparison of the bile, with a solution of soap, is not entirely incorrect. Contrary to the assertion of Liebig, he says that bile is an excretion, for not only do the excrements of animals contain the products of its metamorphoses, but likewise bile itself.

Dr. Kemp* has also made some minute examinations into the composition of this fluid, from which he infers that it is a chemical compound of an electro-negative body with soda, but which is not identical with the choleic acid of Demarçay or the bilin of Berzelius; nor does he agree with this latter in attributing its peculiar sweetish taste to the presence of glycerin. He also shows that the bile in the liver is different from that in the gall bladder, and he thinks it highly probable that what has been usually termed the "mucus" of the gall bladder is an important agent in effecting the change.

Kidney and Urine.—Dr. Golding Bird, in the course of some interesting lectures on urinary deposits,† combats Liebig's theory that the occurrence of uric acid and urates is due to a re-arrangement of exhausted tissues, and comes to the conclusion that the older view, which attributed these deposits to the presence of a free acid in the urine, is the more correct. Dr. Morin, of Geneva, also says that the opinion of Berzelius, that free lactic acid is the cause of the acidity of urine and the dissolvent of the phosphates of lime and magnesia contained in it, is incorrect, and that in the majority of cases of

* *Medical Gazette*, December, 1842, and May, 1843.

† *Ibid*, February, 1843.

healthy and diseased urine free phosphoric acid is the cause. He does not, however, absolutely deny the presence of free lactic acid.

The presence of kiestein in the urine of pregnant women has received, during the year, some little attention and discussion. It may be recollected that Dr. Stark had stated the urine of pregnancy to contain, what he termed, "gravidine," the decomposition of which gave origin to the kiestein. Dr. Griffith* states he has been too hasty in adding this to our list of new elementary substances, and that it is merely lithate of ammonia which exists as a deposit in the urine of pregnant women, and has no relation nor connexion with kiestein. He also differs from Dr. Stark's assertion that the urine of pregnancy has no caseous odour. Dr. Stark, however, re-asserts his views,† and maintains that he is perfectly justified in describing this as a new animal matter and applying to it the name of gravidine. A rejoinder from Dr. Griffith‡ leaves the matter in dispute between these gentlemen undecided.

Dr. Kane, of Philadelphia,§ whose opportunities of observation have been very extensive, is unable to determine the nature of kiestein by the aid of chemistry, but comes to the following general conclusions:—

1. That the kiestein is not peculiar to pregnancy, but may occur wherever the lacteal elements are secreted without a free discharge at the mammæ.

* *London and Edinburgh Monthly Journal*, July, 1842.

† *Ibid*, September, 1842.

‡ *Ibid*, December, 1842.

§ *American Journal of Medical Science*, July, 1842.

2. That though sometimes obscurely developed and occasionally simulated by other pellicles, it is generally distinguishable.

3. That where pregnancy is possible, the exhibition of a clearly defined kiesteinic pellicle is one of the least equivocal proofs of that condition, and

4. That when this pellicle is not found in the more advanced stages of supposed pregnancy, the probabilities (if the female be otherwise healthy) are as twenty to one that the diagnosis is incorrect.

Uterus and its Functions.—M. Jobert* conceives that the peritoneum is united to the surface of the uterus by three muscular fibres, and that the uterus itself consists of a single muscle, whose fibres, arranged in superimposed layers, run in the following directions:—

1. The superficial longitudinal are, for the most part, found on its posterior aspect, where they consist of two thin superimposed layers, commencing at the fundus and running to the extremity of the vagina, to which they are attached, with the exception of a few which terminate on the neck of the uterus, above the opening of the vagina. They adhere on the one hand to the peritoneum, on the other to the oblique fibres.

2. The superficial fibres of the anterior wall of the uterus form a layer covered by the peritoneum and lying on the deep fibres; they are so disposed that they do not embrace the entire surface of the wall of the uterus, which they concur in forming, but they cross before they reach the round ligament

* *Academy of Sciences*, February 20, 1843.

of the opposite side. Some of its fibres enter into the composition of the round ligament, while others pass behind it and terminate on the sides of the organ, where they decussate with those from the posterior surface.

3. The remaining superficial fibres appertain to the tubes and to the ligaments of the ovaries; they are only apparent during pregnancy. Some arise from the fundus, adhere to those which belong to the tubes, and run to the anterior part of the ligament of the ovaries, being slightly twisted on themselves; others more numerous, at first divergent, arise from the posterior surface of the fundus of the uterus, and also run to the ligament of the ovary. Finally, some transverse fibres, arising from the posterior surface, constitute the inferior portion of the organ.

The neck of the uterus is composed of the same tissue as the body. The fibres composing it represent semi-circles, and decussate without intermixing in the direction of the commissures. This semi-annular arrangement is more evident when the female has borne children, and when the orifice of the uterus is transverse. M. Jobert also thinks that the fibres of the neck of the uterus are confounded with those of the vagina.

Dr. Robert Lee, in 1838, and subsequently, in a paper which was read to the Royal Society in 1839, showed that the spermatic, hypogastric, and sacral nerves passed into four great plexuses under the peritoneum of the body of the uterus. These he inferred were true nervous ganglionic plexuses, and formed the nervous system of the uterus; but as

these views were not coincided in, the paper was withdrawn from the Royal Society. Subsequent opportunities having, however, enabled him to pursue his investigations, he has been enabled so satisfactorily to demonstrate a system of nerves, connected with the great sympathetic, proper to the uterus, that the question may now no longer be considered as a disputed point. He further shows that these nerves enlarge with the coats, blood vessels, and absorbents of the uterus during pregnancy, and return, after parturition, to their original condition; and he also infers that it is chiefly by the agency of these nerves the uterus performs the varied functions of menstruation, conception, and parturition; and that it is solely by their means the whole fabric of the nervous system sympathises with the different morbid affections of the uterus. In fact, if these nerves of the uterus could not be demonstrated, its physiology and pathology would be completely inexplicable. This great discovery is very creditable to Dr. Lee, from having previously escaped the observation of the great anatomists who have devoted their attention to this organ.

Mr. Tubbs, M. Guislain, and Mr. Kesleven, have each recorded cases illustrative of the effects of maternal impressions upon the foetus. The carefulness with which inquiry seems to have been made, and the decisive character of the testimony, render it necessary to admit that the popular belief in this influence is based in scientific truth.

With regard to the early age at which uterine development may take place, Dr. Carus* relates

* *Allgemeine Zeitung für Chirurgie.*

the singular case of a child two years old, in whom the catamenia appeared, and continued to flow regularly once a month. The Academy of Medicine of Dresden, in order the more particularly to examine into the case, kept her under their observation during several weeks. She was rather more than 37 inches long; the mammæ were firm, like those of a strong girl of sixteen; the body was stoutly made; the head and genital organs were covered with dark brown hair; the physiognomy and tone of voice were childish, and contrasted singularly with the strength of the body; and the intellectual functions were equal to those of a child three years old.

Dr. M. Barry has added another link to the very insufficient chain of knowledge we possess on the process of fecundation. Some months since he communicated to the Royal Society the fact that he had observed spermatozoa within the mammiferous ovum. The ova were those of the rabbit, taken, twenty-four hours *post-coitum*, from the fallopian tube. He has recently confirmed the observation, several ova from the fallopian tube of another of these animals, in a somewhat earlier stage, having presented spermatozoa within the thick transparent membrane (*zona pellucida*), brought with the ovum from the ovary.

M. Raciborski* has devoted some little attention to the subject of the effects of menstruation on the secretion of milk, and he comes to the conclusions that—

* *Academy of Medicine*, May 31, 1843.

1. Contrary to the generally received opinion, the milk of nurses who menstruate during the period of suckling does not differ in any appreciable manner from that of nurses who do not menstruate.

2. The only difference worth noting is that it contains less cream—a fact on which the bluish colour of the milk of some women depends.

3. That the inconvenience of allowing women to nurse during menstruation has been greatly exaggerated; and that a nurse should never be rejected on this account alone.

While on the subject of the organs connected with generation, we may allude to some curious freaks of nature that have been recorded during the year.

Dr. Oberstadt mentions a woman with a third mamma, about three fingers' breadth below the left breast. It measures about three inches in diameter, and is provided with its proper nipple and a peculiar areola. When the woman reached her last month of pregnancy, milk flowed abundantly from it, which continued for about a month after her confinement and then gradually ceased. Dr. Macann and Mr. Prankerd have each detailed cases where there were three testicles.

Spleen.—The structure and functions of the spleen have occupied much attention both on the continent and at home.

According to Malpighi, the spleen is composed of cellules separated by spaces; in the cells exist granulations pendent from the extremities of the arteries and nerves. The veins and arteries open

into the cellules by gaping orifices. The spaces are formed by a parenchyma of fibrous and muscular bands, and contain a thickened and extravasated blood. Ruysch admitted the existence of the membranes, but denied that of the fibres and cellules, and assigned another use to the granulations. Winslow spoke of a cottony tissue, and admitted the cellules and granulations, but did not allude to the vascular capillaries. Haller acknowledged only the cellules and granulations; a little later, Assolan denied the existence of the cellules; and still later, Meckel wrote against the cellules, and Cruveilhier against the granulations in man.

M. Bourgery* says that the spleen is composed of two distinct apparatus, the vesicular and glandular, divided into little organules, in juxta position throughout the entire organ. Of these the vesicular apparatus constitutes three-sixths of the spleen; the glandular two-sixths, the remaining one-sixth being formed of vascular arrangement. The vesicular apparatus, or succession of vesicles, is continuous throughout, interspersed by orifices of communication, and comprises the splenic veins, the corpuscles, and the granular capillary membrane. It constitutes a long canal, everywhere folded on itself, and divided by vascular bands into myriads of little cavities to increase the surfaces. The texture of these vesicles and the nature of the liquid they contain causes him to regard them as an apparatus for the elaboration of the blood.

The glandular apparatus is composed of glands and lymphatic vessels. It consists of a tortuous

* *Gazette Medicale*, June, 1842.

chain of glandules connected by cords of the same substance, and situate between the vesicular ampullæ. It may be regarded as one large lymphatic gland, broken down into smaller ones, in order to surround the vessels throughout the entire extent of the spleen.

The capillary blood vessels assimilate somewhat in texture to the organ itself, the veins forming part of its tissue, and participating in its functions, while the lymphatics appear to be not merely vessels for transmitting the lymph, but at the same time organs for elaboration. These anatomical arrangements, he says, are the same throughout the mammiferæ, but in man they are more precise and defined, marking the perfection of this organ, which is more elaborate in its organization than in animals.

A discussion has taken place* between Mr. Jackson and a contributor to the *Medical Gazette*, in which the former maintains that the spleen is a contractile organ and assists in propelling the blood through the veins. Mr. Dobson says that it acts as a safety valve, so as at times to prevent the ill effects of an overloaded circulation by permitting distention, and again contracting when the necessity for its dilatation is over. Dr. O'Beirne states that its purpose is to relieve congestion of the venous system in particular. And a writer in the *Medical Times* maintains that it is a left liver formed according to a certain natural type or pattern, and that the pancreas is an appendage to it as the gall bladder is to the liver. Dr. Haygarth† maintains that it is in this organ the red principle of the blood is elaborated.

* *Medical Gazette*, vol. i., 1842-3.

† *Medical Gazette*, January 13, 1843.

The arguments which have been adduced in support of these various theories are rather ingenious than satisfactory, wherefore we need not detain ourselves with any more distinct enunciation of them.

Digestion.—MM. Sandras and Bouchardat have presented a memoir on digestion, which has received a very flattering report from the French Academy of Sciences, January 30, 1843. The committee state, that the chemical experiments of the authors have established a new and very remarkable fact, consisting in the action exerted by water, acidulated by muriatic acid, on fibrin, albumen, casein, gluten, and fibrous tissues: all these substances swell, become translucent, and some of them dissolve. The addition of six parts of acid suffices to produce this reaction. The authors have, however, gone too far in considering the muriatic acid as the only agent in the solution of azotised alimentary substances. In fact, while fibrin, under its influence, merely becomes excessively tumified, the addition of a few drops of rennet suffices to dissolve it completely; consequently muriatic acid is not the only solvent in the gastric juice. We must also probably take into account the animal substance termed “pepsin,” detected in the stomach by MM. Schwann and Duchamps, and obtained in an isolated form by Trasmann.

It seems probable, according to the experiments of the authors, that the neutral azotised animal substances, when dissolved in the stomach, pass directly into the veins; gluten is acted on in the same way; starch and fecula are changed partially

or entirely in the stomach into lactic acid, and are absorbed in that state. The fats evidently resist the action of the stomach, and pass into the intestinal canal; the authors regard them as the chief agents in the production of chyle.

Teeth, &c.—A very able report was read at the Academy of Sciences, by MM. Serres, Dutrochet, and Flourens, December 5, 1842, on a memoir, by Mr. Nasmyth, on the teeth.

The teeth have been considered by some as composed of solid fibres, by others as an assemblage of tubes, filled either with calcareous matter, blood, or a colourless fluid; and all anatomists, with the exception of Malpighi, give the absence of areolar arrangement as the specific character of dental tissue. Mr. Nasmyth and Mr. Richard Owen, on the contrary, assert that the areolar arrangement constitutes the fundamental character of the structure of the teeth; but they admit the cellular arrangement both in the enamel and the ivory.

With regard to the much disputed point whether the fibres, which contribute to form the ivory, are hollow or solid, or, in other words, whether the teeth are a collection of tubes or of fibres, Mr. Nasmyth submitted to the Academy preparations which he thought negatived the former view, and proved that they are composed of fibres only; but the commission felt justified in asserting, that they were anything but conclusive on this point—a view which coincides with the researches of M. Retzius.* But what particularly struck the reporters was, Mr.

* *Academy of Sciences*, October 17, 1842.

Nasmyth's establishing a similarity of organization between the enamel, ivory, and bulb.

If we consider, with Hunter, the teeth as a product of secretion from the external surface of the bulb, we are led to conclude that the enamel is also deposited on the crown by its enveloping membrane, an idea to which the recent researches of M. Duvernoy* give a very high degree of probability; but it is, on the other hand, difficult to reconcile this theory with that of interstitial secretion, thrown out by Rau, and supported by Mr. Nasmyth and Mr. Owen. Indeed we must confess, if the labours of these latter-named gentlemen have demonstrated the mode of formation of ivory, they have thrown no additional light on the manner in which the enamel is produced.

According to M. Retzius, the ivory is deposited in layers round the surface of the pulp, the external layer being the one first formed, and so on. While this deposition is taking place, the external cells and the peripheral extremities of the tubes are formed; and, as the successive layers of ivory are deposited, the tubes become continuous from one layer to another, in such a manner that the successive segments of tubes form at last one uninterrupted canal. It would seem that the numerous parallel undulations of the tubes are occasioned during their passage from one layer to another. The enamel, he thinks, (an opinion coincided in by Duvernoy,) is probably nourished by imbibition of an organic fluid, carried by the ivory tubes, and transmitted through a thin membrane, which probably surrounds the different cells.

* *Academy of Sciences*, November 14.

Bone, &c.—M. Mandl* has pursued the minute anatomy of osseous structure. He affirms—first, that in the osseous tissue small canals and bony corpuscles can be distinguished; secondly, that these canals contain a capillary vessel and fat, and that their walls are composed of concentric lamellæ; thirdly, that the lamellæ are traversed by lines proceeding from the centre to the circumference.

Skin, &c.—The organs which secrete the sweat, and which were first pointed out by Breschet, and afterwards described by Purkinjé, Gurlt, Wagner, &c., Dr. Giraldest† has studied more particularly, and added a few additional facts. According to him, they are composed, not of single canals divided at their extremity, but of a straight canal which pierces through the whole thickness of the derma, and is embedded in the fatty layer beneath it. Sometimes they penetrate this fatty layer to a very considerable depth, and at the extremity of the fingers may even be seen to traverse it completely. Arrived at this point, these canals sometimes dichotomise; in general, however, they remain simple, and roll on themselves so as to form a small button-shaped body. These convolutions are sometimes all on the same plane; at other times present a spheroidal appearance.

Dr. Robert Willis‡ says, that the purpose which is answered in the animal economy by the cutaneous exhalation has not yet been correctly assigned by

* *Academy of Sciences*, December 26.

† *Academy of Sciences and Edinburgh Medical and Surgical Journal*.

‡ *Royal Society*.

physiologists: the author believes it to be simply the elimination from the system of a certain quantity of pure water, and he considers that the saline and other ingredients which pass off at the same time by the skin are in too inconsiderable quantity to deserve being taken into account, and that this elimination is important as securing the conditions which are necessary for the endosmotic transference, between arteries and veins, of the fluids which minister to nutrition and vital endowment.

Dr. Kemp has contributed* a very elaborate paper on the elementary composition of mucus. The secretion operated on was obtained from the gall bladder of the ox. When moist, the mucus thus obtained may be described as a greyish gelatinous opaque mass, not soluble in water, but becoming transparent in that menstruum. When dried at 100° the colour changes to a dark olive. Dr. Kemp considers its atomic proportions to be, carbon 48, hydrogen 39, nitrogen 6, oxygen 17, which is equivalent to one atom of protein, *plus* three of water, and very nearly identical with the middle coats of arteries, the composition of which is one atom of protein, *plus* two atoms of waters.

Articular Cartilage.—M. de Lignerolles has succeeded, by the means of very fine injections, in demonstrating the organization of articular cartilage, and has shown vessels injected upon the articular surfaces. This anatomical fact is the more worthy of attention, as the most eminent men do not admit the organization of cartilaginous tissue, and from

* *Medical Gazette*, July 29, 1842.

its interfering with the theory of nourishment of these membranes promulgated by Mr. Toynbee.

Lymphatics, &c.—Dr. Willis, in a paper read before the Royal Society, has followed up the views of Majendie and Wagner, in denying to the lymphatics the function of absorption, and referring it entirely to the veins. As it is, this vast system of vessels is left without any assigned purport.

Mr. Robinson* goes a step further, not only asserting that the process of absorption in animals arises from, and depends upon, a force existing within the blood vessels, but that this force itself is generated by, and proportioned to, the velocity of the moving mass, by which in a healthy state they are incessantly traversed.

PATHOLOGY AND THERAPEUTICS.

This interesting portion of my subject offers much that is worthy the attention of the practical physician. In detailing which, nearly the same order will be adhered to as has just been adopted. We shall first draw attention to the more recent observations on the diseases of the brain and nerves.

Brain and Nerves.—Every one, acquainted with diseases of the nervous system, is aware of the extraordinary contradictions which are recorded regarding them; and a reference to any of the works published on the pathology of the brain and spinal cord will show that many cases present themselves that baffle all attempts at explanation. The conse-

* *Medical Gazette*, May 26, 1843.

quence is, that this interesting subject is still involved in great obscurity. Professor Gluge* has, however, directed attention to this department of pathology; and Dr. J. H. Bennett has published † 32 cases of cerebral and spinal disorders, where the symptoms, *post mortem* appearances, and microscopic examination of the diseased textures, are accurately recorded. From these it appears that at least two distinct kinds of softening exist in the nervous centres, which may be readily distinguished by the microscope. They are characterized by the presence or absence of *exudation corpuscles*, and may be denominated inflammatory and non-inflammatory softening.

An analysis of the cases given by Dr. Bennett will also show that these two kinds of softening are not only distinguishable after death, but may be recognized by the symptoms which accompany them during life. These researches further establish the two following propositions:—1st. That pathologists have hitherto confounded softening occasioned by *post mortem* changes, or mechanical violence, with softening occasioned by inflammation. 2nd. That notwithstanding the most curious search, and the existence during life of the most decided symptoms of inflammatory softening, the inflamed tissue, though really present, has escaped observation, so long as unaided sight is made the sole means of forming a judgment respecting its nature.

Professor Gluge distinguishes the appearances of softening of the brain according to colour. The

* *Östr. Med. Woch.*, January 22, 1842.

† *Edinburgh Medical and Surgical Journal*, Oct., 1842, & April, 1843.

softening sometimes occupies the white or grey substances exclusively, but in most cases both. He has observed softening of a considerable portion of the cerebrum, cerebellum, pons, walls of the ventricles, &c., but not of the spinal marrow; the disease was never general, and hence the states of the affected and sound parts could always be compared together. The degree of consistence of the softened parts varied much, as did also the colour, from white and gray to light red and yellow—the latter colour being the most frequent.

Dr. Bennett says that his observations have not only proved the correctness of the above, but further demonstrate:—

1. That the microscopic bodies, peculiar to cerebral softening, may occur primarily in the form of granules, masses, and nucleated corpuscles.
2. That these so-called exudation granules, masses, and nucleated corpuscles, may be observed coating the blood-vessels externally, clearly indicating their origin.
3. That they are found equally in the red, yellow, and white softenings of the brain; in what has been considered chronic as well as in acute softening.
4. That the softenings in which these bodies have been detected, both from their appearance and from symptoms which have accompanied them, are of an inflammatory nature.
5. That these bodies have been found in great abundance where no appearance of softening or inflammation was evident to the naked eye, yet where the symptoms of such lesions were well marked.

6. That white and yellow softenings may exist without the presence of exudation corpuscles, masses, or granules; but that the symptoms which accompany these are not those indicating inflammatory softening.

7. That the red, yellow, or white softenings are in no way dependent upon or connected with the infiltration or presence of pus.

The physical properties and mode of formation of the exudation corpuscle are thus described by Dr. Bennett:—Direct pressure causes large drops like oil to appear within the cell-wall, or to exude through it; by friction, the granules of which it is formed, may be dispersed. From this, as well as from the effects of chemical agents, it would appear that oil enters largely into their composition. The exudation corpuscle is formed like all other primary cells: a nucleus is produced from which a cell-wall arises. During or subsequent to its full growth, granules are formed between the nucleus and cell-wall; these become more and more numerous until at length the nucleus is ~~observed~~, and the whole cell appears full of, and distended with, granules. In this state it has reached its full growth; the cell-wall bursts and its contents escape. This process, going on simultaneously in ~~common~~ corpuscles, causes the coagulated exudation to become soft, pultaceous, or even diffuent. It is in this manner that inflammatory softening is produced.

Dr. Durand Fardel* has published several cases to prove the curability of cerebral ramollissement, which he considers to be due in every case to local

* *Bulletin de Thérapeutique*, July, 1842.

or general vascular congestion of the brain. Cerebral ramollissement, according to Dr. Fardel, is curable at two different periods of its existence: at its commencement, when the tissue is not so disorganized as to prevent its return to the normal state, or the cerebral functions to their primitive integrity; and again, at a later period, when the disorganization of the nervous pulp is arrested, and the part undergoes a process of induration or cicatrization, analogous to the mode of cure of apoplectic clots. In the first case, a complete removal of the anatomical lesion and the symptoms which indicate its presence may be effected; in the second, the pathological change will continue, as will also often a certain degree of alteration in the encephalic functions. In the last named cases the term cure is applicable in the same manner as it is under similar circumstances in cases of cerebral hæmorrhage.

M. Prus has contributed a memoir* on meningeal apoplexy, of which the following is the substance. He distinguishes this form of apoplexy into two species, viz., sub-arachnoid and intra-arachnoid, and points out the differences between them. In sub-arachnoid hæmorrhage the blood is frequently derived from a ruptured artery or vein; in twenty-four cases related by the author this occurred fifteen times, and the rupture of the vessel may have existed in the remaining nine cases. In intra-arachnoid hæmorrhage the effusion of blood always arises from exhalation of that fluid. In the former species the blood is mixed with the cerebro-spinal fluid, and has a constant tendency to pass into the ventricles and

* *Academy of Medicine*, April 4, 1843.

vertebral canal ; in the latter species the effused blood is generally limited. In sub-arachnoid apoplexy there is never found any trace of false membranes ; but in intra-arachnoid we always have a false membrane enveloping the clot about the fourth or fifth day. Muscular paralysis rarely accompanies sub-arachnoid hæmorrhage ; it was met with only thrice in twenty-four cases. On the other hand, in eight cases of intra-arachnoid apoplexy, muscular paralysis occurred six times. Loss of sensation, when it does exist, which is very rare, is but slight in both cases. Deviation of the mouth is peculiar to meningeal hæmorrhage. Somnolence and coma almost constantly exist in both. In sub-arachnoid hæmorrhage are neither delirium, fever, nor peculiar dryness of the tongue, which belong to the arachnitis that comes on, about the fourth or fifth day, in cases of intra-arachnoid hæmorrhage. Sub-arachnoid hæmorrhage was constantly fatal within eight days. In cases of intra-arachnoid apoplexy the patients sometimes lived for eighty days or more, and occasionally recovered, the blood being absorbed by the enveloping cyst.

Dr. Smyth re-produces an account formerly published by him of the existence and character of a murmur, or sound, accompanying the cerebral circulation in certain conditions of disease in children, and which, he thinks, may be received either as a premonitory symptom of chronic hydrocephalus, or as a diagnostic sign of the actual existence of that disease in its most incipient state. He observes that it is always concomitant with, and produced by, a morbid action of the vessels of the brain, immediately

preceding, or associated with, more or less dropsical effusion in that organ.

Dr. Black* offers an explanation of the local pain experienced in neuralgic affections, especially in those of an intermittent type. Irrespective of constitutional or other derangements, he conceives that it is caused by pressure from dilatation, of an hyperæmic and atonic nature, of the blood-vessels surrounding or accompanying the nerves affected, as they pass through unyielding canals or apertures in bone, cartilage, or through fibrous sheaths or fasciæ of more or less density and resistance ; and that the intermittence depends on the diurnal or periodical nervous exhaustion, or accumulation of excitability in the system.

M. Stilling supposes that spinal irritation is dependent on congestion in the capillaries of the spinal cord ; and says that exudation of serum invariably accompanies this state of sanguineous congestion, producing softening of the surrounding structures, so that in *post mortem* examinations of persons who have died with the above disease, the spinal cord has been found in all stages of ramollissement.

Dr. P. J. Bauduy, of Cuba,† details a case of traumatic tetanus, in which, after spasms had extensively prevailed, cure was effected by enlarging and cauterising the wound, with hot cataplasms, the free exhibition of sub-nitrate of mercury, (on which particular stress is laid,) together with purgative

* *Provincial Medical Journal*, March 11, 1843.

† *Ibid*, December 31, 1842.

and stimulating injections of garlick ; and Mr. W. Jackson* reports two cases of hydrophobia, caused by bites from the same dog. The chief morbid appearances observed after death were an injected state of the substance and membranes of the brain and spinal cord ; he therefore suggests, that every person, after being bitten by a rabid animal, should be subject to a long but mild course of mercury, in the hope that it may first obtain possession of the system, to the exclusion of the hydrophobic irritation.

In *Müller's Archives* a curious case of diseased tarsal joint, with dropsy, is detailed, in which the nerves, as they approached the affected part, became thickened, and as if composed of fat. Portions of the saphenus and other large branches of the ischiatic, so far as they could be separated from the degenerated mass, were examined under the microscope, when it was found that an extraordinary quantity of fat had been deposited within the sheath and between the fibres of the nerves, which increased in irregular gradations as it was traced downwards, till it constituted the whole structure of the nerve. The fat globules appeared to be arranged concentrically on the inner surface of the sheath, and by a strong magnifying power the primitive fibres could, at the upper part, be distinctly seen running in the centre of the fatty deposit. They gradually disappeared lower down, till at length no trace of them could be found, the fat globules having entirely taken the place of the primitive nervous fibres.

* *Provincial Medical Journal*, January 7, 1843.

Tongue.—Dr. Abercrombie has contributed to the Medico-Chirurgical Society of Edinburgh a short paper on stammering, in which, though the views advocated may not be altogether new, yet, in these days of barbarously cutting and mutilating the tonsils, tongue, &c., come with a pleasant freshness, and are therefore quoted here. From certain observations he was led to conjecture that this affection does not depend upon any defect in the organs of speech, properly so called, but is rather connected with a deficiency in the management of the voice; and he thought it would be found, that when a stammerer gets into that peculiar state of hesitation which is familiar to every one, he is endeavouring to speak when he has no voice, *i. e.*, when the lungs have become emptied of air.

According to these views, the principles in which the cure of the affection may be accomplished appeared to be to direct the attention of the individual to the three distinct parts of which the function of speech consists, *viz.*:—

1. A full and continuous current of air proceeding outwards from the lungs.
2. The formation of this into inarticulate sound, or voice, by the action of the larynx.
3. The formation of this into articulate sound or speech, chiefly by certain movements of the lips and tongue.

Circulating System.—Dr. Craigie* has contributed a very valuable paper upon aneurismal affections of the heart, in which he comes to the conclusion that,

* *Edinburgh Medical and Surgical Journal*, No. clv.

at present, we possess no precise diagnostic means to determine the existence of this lesion. It can be rendered merely probable when we find, associated with symptoms of hypertrophy, irregular cardiac action like jerks or spasmodic twitches, rasping murmurs, fits of faintness or giddiness, small irregular arterial pulse, with peculiar feelings of constriction at the heart, sometimes with, often without pain; that it is not possible, contrary to the opinion of Breschet, to fix the date of the origin of the disease; that, like other diseases of the heart, it appears to follow rheumatic attacks, and not unfrequently violent corporeal efforts and a life of dissipation and debauchery; that the cysts have no power of contraction; that death is not usually produced by the tumour bursting; that most commonly the patient expires after a long and painful agony, as in other diseases of the heart.

In the course of this paper Dr. Craigie details a case in which, unlike other recorded cases, the aneurismal lesion was situated in the septum cordis, where, in the space between the right lacinia of the mitral valve and two of the semi-lunar valves, was a large oval aperture, leading into a cavity of a spherical form, sufficiently large to admit and contain a good-sized walnut.

With regard to the action of the heart in disease, Dr. Macleod states, that when excited by organic change, it is not so perceptible to the patient as when only sympathetically influenced.

Dr. Addison has published some interesting cases in which chorea appeared to be complicated with inflammation of the pericardium. The absence of

all general disturbance was the same as is observed in chorea; and it is by no means improbable that the heart itself may become affected by that disease, and present the same irregular movements, in common with those muscles which are supplied with nerves of voluntary motion. Dr. Addison observes, that derangement of the heart in chorea is by no means rarely indicated by the existence of a distinct bruit, audible over the whole precordial region.

Two interesting cases of blue disease have been detailed, arising from unusual malformations. The one occurred in an infant which at four months' old died at the Foundling Hospital, in Paris. Nearly all the anterior half of the thorax was occupied by the pericardium, and the heart consisted of only one ventricle and one auricle, the deep sulcus between which was filled with a process of the liver and a part of the diaphragm. The auricle was much larger than the ventricle, with parietes very much thickened; and at its posterior part the two vena cava opened into it by a sort of sinus, apparently a rudiment of a right auricle. The pulmonary veins terminated in the ordinary manner. The ductus arteriosus was wanting. No other viscus was malformed. The other, related by Mr. Douglas,* is the case of an infant which died at the age of fifteen months; the foramen ovale was open, and about three-eighths of an inch in diameter; the aorta was about a third larger than usual in a child of his size, and took its origin equally from both ventricles; it had the usual three valves at its commencement; the ductus arteriosus was open, scarcely larger than

* *Medical Gazette*, September 30, 1842.

a crow-quill. From where it joined the pulmonary artery the latter divided into its right and left branches; but its trunk was little larger than a crowquill, back near the right ventricle, where it was quite impervious. The two ventricles were of equal thickness, communicating with the aorta. The septum was deficient just at the root of the aorta, presenting a smooth concave border, leaving an opening though which the fore-finger could be passed. The mitral and tricuspid valves were normal. The upper angle of the right ventricle was directed as usual to the pulmonary artery, but there was no opening nor were there any traces of valves. The other viscera appeared natural.

The course of the circulation must have been very uncommon, inasmuch as the blood must have passed in a retrograde direction through the ductus arteriosus, that being the only way in which any *could* get to the lungs, as the root of the pulmonary artery was closed. The blood from the system, poured from the venæ cavæ into the right auricle, and that from the lungs into the left, from the pulmonary veins, must have mingled freely in their passage simultaneously into the aorta; besides that, a portion of the contents of the right auricle must have passed directly into the left to help to fill it, the quantity which had come through the lungs having been very small indeed.

Dr. Favell* relates the case of a female, weighing 10 stone, who never suffered from ill health referable to heart disease, in which this organ weighed only three ounces and a half. The two

* *Provincial Medical Journal*, January 28, 1843.

ventricles were so small as only to admit the little finger; the walls of the left ventricle were considerably thicker than natural, and the aorta and pulmonary artery were, relatively to the size of the cavities of the heart, very large.

Dr. Skoda* details a case in which puncture of the pericardium for dropsy of its cavity was attended with success. The sounds of the heart were scarcely perceptible, but towards the inferior part of the sternum a slight *bruit de râpe* was heard. A trocar was plunged between the third and fourth ribs on the left side of the sternum, giving passage to a quantity of reddish serum, which spirted out at each contraction of the heart. The patient felt much relieved, and was enabled, for the first time for three weeks, to sleep on her back; the next day the œdema was diminished, the sounds of the heart were more audible, and the *bruit de râpe* had disappeared. She improved rapidly and at the end of the month seemed cured, when she died from another cause.

Aneurism of the aorta, until its existence is announced by a tumour capable of being seen or felt, has ever been regarded as one of the most obscure diseases within the range of medicine. Dr. Robert Law† has produced an interesting paper, in which he states that, in the early period of this affection, the diagnostic sign upon which the most reliance can be placed, is pain presented in a twofold character, the one being constant, dull, and aching, the other occasional, sharp, darting, and lancinating; but that this sign is only present when the aneurism is placed

* *Oesterr. Med. Jahrb.*, 1841.

† *Dublin Journal*, July, 1842.

amidst parts of an unyielding nature. He believes that this character of pain, though not *always* present in aneurism, is never an attendant upon any other morbid condition. It is difficult to state decidedly its cause; the sharp lancinating pain bears some resemblance to the neuroses, while the dull aching constant pain may be connected with the destruction of the structure of the vertebræ, with which it is so often associated; or with the position of the aneurism, which, from the pressure exerted by the surrounding textures, is prevented from enlarging itself; or it may be characteristic of inflamed arterial tissue. Dr. Law observes, however, that the greatest amount of suffering has been accompanied by caries of the vertebræ. Dr. Harrison has stated* that aneurism arising from the fore part of the abdominal aorta and extending into the cavity will also be attended by pain. From this opinion Dr. Law decidedly dissents: he believes it is experienced in aneurism from the *front* of the aorta only when the tumour is, as has been stated, so situated as to be compressed and restrained from enlarging by the surrounding textures.

Mr. Gulliver† says that the peculiar affection of the arteries which has been termed "atheromatous" is really a degeneration of a fatty nature, consisting of a multitude of crystalline plates and fatty globules with albuminous and earthy particles, which were found by Dr. Davy to be cholesterine. Mr. Gulliver assumes that a consideration of this fatty degeneration is of great importance from its connexion with

* *Dublin Medical Journal*, vol. v., p. 435.

† *Transactions of Medico-Chirurgical Society*.

thickening and puckering of the inner membrane, with aneurism, with obstruction, occlusion, or ossification of the vessels, and with those ruptures of them which are frequently the cause of sudden death. In a note the author adds that fatty degenerations are more common and of more importance than has yet been supposed. He mentions obstruction, by fatty particles, of the seminal tubes; and states the existence of fatty degeneration of the blood, lungs, &c., and that its presence is more remarkable in the "brown consolidation" of the lungs than in the "red," both of which afford distinct morbid products.

Dr. Peacock* has related some cases of obliteration of the arteries and veins. When this lesion took place in the circle of Willis, the symptoms, 24 hours before death, were severe rigors, followed by headache, convulsions of the muscles of the face and extremities, and coma. In a case in which the vena cava inferior was obliterated, there was general dropsy and hæmatemesis; the heart was healthy; the liver small and covered with a net-work of dilated veins; the vena azygos, as well as the lumbar and spinal veins, greatly distended; these appeared, in fact, to have been the channel by which the circulation was maintained. From the net-work of dilated veins which existed on the liver and diaphragm, Dr. Peacock conceived that the portal system assisted in facilitating the backward flow of the blood.

Several cases of slow pulse have been reported; one by Dr. Fletcher, in which, before rising in the

* *Provincial Medical Journal*, February 25, 1843.

morning, the number of strokes did not exceed 28 in the minute, nor after the greatest exertion 40. In this case the sounds of the heart were not abnormal, but it appeared to be distorted to almost as great an extent as possible before each contraction, which took place in a very sudden manner. Dr. Peacock* has collected several other instances of this affection and, among them, that very remarkable case detailed by Mr. Holburton, in the last volume of the *Medico-Chirurgical Transactions*, in which the pulse was occasionally as low as seven beats in the minute. After canvassing the different opinions which have been entertained upon the subject, he comes to the conclusion that extreme slowness of pulse, though an occasional attendant on different forms of disease of the heart, is not a necessary feature in any ; and, as the peculiar condition of that organ, essential to its production, is probably one of deficient power with the absence of excitement, it may be expected to attend the last stage of diseases which, at an earlier period, are of very different types.

Dr. Todd† combats the opinion that true hæmorrhage can take place by simple exudation, and asserts that it is always owing to rupture of a vessel. He also says, in the same paper, that in scurvy and purpura the blood itself is diseased ; this condition consisting in an imperfection of the blood corpuscles. Some of these were found to be distinct and large, most of them measuring from $\frac{1}{2000}$ of an inch to $\frac{1}{3000}$ of an inch ; but a vast number of much smaller, roundish, or

* *Provincial Medical Journal*, 1842, vol. i., p. 70.

† *Dublin Journal*, September, 1842.

irregular bodies existed, some of which seemed like shrivelled corpuscles, but the majority resembled little aggregates of granules, adherent to each other, with small particles of colouring matter intermixed, forming bodies ranging between $\frac{1}{4000}$ of an inch and $\frac{1}{5000}$ of an inch in diameter. These bodies were much more numerous than the blood corpuscles, and Dr. Todd thinks it not unlikely they might be corpuscles in an imperfect state of development, the imperfection of the formative process being due to some alteration in the chemical and vital properties of the blood. This view is supported generally by Dr. Rees, in a paper on the pathology of the blood, which has been previously referred to. He is more specific as to the cause of disease, regarding the healthy condition of the membrane of the blood corpuscles, by which endosmotic actions take place, as being of the same importance to the maintenance of life as is the pervious condition of the respiratory tubes, and that life would be equally destroyed by the loss of these special properties in the former as by the closure of the latter. Let the blood become destroyed, he says, so that its specific gravity is lessened, and we may feel assured that if the physical qualities, more especially the specific gravity of the chyle, be not simultaneously affected, and that too, in a due proportion, the result must be that the red colouring matter, the great oxygenator of the blood, is no longer produced in its ordinary quantity, the ferruginous serum of the chyle not being able to enter the blood corpuscle as in health. If the degeneration above alluded to take place, we must recollect that all the solids of the body, through

which the blood courses, are formed with pores and of materials admitting of endosmotic action, and that it is impossible for the solid constituents to preserve their health if constantly acted upon by the blood at a specific gravity of 1030 to 1036 instead of 1052 to 1057—the equilibrium of health being no longer preserved, and the watery blood inducing a like condition in the other solids.

Mr. Gulliver* has directed attention to the presence of pus globules in the blood in severe inflammations, and shows the difference between them and the pale globule natural to this fluid. The former differ from the latter in being rather larger, more irregular in size and form, and sometimes more opaque, clustering together in a very remarkable manner, sometimes of a reddish colour, including from one to four blood discs, rarely five or six, in a very delicate and pale envelope, and the molecules composing the nucleus are mostly surrounded and often widely separated by a quantity of minute granular matter.

Dr. Bennett† has described the mode in which the products of inflammation, or, as he terms it, abnormal nutrition, are developed: he states that *softening* is produced by the escape, from nucleated cells, of exudation corpuscles, which are produced in any structure which is rendered dense by the presence of coagulated *liquor sanguinis*; that *suppuration* is caused by the exudation corpuscles passing into cells, or pus corpuscles, which swim in fluid, roll freely on each other, are of a yellow greenish

* *London and Edinburgh Philosophical Magazine*, September, 1842.

† *London and Edinburgh Journal*, December, 1842.

colour, and constitute the organized part of the fluid known as pus, &c. In fact, in the same manner as in a state of health, cells originating in the effused *liquor sanguinis* may undergo different kinds of development, as into fibre, muscle, nerve, &c., constituting normal nutrition; so in a morbid state cells originating in exuded *liquor sanguinis*, may be transformed into exudation, plastic, pus cells, tumours, &c., constituting abnormal nutrition. Inflammation, therefore, is only a part of one great morbid action occurring in the frame.

Adventitious Growths, Tubercle, and Diseases of the Chest.—Before commencing a notice of such observations as have been made on diseases of the chest, we shall devote a short space to the structure of adventitious tissues and tubercle. On the former subject Dr. Hodgkin has contributed a paper,* in which he re-asserts some opinions previously hazarded by him.

1st. That adventitious tissues, including the whole family of cancerous diseases, belong to the type of compound serous cysts. In this view the late Professor Delpech and Professor Rokitanski have independently coincided.

2nd. That the microscopic examination of these tissues, though extremely interesting, does not furnish perfectly conclusive tests of any particular form of adventitious structure to which a specimen may belong, but that it demonstrates the application of the nucleated cell theory, whilst it is fatal to that of cancerous matter being found in the

* *Transactions of Medico-Chirurgical Society.*

blood, and eliminated at the spots at which the tumours become manifest. It therefore furnishes an important argument in favour of operation, though other practical considerations require to be attended to before operation is decided on.

3rd. That to have a complete view of the mode of production of these structures, we must combine the cell theory of Schwann and Müller, the coagulation principle which the author had previously suggested, and the process of organization investigated by Kiernan—three stages of development that appear to occur in the order in which they have just been enumerated; and that none of the phenomena, taken singly, is an adequate test of malignancy, which, as stated in his first paper, must be regarded as the sum of several characters.

4th. That chemical analysis, though extremely important and interesting, affords an imperfect and inadequate criterion, as the principles concerned may vary, or be changed in the progress of development.

5th. That in operating for the removal of a tumour of this class, it is extremely important to leave behind none of those minute cysts which often form granules in the surrounding cellular membrane, though it may appear to be in other respects perfectly healthy. This appears to be a mode of extension of the disease independent of inflammation.

6th. That experience teaches us that the infiltrated form of these diseases occurs in the structures in the neighbourhood of the purely adventitious growth, when these structures have been the seat of inflammation; and that the chances of success from opera-

tion are consequently infinitely diminished, when such surrounding inflammation has taken place. The presence of the peculiar matter of the disease, in the interior of vessels, appears to be one of the modes in which infiltration, the result of inflammation, exhibits itself, and is therefore not a valid argument in favour of the pre-existence of such matter in the circulating blood.

Sir Charles Scudamore says that tubercle, when examined microscopically, is found to consist of an assemblage of corpuscles, of various size and shape, sometimes containing granular matter of exceedingly minute granules, and in some of the smaller kinds of tubercles, as in the grey miliary, besides the constituents above-mentioned, of cells of a more regular form and size, and larger than the corpuscles. In the crude or firm tubercles, the corpuscles are closely packed together, and the granular matter is rather scanty; whereas, in the larger and softer kinds, the corpuscles are easily separable, and the granular matter is in great abundance. The form of the corpuscles is for the most part globular or oval, but in the softened tubercles they are very irregular as to their shape, being often elongated and pyriform. They vary in diameter from about $\frac{1}{3000}$ of an inch to $\frac{1}{2000}$ of an inch. The granules also are very variable as to size. Mixed with them are found myriads of minute globular bodies, scarcely capable of being measured by our ordinary micrometers, being much less in diameter than $\frac{1}{25,000}$ of an inch. These are most abundant in the soft tubercles, which, in fact, appear to consist of little or nothing else but gra-

nules or broken-down corpuscles. The cells are more constant in size and shape than any other constituents, and average in diameter about $\frac{1}{1500}$ of an inch. Nuclei are sometimes apparent; but as the tubercle increases in size, the cells become disintegrated, and finally disappear. The essential part of the constitution of tubercle is that of cells and granules, but this peculiar cell of tubercle is never found in blood, and consequently must be a local formation; and he thinks it may be reasonably suggested, that the tubercle is nourished and receives its growth by means of cells, on the same principle that the non-vascular tissues are nourished by them, as so ably shown by Mr. Toynbee.

These views are however, entirely opposed to the observations of Mr. Addison; he refers the origin of tubercle to the blood corpuscle, affirming it to be composed of abnormal epithelial cells, and not as due to any peculiar formation foreign to the normal structure of the tissue.

With regard to the composition of tubercles, he does not materially differ from the account above given by Sir C. Scudamore, affirming them to consist, for the most part, of molecules, granules, and granulated corpuscles, of various sizes, or aggregated granules without any tunic, and of collapsed tunics without any granules. These objects are mingled with a great many flakes and shapeless filaments, which are no doubt fragments of the membrane of the air cells and of the minute blood vessels, which, when involved in a tubercle, become so extremely brittle that they must necessarily form

a considerable portion of the objects occupying the field of the microscope. The granulated corpuscles of a tubercle are sometimes very large ($\frac{1}{800}$ or $\frac{1}{1000}$ part of an inch,) and the molecules and granules, which are very conspicuous, may frequently be seen on the point of escaping from them. The semi-transparent forms of tubercle and tubercular infiltrations owe their peculiarity to a great relative amount of granulated vesicles, whereas the opaque white forms of tubercle are attributable to great numbers of isolated granules. Mr. Addison further views the matter of hepatization, the spots of lepra, and other cutaneous affections, as identical with tubercle, the difference being that in pneumonia the deposit is diffused over a wide space, is general and extensive, and takes place with rapidity; whereas in phthisis it occurs in patches, at more or less distant intervals, accumulating very slowly; and in eruptions on the skin they are less formidable in their symptoms and less fatal in their tendencies, not from any peculiarity in their nature, but from the physiological uses of the part they occupy. He therefore says, that the circumstances which determine the formation of tubercles must be studied in conjunction with the origin and progress of cutaneous disease, to many of the chronic forms of which tubercles of the lungs have the most marked analogy. This view is further supported by Dr. Bennett's observation of the parasitic plant occurring in tinea and consumptive sputa being identical; this subject will, however, be subsequently alluded to.

In a communication to the *Archives Generales de*

Medicine M. Briquet has some observations on tubercles of the serous membranes, in which he comes to the conclusion that they are the result of inflammation, and not of a chronic character, because they are always situated on the free surface of the serous membranes; that they are found almost exclusively on those membranes which have been the seat of pain and other symptoms of phlogosis, and, in the greatest number, in that part of the membrane which showed the strongest signs of inflammatory action; and, finally, that they do not exist in the false membranes, but spring directly from the surface of the serous, there not being any false membrane in or about them by which they could be enveloped, or of which they might have been a transformation.

With regard to the relative frequency of tubercle, Dr. Engel, of Vienna, says that its occurrence in the lungs is to that of tubercle in the cerebral membranes, the pleura, liver, and spleen, as 18 to 1; to that of tubercle in the brain and kidney as 18 to 2; and to that of tubercle in the peritoneum and intestines as 18 to 2. This is the more remarkable when compared with the relative frequency of cancer in the same organs. Cancer of the lungs occurs, in proportion to cancer of the liver, as 18 to 48; to cancer of the stomach, as 18 to 42; to cancer of the intestines and kidneys, as 18 to 12; and to cancer of the brain, spleen, peritoneum, and uterus, as 18 to 18.

M. E. Boudet thinks that between the ages of one day and two years tubercles exist in the lungs and bronchial glands in 1 of 57 subjects; from two to

fifteen years, in three out of four ; from fifteen to seventy-six years, in six out of seven ; that is to say, during this period of life, six out of seven present recent or old tubercles, and their presence may be considered the rule, their absence the exception. M. Boudet also says, that the favourable modifications of tubercles of the lungs are

1. *Sequestration*.—The tubercular matter, without being obviously changed in its nature, is isolated from the surrounding parts by means of a mucous, or a fibrous, or a fibro-cartilaginous membrane.
2. *Induration, i. e.*, the tubercle is of a dry friable consistence, or it becomes tenacious and dense, though fatty to the touch, or it becomes calcareous.
3. It is converted into *black pulmonary matter*.
4. It is *absorbed*.
5. It is *eliminated* by the bronchiæ.

These transformations, which sometimes co-exist in the same individual, may be effected during any of the periods of the evolution of tubercles. Out of 197 promiscuous cases, in ten a cavity, completely cicatrised, was found, without any recent tubercle. In eight cases the complete or incomplete cure of one or several morbid cavities coincided with the presence of recent tubercles. Pulmonary cavities cicatrise by the organization of an accidental mucous membrane, or by the formation of a fibro-cartilaginous envelope. Whether the cavities communicate or not with the bronchial tubes, they may remain open.

M. Rayer, in a paper on consumption, as occurring in man and the lower animals, says that the earthy or calcareous concretions which are often found in the lungs ought not to be considered,

as they generally have been, a modification of tubercle; for they are, often in man, and very frequently in the horse, the remains of a deposit of pus. To this assertion M. Prus does not at all assent: he says that for the ten years he has been endeavouring to ascertain, at the Bicêtre and Salpêtrière, the curability of tubercles, he has been led more and more to believe that the earthy concretions, which are almost always at the summit of the lung, are only modified tubercles; that they are generally accompanied by traces of cicatrization; that sometimes old cavities, lined with a new mucous membrane, co-exist along with them; and lastly, that it is easy to find, even in the same lung, tubercles in different degrees of progress, which present all the phases of this secretion, from its origin to its earthy state; and that frequently the same cyst contains both tubercle and earthy matter.

During the progress of consumption Dr. Robert Williams has weighed the patients: one general rule was observed in all, viz., that the loss of weight was not continued, but intermittent. The patient being weighed weekly, and as nearly as possible under the same circumstances, showed an alternate increment and decrement generally of one or more pounds on each alternate week. The decrement, however, usually exceeded the increment, and consequently every few days an increasing balance was left against the patient.

M. Dupasquier, in prosecuting his investigations into the action of the ioduret of iron, says that in simple tubercular deposit, though it may not remove the symptoms, it is capable of modifying and

somewhat relieving them ; when cavities are formed, however, its chief beneficial effects are evidenced in improving the appetite and muscular strength, and relieving the cutaneous exhalation ; that altogether it appears most useful in the third stage.

Dr. Hastings, of the Blenheim Street Free Dispensary, says he has employed with success naphtha internally administered and inhaled in the form of vapour. He was induced to try it from finding that it possessed a peculiar power over tubercle out of the body ; reducing it to an amorphous powder. Sir Charles Scudamore* reasserts the efficacy of the inhalation of iodine, and Dr. Durrant† lays stress upon the frequent exhibition of emetics together with the employment of iodine and sedatives. But while these and other gentlemen are detailing the efficacy of various remedies, Dr. Robert Williams produces before the *Medico-Chirurgical Society* a history which depresses all hope. He states that some years ago he began a series of experiments on possible remedies in phthisis, satisfied that general treatment was of little avail, and that the cure of the disease must be sought for in a specific remedy. This series embraced preparations of platina, palladium, osmium, iridium, titanium, chromium, and cerium. He subsequently tried every seed that Messrs. Charlwood, of Covent Garden, could furnish, and he had previously tried every wood, every bark, and every gum he could obtain. Nothing appeared beneficially to influence the disease ; the result was as usual, uniformly fatal ; but the termination was

* *Lancet*, August, 1842.

† *Provincial Medical Journal*, September 3, 1842.

not accelerated as to time, or aggravated in the preceding phenomena. The pathological appearances also in the cases examined after death were the same as when the ordinary mode of treatment was adopted; not the slightest attempt at reparation was seen in any part of the lungs. No injury, however, was done except in two cases, treated with white hellebore, in both of which death was so remarkably hastened, that it seemed as if that substance or probably the veratrine it is said to contain, acted as a poison in phthisis. He concludes by saying, however, that the large number of substances he has tried, as possible remedies for the cure of this fatal disease, has assured him that there is no class of substances which a prudent physician, beginning with small doses, and gradually increasing them, may not safely make use of, in his attempts to cure this or any other intractable disorder.

Two memoirs on the nature of emphysema have been presented, one by M. Prus, the other by M. Cocchi; that of the former gave rise to an animated and interesting discussion in the French Academy. The inquiry merged itself into two questions:—1st. As to the nature of emphysema—2nd. As to its prognosis. M. Prus regards emphysema as depending upon an infiltration of air into the inter-vesicular, inter-lobular, and sub-pleural cellular tissue. The regularity of the little bags in which we find the air is not opposed to this view, being insufficient to prove that they are always formed by distension of the vesicles, as some believe. He is supported in this view by Dupuy, who says that emphysema occupies the inter-lobular cellular tissue; by

Olivier D'Angers, who says that it is air interspersed into interstitial cellular tissue ; and Lombard, who refers it to destruction of the intervesicular septa ; while Louis presumes that it consists in hyperthrophy of the pulmonary vesicles, and Blandin in dilatation of them. Rochoux, however, says that by a strange confusion of terms two very distinct diseases have been confounded under the name of pulmonary emphysema, one consisting in dilatation of the pulmonary cells, the other in infiltration of the air between these cells—an opinion in which it would appear M. Bouillaud coincides, when he divides it into spontaneous emphysema of essentially slow formation, and that of traumatic origin ; these appear to represent the senile and accidental emphysema of Royer Collard. According to M. Cocchi, pulmonary emphysema consists in the diminution or suspension of the action of the organic phenomena proper to the pulmonary cells, with dilatation and loss of elasticity in their walls. Their rupture is of rare occurrence ; and it is still more uncommon to find air infiltrated into the inter-lobular cellular tissue. He distinguishes emphysema into two kinds, the *protopathic* and the *deuteropathic*. The first arises from some power applied directly to the diseased organs ; the second from affections ordinarily chronic in the lungs, the heart, the large vessels, or other viscera. With regard to the prognosis in this affection much difference of opinion also exists. Laennec and Louis are both inclined to view emphysema as not tending to a fatal termination, while Prus and Olivier maintain that it may even cause sudden or *almost* sudden death, and that it is

otherwise injurious by rendering the pneumonia of old people more fatal.

Pneumonia.—In addition to the memoir of MM. Rilliet and Barthez, Dr. West has contributed* a very valuable memoir on the pneumonia of infants. It would not be fitting this retrospect to go into the lengthened analysis of this paper which it would require; we shall therefore merely state that he considers the diseases under the heads of lobar, lobular, and vesicular; that lobar inflammation is more frequent than is usually supposed; that winter is the time most prone to the attacks of this disease; that a large proportion of deaths ($17\frac{1}{2}$ per cent.) are attributable to it in the two first years of life; that there is a very slight excess in male mortality; and that it occurs generally in those previously in good health.

Dr. Hughes,† in comparing this disease with phthisis as regards its location, comes to the conclusion that pneumonia is only double in 19 cases per cent., while phthisis affects both lungs, more or less, in 90 per cent. That while pneumonia was confined to the base of one or both lungs in 62 cases per cent., tubercles were confined to the base of the organ in only one case out of 250; and that while the upper part of the lung was principally, primarily, or solely affected with tubercular deposit in 94 cases out of every 100, pneumonia was confined to the same part in only five; and as this occurred generally in persons above thirty years of age, it tends

* *British and Foreign Medical Review*, April, 1843.

† *Guy's Hospital Reports*, October, 1842.

to confirm the opinion of Louis, that pneumonia of the apex is rather an affection of an advanced period of life.

The treatment which is recommended by Dr. West in the pneumonia of infants is depletion by leeches, and where applicable by venæsection and the exhibition of tartar emetic and calomel, followed by stimulants and blisters, or rather mustard poultices.

The plan advocated by Dr. Hughes for adults is not dissimilar: venæsection and calomel with opium combined with tartar emetic, followed up by local bleeding and blisters.

Dr. Henderson,* with regard to the use of venæsection and tartar emetic, advocates the views of Grisolle, not that the one or the other practice should be exclusively adopted, but that it is not necessary to repeat the venæsection so often as the patient seems capable of bearing it; that much of the cure may be safely intrusted, in a great many cases that would still admit of depletion, to the antimony; and that, since antimony alone is evidently so potent a remedy, we have no reason to despair of ultimate recovery in cases that will not bear the evacuation of blood—a remark which can seldom be made of any other considerable inflammatory disease than pneumonia.

Dr. West has added some judicious observations on the general management of infants in this affection. He says they should be taken from the breast, and the mother's milk, barley-water, or some other diluent, given from a spoon. This is of import-

* *London and Edinburgh Journal*, April, 1843.

ance on two accounts:—first, because the thirst experienced induces them to suck over much; secondly, because the act of sucking is in itself mischievous, from its influencing the respiratory functions. Another important point is, never to allow the children to lie flat, but to place them in a semi-recumbent position. By so doing, respiration is facilitated, since the diaphragm is relieved from the pressure of the abdominal viscera, and that state of the fluids in the posterior parts of the lungs is prevented, which has been shown by French writers to be prejudicial to infants or children labouring under pneumonia. He also advises, that when pneumonia has reached an advanced stage, or has involved a considerable extent of the lungs, the children should be moved only with the greatest care and gentleness, lest convulsions be brought on. Whatever may be the explanation of this occurrence the danger is by no means imaginary, for he has seen instances in which children have been seized with convulsions immediately on being lifted into a sitting posture.

Dr. Calvert Holland has drawn attention to a peculiar form of consumption, (as he terms it,) occurring in Sheffield, caused by dry grinding, a process which envelops the grinder in a cloud of dust. It sets in with cough and slight expectoration, coloured with the inhaled dust, which does not interfere with his occupation; eventually, however, difficulty of breathing is experienced, aggravated on every exertion, whether of walking or coughing; and then the grinder is regarded by himself and others as attacked with asthma, a term almost univer-

sally employed at Sheffield to designate this disease. Mr. Porter has detailed a very careful autopsy of this affection, from which it appears that there were no tubercles, but that the whole surface of the lungs was covered with black spots, about the size of currants, and similar ones were found throughout the whole pulmonary tissue; the lungs were slightly crepitant, except in the upper portion of the right lung, where was a very large cavity, and in a small portion of the left, which was indurated and firmer than the liver. Beside the small black bodies above mentioned, others were found in various parts of the lungs four or five times as large; all were quite black within and gritty, and the larger ones of so firm a texture that it was difficult to cut through them.

Dr. Craigie has related a case of acute farcy in which the existence of the disease was clearly established during life. On investigating its history it was ascertained that about three months previously to the patient's illness there were, in the same stable in which he kept his horses, two affected with glanders; and though it could not be proved he had been in direct communication with them, it is not unfair to conclude infection may have been then contracted, as there can be no doubt that the diseases are identical, for, as Rayer says, "In man, as in the horse, farcy and glanders are morbid states produced by the same contagious poison, and differing only in their seats."

Croup.—In the treatment of this complaint Dr. Dreyer* has gradually arrived at the conclusion

* *Neue Zeitschrift für die Geburtskunde*, 13 Band, 1 Heft.

that the safest and most satisfactory plan is the constant exhibition of emetics, but more particularly of the sulphate of copper, to the extent of a sixth of a grain every ten minutes until vomiting has been copiously produced.

In that peculiar affection of crowing respiration, the thymic asthma of some writers, Dr. Marshall Hall* repeats his opinion, that it is caused by nervous irritation dependant on a state of sub-inflammation necessary to the process of dentition, and urges the necessity of frequent scarification of the gums, and to such an extent as to prescribe its use daily.

Fever.—It is not a little singular, considering the length of time since the discovery of the evolution of carbonic acid during respiration, that no very satisfactory observations have been instituted tending to prove an abnormal state in this respect during disease. Some meagre observations are to be found in the works of Nysten and Jurin, and some slight notices in the researches of Lavoisier and Seguin. The first of these authors came to the conclusion that the quantity of carbonic acid is increased in the early stage of acute fevers, and diminished in obstructions of the lungs. Jurin stated it as his opinion that the last stage of fever favoured the production of carbonic acid; while bleeding and the cold stage produced a diminution; and these conclusions were generally corroborated by the combined observations of Lavoisier and Seguin. Dr. Malcolm, of Belfast,† has instituted a series of expe-

* *Lancet*, July 9, 1842.

† *London and Edinburgh Journal*, January, 1843.

riments during the progress of typhus, from which results differing from those above related have been arrived at. He concludes that in this disease the formation of carbonic acid gas during respiration is considerably less than in a state of health, the difference being as nearly as possible one-fifth per cent., a difference which in a number of cases is too large to be the result of accidental circumstances. The quantity generated is least in the more severe forms of the disease. The diminished proportion however is not at all uniform; on some occasions the number being very low indeed, and in others rising to even as high as nearly three per cent. The difference between the proportion of carbonic acid gas generally, as influenced by fever, and in the severe forms, is, it may be observed, as nearly as possible two per cent., a difference perhaps too small to form the basis of any general conclusion.

It will be recollected that M.M. Andral and Gavarret have given within the last three years some interesting accounts of their experiments on the blood in fever. Signor Renzi,* of Naples, has availed himself of the ample opportunity he enjoys to pursue the enquiry, and his observations go far to confirm the statements of the French physicians: first, that the coagulum of the blood becomes soft and oleaginous; secondly, that the proportion of its fibrine very sensibly diminishes from the standard of health; thirdly, that the proportion of the red globules is larger than usual; and fourthly, that the cruor is more or less mixed with the serum, being partially dissolved in, and tinging it of a

* *Il Filiatre Sebezio.*

red colour, the remainder being precipitated in the form of a pulverulent sediment. The hematosine has but little coherence with the red globules and the fibrine.

Besides these observations Signor Renzi has added some peculiar to himself, from which it appears that not only is the proportion of red globules increased above the ordinary standard of health, but the greater number of them, besides being readily freed from their colouring matter, seem to lose their central nucleus and appear in consequence to be less compact, less solid, and, so to speak, less living than is normally the case. In the second place there exists in the blood of typhus patients, a peculiar smell somewhat like that of sheep's blood beginning to become putrescent.

M. Facen* has also contributed some observations on the state of the blood in agues, in which he states that, at the commencement of an intermittent fever, it scarcely, if at all, differs from its normal condition unless the patient has been previously bled, and then the proportion of the serum is rather less than usual; but in almost all cases where the return of the paroxysms has been frequent, the tendency of the fibrine to coagulate firmly increases until at length the blood acquires a perfect buffy crust as in inflammatory diseases—the thickness and consistency of the crust varying, in different instances, according to the frequency, the severity, and the duration of the febrile paroxysms.

With regard to the pathology of intermittent fever, M. Piorry says, it originates directly from affections

* *Memoriale sulla Medicina Contemporanea.*

of the nerves of the spleen, and that as long as hypertrophy of the spleen continues fever remains. According to M. Landerer,* the principal pathological changes are seated not only in the spleen but in the liver and bile; the latter especially undergoes great changes in colour and consistence, being of a deep brown and considerable density, and contains an enormous quantity of cholesterine. We must not quit the subject of fever without adverting to the extraordinary effects which Dr. Graves† ascribes, in the delirious and nervous stage of typhus, to a combination of tartar emetic and opium.

M. Von Katona, of Hungary, after renewing the experiments of Drs. Home (1758) and Spranza (1822), in inoculating for the measles, speaks highly of its value in dangerous epidemics. He says, in seven per cent. of the cases the inoculation failed, but in the remainder the disease ran its course in a very mild manner, strikingly different from its then prevailing character; in no instance was it fatal when thus communicated. The inoculation was performed in the same way as for small pox, by inserting some fluid mixed with blood taken from underneath the efflorescence, or a tear-drop. A red areola formed round the point of insertion and then gradually declined. About the seventh day fever and the usual premonitory symptoms of measles set in; on the ninth or tenth day after inoculation the eruption appeared and ran its usual course, but in a very mild manner. On the fourteenth day the fever commonly declined,

* *Repertorium für die Pharmacie.*

† *Clinical Medicine.*

and on the seventeenth, or seven or eight days after the appearance of the eruption, the patients were convalescent.

Dropsy.—Sir Henry Marsh* has described a variety of dropsy which he terms "*strumous peritonitis with effusion.*" It consists in an inflammation, either chronic or acute, of the serous membranes of the abdomen, and occurs under a variety of circumstances in persons of a peculiar constitution, terminating in effusion; the quantity and quality of the effused matter varies considerably in different individuals, influencing materially the progress and ultimate issue of the case. It is sometimes presented in an acute form, and runs a rapid course; more frequently, however, its early symptoms are obscure, its progress slow and tedious, and the effusion does not take place until after a considerable length of time. Oftentimes, if the true nature of the disease be detected, it yields to judicious and well-directed treatment; but in other instances, the symptoms, though mitigated by treatment, recur again and again, until at length the patient is cut off by this formidable malady. He does not recollect having met with any example of this affection either during infancy or after the middle period of life; all the cases which have fallen under his observation having occurred in individuals of from three and four to about thirty years of age. It frequently arises without the intervention of any well-marked existing cause, and sometimes sets in either gradually or abruptly during the progress of

* *Dublin Journal*, March, 1843.

some other disease. The remedies of most importance are blood-letting, blisters, mercury, and iodine; upon the judicious adaptation of these remedial agents to each stage and period of the disease, and to the constitution and condition of the patient, depends in a great measure the success of the treatment.

Dr. O'Beirne* has likewise published a valuable paper on the cause and treatment of dropsy, in which he endeavours to show that its origin is due to venous compression; he also states that the spleen performs an important function in the venous circulation, namely, that of being a reservoir for the relief of overloaded states of the vena cava inferior and the whole portal system. It would not be consistent with the limits of this address to give an analysis of the bearings of this view upon the different kinds of dropsy; I must therefore content myself with stating the general result of his inquiries. 1st. That all the phenomena of dropsy are but the products of venous obstruction, and that venous obstruction is caused either by diminished capacity of the lungs, or by an increase of the circulating mass of venous blood, or by both of these causes combined. 2nd. That dropsy is not of an inflammatory nature. 3rd. That this disease, with the exception of the early part of its course, is attended with more or less of general debility. In accordance with these views Dr. O'Beirne suggests that the proper treatment in these affections is frequent venæsection, the occasional use of purgatives and diuretics, and keeping the strength supported by nourishing diet and gin and water.

* *Dublin Journal*, November, 1842.

Kidney.—The phosphatic urinary deposits have been receiving considerable attention, more especially from Drs. Golding Bird and Aldridge. Dr. Prout considered them as the result of cachexia, and Dr. Bird says that one general law certainly appears to govern their pathological development—a constantly depressed state of nervous energy, often general, rarely local, in its seat.

The connection of a phosphatic condition of the urine with a peculiar form of indigestion has been pointed out, and cases have fallen beneath my own notice which enable me to vouch for the accuracy of the remark; for it is not uncommon to find an iridescent film, formed of a thin layer or pellicle, of crystals of triple phosphate, floating on the surface of urine passed by persons labouring under irritative dyspepsia. This peculiar condition of the urine is clearly the result of imperfect assimilation, and in all probability is to be regarded as an attempt at ridding the system of the earthy phosphates absorbed from the ingesta. In this form Dr. Bird states he has never seen a decided gravel or deposit produced, and is inclined to consider it rather as an index of the state of the assimilative functions than as holding out any fear of the ulterior deposit of calculous matter.

It has generally been considered with Dr. Prout that the essence of this disease consists in a super-secretion of the urinary phosphates. Dr. Aldridge however states,* that in place of these being increased, their quantity in the urine is for the most part diminished, and that its essential character is

* *Dublin Journal*, March, 1843.

an alkaline, neutral, or feebly acid condition, the cause of its tendency to alkalinity depending upon an existing subacute or chronic nephritis. Dr. Aldridge does not however deny that cases may occur in which an increased quantity of the phosphates are present, such as old diseases of the bladder, long-continued catarrh, fungoid growths, &c.; but in these instances the super-quantity of the phosphates is secreted by the lining membrane of the viscus itself.

Dr. Bird has proposed for the relief of some cases of this disease injecting the bladder with a very dilute mineral acid; he says he has seen many cases, where viscid ropy mucus, mixed with abundance of phosphates, both magnesian and calcareous, has been secreted, and where the distress of the patient has been extremely increased by intense irritability of the bladder, successfully relieved by this mode after all other plans of treatment proved unavailing.

That interesting disease, *diabetes mellitus*, still engages considerable attention. Dr. Watts regards its proximate cause as threefold:—the cause of the first stage being an inflammatory condition of the mucous and glandular structure of the stomach; of the second, a state of atonic excitement, resulting from the activity of the former; and of the third, nearly perfect atony of the nerves, which bestows upon the stomach the capability of secretive action. The first stage is not characterised by sugar in any of the fluids, and it may terminate without passing into the second; the second stage may continue for some time, and not proceed into the last;

if the causes which induce the third and last stage be applied during the existence of the first stage in sufficient strength, the third stage is at once induced, to the exclusion of the second; and from the circumstances of the third stage passing into rapidly terminating phthisis, with cessation of all its symptoms, the saccharine urine among the rest, the disease does not depend upon any structural lesion. The three stages, with their products, may be thus shown:—First stage, lactic acid, lithate of ammonia; second stage, fat, sugar; third stage, lactic acid, accompanied by emaciation.

Mr. Combette* reports a case of this disease, which he entirely succeeded in curing by the exhibition of the ioduret of iron; the patient was at the same time restricted to animal diet, a bottle of claret daily, with a flask of Bagnole wine, broth without bread, and lemonade. Under this treatment he gradually recovered.

M. Bonnifous relates a case, which was cured by warm clothing, animal regimen, and gluten bread. The patient came under his care four months after the first appearance of the disease, and then voided daily two pailfuls and a half of urine, containing 7 *grammes, per cent.*, of sugar. The quantity of urine gradually diminished, the sugar completely disappeared, and in three months and a half he left the hospital, apparently cured.

Mr. Robinson,† from a series of experiments to show the connexion existing between an unnatural degree of compression of the blood contained in

* *Gazette des Hospitaux*, October, 1842.

† *Medical Gazette*, February 14, 1843.

renal vessels, and the presence of certain abnormal matters in the urine, concludes :—

1. That the process of the effusion of albumen and lymph through the coats of the vessels of the living body is dependent on, and regulated by, the degree of the compression of the blood contained in those vessels.

2. That simple compression of the blood in its smaller vessels will cause the exudation of liquid albumen, of coagulated lymph, and the escape of blood; and as both the essential causes of undue compression are known to exist in inflammation, it is but reasonable to conclude that the primary effects of the latter, which are identical with those of undue compression, are the mere consequences of that physical cause.

3. That there is no relation between the composition of the effused matters and the extent of the dilatation of the coats of the vessels, as measured by the quantity of blood they contain.

4. That a gradually increased quantity of blood may be directed to the vessels of a particular organ, without causing any unnatural compression of that fluid.

5. That if the quantity thus determined be considerably and *suddenly* increased, then some of the effects of undue compression of the blood will be produced.

If these views of Mr. Robinson be correct, they satisfactorily account for the presence of albumen, not only in Bright's disease, but in *petechiæ sine febre*, in females suddenly weaning their infants when they have a full supply of milk, which Dr.

Malden* states to be the case, and its sudden appearance in scarlatinal dropsy, &c., as also in the case reported by Dr. Percy, of Birmingham,† in which albuminous urine supervened after a poisonous dose of corrosive sublimate.

It has long been known that, in confirmed albuminuria, urea may be found in the blood, and that, to its presence there, some have been disposed to attribute the fatal tendency of this disease. M. Simon however says that he has detected it in simply inflammatory blood; and Professor Kane found it, in large quantity, in the fluid drawn by tapping the abdomen of a female affected with ascites, combined with symptoms of albuminuria.

M. Bouchardat‡ and Dr. Bogner§ have published notices of the occurrence of blue urine, which, from the analysis of the latter, appears to be caused by the presence of the prussiate of iron. As neither of the patients had taken preparations containing iron or prussic acid, it is inferred this substance was eliminated in the system, especially as both these cases occurred in persons whose constitutions had suffered from previous disease.

Calculi.—On the subject of calculi some important facts have been collected by the examination and arrangement of those in the museums of the Royal College of Surgeons of London|| and Saint George's Hospital. From the former it appears that out of six hundred and forty-nine calculi,—

* *Provincial Medical Journal*, April 30, 1842.

† *Medical Gazette*, March 24, 1843.

‡ *Journal de Chimie Medicale*, December, 1842.

§ *Casper's Wochenschrift*, No. iii., 1842.

|| *Vide Catalogue.*

Uric acid forms the nucleus of 278, or nearly as 5 to 12.		
Urate of ammonia	201 ...	... 4 to 13.
Oxalate of lime	95 ...	... 1 to 6 $\frac{1}{4}$.

The number of calculi which are homogeneous, or consist of the same substance throughout, is 315, being in the ratio to the whole number nearly as 1 to 2 $\frac{1}{16}$; of those composed of two layers, 210, or as 1 to 3 $\frac{1}{11}$; of three layers, 87, or as 1 to 7 $\frac{1}{2}$; and of those consisting of four or more layers, 18, or as 1 to 36. The calculi at Saint George's Hospital, amounting to 233, were examined by Dr. Bence Jones, whose object was to arrive at conclusions with regard to the comparative frequency of different states of the urine in calculous complaints, and thus to obtain practical hints as to the efficacy of remedies intended to alter the secretion itself, or act upon the stone in the bladder. He presents several tables: and taking 450 states of the urine, inferred from the composition of the calculi, finds that in 139 it was alkaline, and in 311 acid, to the test paper. Omitting from the latter list 59 specimens of the oxalate of lime, 252 cases of the uric acid diathesis remain; and in 117 of these no free acid was passed, from which the author concludes that alkalies would have been of no benefit in them, so far as neutralizing acidity of the urine was concerned. Taking the cases in which the alkaline concretions prevailed, he infers that in 52 the calculus might have been lessened by the injection of dilute acids, and in 12 the whole calculus might have been removed; while in others, to which he refers, disintegration might have been effected. He also describes a calculus in the possession of Mr. Hawkins, the nucleus of which

consists of cystine, and which, from the history, appears to have been formed when the patient was $2\frac{1}{2}$ years of age.

Mr. Butter of Winchester* details a case of calculi occurring in the appendix cæci vermiformis, and which he concludes were formed in the appendix itself. Their composition was almost identical with some found in a similar situation by Mr. Wickham,† being composed of inspissated mucus, fatty matter, and oxalate of lime.

Dr. Hoskins‡ has prosecuted the subject of injecting the bladder, in order to break down phosphatic calculi, which he thinks he has satisfactorily effected by the employment of weak solutions of some of the vegetable supersalts of lead, such as the supermalate, saccharate, lactate, &c., but more particularly the nitro-saccharate. He states that these are more active in their action on calculi and less irritating than any of the fluids hitherto employed.

Saliva.—The chemical condition of saliva and the nature of salivary concretions have received some little attention. It would appear that the saliva is impregnated with lactic acid chiefly in gout, rheumatism, ague, diabetes, and gastro-enteritis; with acetic acid in aphtha, scrofula, scorbutus, small-pox, protracted indigestion, and after the use of acescent wines; with hydrochloric acid in simple gastric derangement from immoderate or improper animal food, and with uric acid in gouty

* *Provincial Medical Journal*, March 25, 1843.

† *London Medical Journal*, vol. iii.

‡ *Transactions of the Royal Society*.

affections. When oxalic acid exists in the saliva its presence will most likely be dependent upon defective digestion or imperfect assimilation. The salivary concretions, of which several cases are detailed, are for the most part described to be long and cylindrical in shape, as if formed in the excretory ducts, extremely rough and of a dirty yellowish colour, internally white and chalk-like, and of a stony hardness. One concretion, however, is described as soft and porous.

M. Desmanes has reported a case of calculus of the lachrymal canal. It was extracted from a lady, aged sixty-six, who had always enjoyed good health, with the exception of a few slight attacks of gout, which left some concretions on the finger and toe joints. The calculus weighed one-tenth of a grain, and yielded, on analysis by M. Bouchardat,

Solid albuminous substance	...	...	25
Mucous matter	...	...	18
Fat	...	...	a trace
Carbonate of lime	...	...	48
Phosphate of lime and magnesia	...	...	9
Chloride of sodium	...	...	a trace
			100

Liver.—We are happy to find that an operation which has been pursued in India with the completest success, that of puncturing the liver in cases of abscess of that organ, has been performed twice during the past year in Europe; in the case reported by Dr. Portal, of Palermo, successfully; in that by Mr. Martin, its failure appears to have been

influenced by circumstances which do not invalidate its utility.

Any observations upon that very obscure affection, phlebitis of the liver, are worthy of notice ; we therefore, though not deeming them altogether satisfactory, call attention to the remarks of M. Lambron,* who says that phlebitis of the liver may be diagnosed, if, after some days of general disorder and epigastric derangement, more or less perfect accessions of fever show themselves, at first intermittent, then remittent, and finally almost continuous and not curable by the sulphate of quinine, especially if at the same time there exist local pain and emaciation, and a typhoid state follow the feverish accessions.

I shall here venture to call attention to a singular and, I believe, unique case of calculus of the liver, which I have myself reported.† The patient had long been jaundiced, suffered pain on the right side on pressure, where was evidently a fulness and hardness. He occasionally experienced all the symptoms of the passing of gall stones ; a few days after which, small dark-coloured matters, not unlike carraway seeds, were found mingled with the fæces. On the examination after death the gall bladder was seen involved in a mass of scirrhus ; the common biliary duct was scarcely pervious enough to admit an ordinary-sized pin ; the liver itself was large and hard, gorged with bile, and here and there could be picked out the carraway-seed-looking bodies. They were, without doubt, moulds of the secreting surfaces of the liver, and apparently con-

* *Archives Generales de Medecine.*

† *Climate of South Devon*, p. 103.

sisted of inspissated bile. They are evidently entitled to be called "calculi of the liver." They are about the tenth of an inch in length, and one-sixteenth in width, slightly curved and kidney-shaped, very light, ten weighing only one grain; their surfaces are covered over with ridge-like reticulations.*

Skin, &c.—Dr. Hayn† has described a case of that singular affection, "the indurated cellular tissue," in which the muscular system was the seat of the disease. The muscles were changed into a hard solid substance, of a vitreous and almost transparent aspect, cutting with a noise analogous to that of scirrhus tissue. When examined by the microscope their structure was found completely changed, being formed of fine longitudinal parallel fibres, possessing great extensibility, excepting here and there where portions of healthy fibre still remained.

Dr. Advena‡ has described the occurrence, in the form of an epidemic, of what he terms *induratio thecæ cellulosi colli*, the *pseudo-erysipelas sub-tendinosum colli* of Ludwig. He says that it had a dangerous, and in some cases a fatal course. It was ushered in by febrile symptoms, followed by a wooden-hard tumour of the cellular tissue surrounding the submaxillary gland, while the gland itself was free from swelling. The tumour would extend from the angle of the jaw to the chin, and frequently draw into the hardening process the cellular tissue between the top of the trachea and cavity of

* *Vide plate.*

† *Caspar's Wochenschrift.*

‡ *Berlin Medicinische Zeitung.*

the mouth, as well as the muscles of the neighbourhood. The tongue thus rested as it were upon a hard floor, and the capability of opening the mouth and of swallowing was but very limited. In course of time suppuration would take place, producing an ill-smelling matter.

M. Souty* has recorded a case of monstrosity, in which the skin had attained such a thickness as to prevent the development of the cartilages of the ears, nose, and eyelids; the genital organs were also deficient.

M. Gruby† has described a new species of contagious sycosis as occurring in the hairy part of the face, but particularly on the chin, upper lip, and cheeks. It consists of white, grey, or yellow scabs, from two to six millimetres broad, and from three to eight long; they are traversed by the hairs, which do not adhere firmly to the skin, so that in removing the scab the hair comes away also by the root. On examining the hairs by the microscope it is found that all their dermatic portion is surrounded by cryptogamic plants, forming a vegetable layer between the sheath of the hair and the hair itself. M. Gruby, in consequence, wishes that this disease, with favus and aphthæ, which he considers as composed of parasitic plants, should form a distinct class known by the name of "nosophyte."

Dr. Bennett has contributed a memoir to the Royal Society of Edinburgh, which has chiefly for its purpose to extend and confirm the above observations; he has traced the growth of mycoder-

* *Academy of Medicine*, September 20, 1842.

† *Academy of Sciences*, September 15, 1842.

matous vegetations in several cases of *tinea*, and has given figures to show the appearances they present. He thinks that they spring up originally below or in the thickness of the cuticle, and consist of small articulated filaments containing sporules. The author endeavoured to propagate the disease by introducing the sporules into his arm and scalp, but he did not succeed in causing the plants to germinate on parts different from those which originally produced them. A plant of a similar nature, and nearly allied to the *Penicillum glaucum*, consisting of jointed filaments and sporules, was detected by Dr. Bennett in the lungs of a man who died of tubercular consumption. The vegetations were not only seen on dissection, but likewise in the sputa freshly expectorated during life; and, from the observations of Dr. John Hastings, it would appear that the presence of this plant invariably accompanies the expectoration of softened tubercle. A similar structure has also been seen in the sordes collected on the teeth and gums of persons labouring under typhus fever.

Dr. Bennett* considers that the pathology of *tinea favosa* is best understood by considering it as a form of scrofula, supposing this term to indicate a peculiar state of the constitution accompanying tubercular deposition in one or other of the animal textures; that in this particular disease the tubercular effusion takes place amongst the cells of the epidermis, and there constitutes a soil for the germination of mycodermatous plants, the presence of

* *Edinburgh Medical and Surgical Journal*, June, 1843.

which is pathognomic of the disease. He considers the chief indications of treatment are—first, to remove the scrofulous disposition ; and secondly, to employ such topical applications as tend to prevent the development of vegetable life ; and he observes that these may be chiefly fulfilled in the external and internal use of the cod liver oil.

About two years since Mr. Goodsir detailed a case, in which fluid was vomited periodically, containing what he believed to be vegetable organizations, and to which he gave the name of *Sarcina ventriculi*.

Mr. Busk* details three other cases, but is disinclined to believe that the so-called *Sarcina* is of the nature of a vegetable parasite ; he says they appear in some measure to partake of the character of a ferment ; but whether they are modified epithelial cells of the stomach, or are a peculiar secretion, remains an interesting subject for inquiry, as are also the conditions under which they occur and their chemical composition.

As throwing some light upon the curious subject of these adventitious productions, it may be mentioned that MM. Andral and Gavarret, in the course of their researches upon the blood, have discovered, that if the alkalinescence of its serum be neutralized by an acid, rounded corpuscles are developed in the midst of the fluid, which are no other than the first rudiments of a plant, having the greatest analogy to that pointed out by Mr. Toynbee in certain fluids after fermentation. They have found the same

* *Microscopic Journal*, January, 1843.

plant in the white of egg, in different serums produced by diseases, and in the serous part of pus.

The incompatibility of the existence of certain diseases with each other has been generally entertained—an opinion which John Hunter affirms, when he states, that no two actions from two different morbid poisons can go on at the same time, in the same part, in the same constitutions. Later observations, though not altogether bearing out this law, have yet shown that some diseases may suspend or modify the course of others. This subject has been particularly investigated by Professor Rokitanski, whose ample opportunities of observation give a weight to his conclusions; he asserts* that typhus is excluded by the various forms of puerperal fever, as well as by the pregnant state, childbed, and even, though in a less degree, by suckling. Typhus and cholera, typhus and dysentery, have the power of mutual exclusion, and the co-existence of tuberculous disease and typhus is extremely rare. Carcinoma and tuberculosis are antagonist diseases, and the latter and all kinds of serous cysts are never met with simultaneously in the same organ, or even in the same individual. Tubercular disease affords an immunity from cholera, dysentery, hypertrophy of the heart, curvature of the spine, dilated bronchi, and almost all chronic diseases of the stomach. Tuberculosis and aneurism do not co-exist; and Rokitanski, as well as others, have remarked, that the development of tubercle is arrested, although the disease is not subdued, by the pregnant state, or large tumours of the abdomen.

* *London and Edinburgh Medical Journal*, February, 1843.

PRACTICAL MEDICINE.

Quinine.—The employment of this medicine in some of the old affections in which it has been administered, as well as in some new diseases, has been particularly studied.

Dr. Fantonetti* has adopted its use with success in cases of hæmoptysis, when accompanied by intermittent or by previous illness. Mr. B. N. Hogan recommends it in asthma. Dr. Guastamacchia advises its external application to the spine, in the form of a spirituous embrocation, during the cold stage of intermittent fever. Signor Broqua having suggested the employment of frequent doses in typhus, M. Laurent presents a summary of its effects when so administered, from which it appears that the most marked influence of the remedy was on the pulse, the frequency of which it uniformly diminished. Many unpleasant symptoms resulted during its employment, such as a dryness and heightened colour of the tongue and fauces, which probably prevailed throughout a great part of the alimentary canal, being accompanied with intense and sometimes insatiable thirst; pain in the chest and epigastrium; abundant diarrhœa, and occasionally bloody stools; frequent vomitings, which ceased on abandoning the use of the remedy; deafness and ringing in the ears, which did not invariably cease with the cessation of its employment, &c. Though out of eleven cases of typhus, in which the sulphate of quinine was used, only one terminated fatally, yet M. Laurent is by no means sanguine of its being superior to other remedies in this disease.

* *Giornale della Pathologia et della Teraputica.*

M. Devergie and M. Briquet have suggested the employment of large doses in acute rheumatism, the former to the extent of five grains four times a day, and the latter to the amount of from four to six scruples in the twenty-four hours on the first day, reducing it to two scruples per diem for six or eight days. In a report of the Academy of Medicine* these excessive doses are condemned; and M.M. Recamier and Husson have detailed cases in which death clearly followed their administration. Moreover it is affirmed that equal therapeutic effects are produced by small doses.

Dr. Kingdon has succeeded in forming preparations of the iodide and biniodide of quinine. The latter preparation, though sparingly soluble in cold, is soluble in boiling water, readily soluble in alcohol, and then not precipitated when mixed with water. He has given it in many cases of scrofulous enlargement of the glands with very good success.

Iodine.—The effects of iodine and its salts are still engaging the attention of practical physicians. Mr. Copeman recommends it in the albuminous dropsy, after scarlet fever. Dr. Aubrun reasserts the efficacy of iodide of potassium in rheumatism, stating that in feeble subjects it may be trusted to alone, without any previous bleeding; but in plethoric patients it is better to begin the treatment with one or two large bleedings, and not to employ the iodide until towards the end of the second week. The patients treated in this way are less liable to suffer from rigidity of the muscles and

* May 9, 1843.

swelling of the joints—a not unfrequent occurrence in this disease, and the removal of which is so difficult. M. Bouyer says, that iodine, combined with the syrup of poppies is a remedy of confirmed utility in the treatment of cases of chronic periostitis, chronic articular, and sometimes acute rheumatism, more especially if in this latter it has been preceded by antiphlogistics which have only proved of partial or no benefit. Dr. Langevin details cases exemplifying its beneficial effects in syphilis; and Mr. Fludyer mentions its employment in acute hydrocephalus. M. Boroeh has found a modification of Lugol's solution, applied externally, efficacious in old standing and tedious cases of herpetic pruritus, applied externally. M. Steenkiste has treated, with success, an obstinate case of leucorrhœa by the local application of iodine; and Dr. William Davidson has used, with advantage, the ioduret of sulphur in the form of an ointment, in cases of porrigo, when other treatment has failed.

Mr. Donovan has continued his researches on the use of the liquor of hydriodate of arsenic and mercury, and its efficacy has been very fully substantiated by the authority of some of the most accomplished physicians of the sister island.

In a previous page we have alluded to Dupasquier's exhibition of the salts of iodine in consumption. We also find M. Gilbert Boissiere stating iodine to be not only innocuous but of great utility, and that there is no remedy to be compared with it; but for a full and complete account of its action we would refer to the memoirs of Mr. Erichsen,*

* *Medical Gazette*, May, 5, 1843.

and, more especially, of M. Ricord.* This latter, who has particularly studied the morbid phenomena which depend purely and solely on the action of the iodide of potassium, states, as a positive practical fact, that they do not require for their removal any other treatment than the suspension of the medicine for a few days, or the diminution of the doses in which it is administered.

Dr. Patterson,† in a paper in which he states that nitrate of silver immediately on its exhibition is decomposed in the stomach and becomes a chloride—a view in which he follows Mr. Lane—says the discoloration of the skin is most probably owing to the decomposition of the chloride of silver circulating in the cutaneous tissue through the chemical action of the sun's light, and the deposition there of its metallic basis. In order to obviate this he suggests that in place of the nitrate of silver or the muriate, as advised by Dr. A. T. Thompson, or the oxide by Mr. Lane, the iodide should be administered, as he finds it capable of resisting the chemical action of light, and that therefore the probability of its causing discoloration of the skin is rendered distant. He details experiments and cases which appear to confirm the correctness of this opinion; and Dr. Graham‡ reports a case in which the external and internal employment of the iodide of potassium, in blue discoloration of fourteen years standing, has had considerable effect in modifying the colour. The blueish leaden hue has been partially changed

* *L'Experience.*

† *Dublin Medical Press*, August 25, 1842.

‡ *Ibid*, February 1, 1843.

to a more brown tint, and the skin has become, to a certain extent, lighter. In some parts of the face the discoloration has been materially lessened, and the natural colour of the skin has in some degree become perceptible.

Bromine.—Dr. Glover* has studied the physiological and medicinal properties of bromine: he considers the solution of bromine in water an elegant and useful application to scrofulous, syphilitic, and specific ulcers, also to eczematous eruptions, and gives cases to prove that the bromide of mercury will cure syphilis as well as the chloride; but that, contrary to what has been asserted on the continent, it is likely to give rise to disagreeable symptoms. The bromide of iron he regards as an excellent general tonic, sitting easier on the stomach than any of the strong preparations of this base. His general conclusions are that, physiologically, bromine and the bromides are nearer the group of chlorine and chlorides than that of iodine and iodides: he maintains that their chemical and physiological relations are alike, and that the same is true of their medicinal properties.

Creosote.—Though this medicine has not generally speaking answered the expectations which were first formed, we yet find that its merits are occasionally dwelt upon. Mr. Whitwell speaks highly of its curative effects in purpura; and Dr. Cormack, in following out his observations published in 1836, states that he has now satisfied himself that

* *Edinburgh Medical and Surgical Journal*, July and October, 1842.

in large doses it is a narcotico-acrid poison, and that it resembles prussic acid in its sudden depressing action on the heart, as well as in the temporary nature of its toxicological operation ; that in medicinal doses it is almost immediately sedative and calming, but these effects are of short duration ; that in cases of vomiting it is one of the best medicines we possess ; that it is useful in arresting hæmorrhage, in neuralgia and phthisis in the form of vapour, and as an external application in tooth-ache and phagedenic ulcers ; and that it appeared to be injurious in diabetes, dyspepsia, rheumatism, irritable bladder, and cancer.

Naphthaline.—The application of naphthaline, in the form of an ointment, has been recommended by Emery in cases of psoriasis and lepra ; and the bisulphuret of carbon, externally or internally applied, is said to be useful in rheumatism, glandular enlargements, neuralgic pains of the face, &c.

Some preparations of potassa and soot, and potassa and coal, to which the extraordinary names of fuligokali and anthrakokali have been given, are stated, by Drs. Polya and Gibert, to be useful in skin diseases.

Ammonia.—M. Ducros says that the application of ammonia at 25° R. over the back of the cervical vertebræ, and opposite the pharyngeal plexus, is capable of arresting, in a majority of cases, attacks of nervous asthma ; and Mr. Smee recommends the direct inhalation of diluted ammoniacal gas in various affections of the throat, but observes that the

presence of inflammatory symptoms, local or general, counter-indicates its use. Dr. Bartels recommends the hydrocyanate of zinc in various forms of nervous affection, as epilepsy, hysteria, &c.

Oils.—Since the publication of the observations of Drs. Bennett, Ascherson, and Klencke, on the virtues of cod liver oil, endeavour has been made to obviate the nauseousness of its taste. Mr. Ure says that he has entirely prevented its objectionableness in this respect, by using the cod livers themselves and mashing such oil as escapes with potatoes. MM. Girardin and Preisser suggest the employment of the liver of the skate, not only from the oil being less disagreeable to the taste, but because it contains a larger quantity of the iodide of potassium than that of the cod. We must however conclude that the efficacy of this remedy has been much overstated; for we find Dr. Stacques, of Ghent, asserting, and his opinion must have some weight, that he is in possession of no fact in which, upon analysis, he is entitled to ascribe the good effects said to result from its use to the oil alone.

Dr. Clay speaks favourably of the use of ox gall, more especially in those cases in which deficiency in quality and quantity of bilious secretion is the prominent and prevailing derangement.

Dr. H. Roe recommends the use of castor oil and turpentine in anæmia with chlorosis; and Dr. Franz has followed up a suggestion of Dr. Trusen, of Posen, in the external application of croton oil in hoarseness, with the greatest success. He details several cases of various complexion, in each of which its application was satisfactory.

Indian Hemp.—The medical properties of the Indian hemp are attracting particular attention, from Dr. O'Shaughnessy having lately imported a quantity into this country. Mr. Ley and Dr. Clendinning have both studied its effects, and speak most favourably of it as a narcotic and anti-convulsive remedy; and the latter says his experience has satisfied him that the hemp extract is possessed of medicinal properties sufficiently energetic and uniform to entitle it to admission into our national Pharmacopæia. The observation of Dr. Farre, however, deserves attention, that the *Apocynum cannabinum*, an inert substance, is often substituted for it.

Acids.—Mr. Benson, following out the idea pursued in a lead manufactory in France, has invented a sulphuric acid beer, to obviate lead colic, with the most effectual success.

Dr. Trusen has found mineral acids of universal benefit in dropsy not dependent on disease of the respiratory organs, or extensive disorganization of the liver. The principal medicines of this class he employed were the acid-elixir of Haller and phosphoric acid. The former is useful in dropsies of an adynamic character, those consequent on intermittent fevers, and those due to checks of the perspiration or other secretions. The phosphoric acid is suitable in cases of dropsy owing to an altered condition of the blood, and in those supervening upon diarrhœa, dysentery, chlorosis, &c. Dr. Barach recommends the external use of the acid-elixir as a rubefacient in painful neu-

ralgic affections ; he used it four times diluted, and rubbed in night and morning.

Chlorine.—The use of chlorine has been recommended in scarlet fever, and, from the reports, its exhibition has been attended with success. Dr. Hunt recommends the chlorate of potash in cancrum oris and phagedena of the cheek, in doses of one or two scruples in the 24 hours.

Mercury.—Mr. Murray,* in a paper on the direct and primary action of calomel, has added some little to our knowledge of this remedy : he shows, from experiments on dogs, that, in moderate doses, it excites an afflux of blood to the minute arteries and capillaries of the gastro-intestinal mucous membrane, more particularly the gastric and colic portions, imparting to it a capilliform, punctiform, or uniform red tinge, &c. ; that it increases the flow of bile into the duodenum and the secretions from the intestinal mucous follicles and serous exhalants ; that in inordinate doses, (1, 2, 3 drachms,) in addition to the above, capilliform injections of the serous coat of the intestines and a morbid sanious discharge from the mucous follicles.

Ergot of Rye.—The therapeutic uses of the ergot in other cases than as an adjuvant to labour are thus summed up by Dr. Bernhard Ritter, of Rottenburg :† Its use is indicated in cases of hæmorrhage, and especially in uterine, utero-placental, and puerperal hæmorrhages ; in critical epistaxis and hæmoptysis,

* *Transactions of Medical Society of Bombay.*

† *Medicinische Annalen.*

and as a prophylatic against uterine hæmorrhages in women who have lost much blood in previous labours. In this last-named case, the ergot is given in the dose of a scruple to half a drachm about a quarter of an hour before the expected birth of the child. It is also indicated in amenorrhœa and dysmenorrhœa, arising from torpor of the uterine functions, in vaginal blenorrhagia, chronic idiopathic leucorrhœa, not dependent on a venereal cause, and for the expulsion of moles and uterine polypi, or at least to propel them, so that they can be seized. The ergot is also recommended in intermittents when unaccompanied by phlegmasia, and in chronic diarrhœa.

Zinc.—Dr. Strong has recommended the use of sulphate of zinc in flatulent affections of the colon and in constipation.* He uses it in three grain doses in cases attended by borborygma and distension, and regards its action as essentially astringent. It should be taken immediately after a meal to obviate sickness.

Benzoic Acid.—Mr. Ure† says that in benzoic acid the hitherto embarrassing problem is solved of rendering an alkaline urine acid at pleasure, and consequently of obviating the irritation which such urine occasions to the membranous surface with which it comes in contact. This very important position is evidenced in an interesting case in which the deposition of phosphates, uncontrollable by other means, was immediately arrested by this

* *Edinburgh Medical and Surgical Journal*, October, 1842.

† *Medical Gazette*, February 10, 1843.

remedy, and the patient, fast sinking beneath his malady, was restored to health. The presence of hippuric acid, into which the benzoic acid is converted, prevents for a considerable period the putrefaction of urine.

Potato.—The use of the potato in scurvy has come under discussion during the last year. Sir G. Blane, Mr. Smith, J. Fontanelle, and Mr. Dalton, had previously called attention to its use, in the raw condition, while Mr. Berncastle and Dr. Baly* have shown that its virtue is not destroyed by boiling. The latter gentleman has fully proved its efficacy in averting the presence of this disease in the Milbank Penitentiary. He refers its antiscorbutic quality to the ample presence of an acid, supposed by Eintroff to be the tartaric, and by Vauquelin, the citric, in combination with potash and lime.

White Hellebore.—Dr. Dornbluth recommends, as a cure for psora, the external use of white hellebore, in the form of a liniment. He speaks of its success as being uniform and extensive, and recommends it in preference to other remedies, not only from its curative powers, but from its not smelling, nor requiring internal treatment.

Aconite.—Dr. Busse recommends aconite both in acute and chronic rheumatism, more particularly from its not exciting the vascular system.

M. Rougier advises, in neuralgia and sciatica,

* *Medical Gazette*, February 10, 1843.

the muriate of morphia applied endermically; the surface is vesicated by a hot iron, and the morphia, from a grain and a half upwards, previously wetted, applied.

Amongst the numerous remedies which are daily being suggested for the cure of epilepsy, we find Dr. De Losch recommending the use of sulphate of copper, and M. Podrecca, indigo combined with castor and assafoetida.

In three epidemics of hooping cough, Dr. Rieken* says that he has derived more advantage from the use of assafoetida than from any other remedy. Its use is indicated only after the febrile period has passed, and its influence is diminished in the third stage, when tonics should be combined with it. He generally administers it in the form of an enema. In the third stage of this disease Dr. Geigel recommends the exhibition of tannin, and Dr. Sebregondi confirms its utility. Dr. Wachtel† has largely tested the old English remedy of cochineal and speaks very favourably of the results. He observes that from its disposition to putridity no more should be dissolved than is required to last from 36 to 48 hours.

Mr. Griffith‡ and others have published cases showing that the local use of tartar emetic or croton oil may produce irritating effects on the genital organs, and Dr. Boas has observed an analogous effect produced by assafoetida plaster. In men, tumefaction of the scrotum often occurred; in women,

* *Annales de la Société Médicale de Bruxelles*, September 3, 1842.

† *Medicinische Jahrbucher*, October, 1842.

‡ *Provincial Medical Journal*, November, 1842.

tumefaction and even inflammation of the external labia. In one case, that of a woman 50 years of age, where the plaster had been applied on the abdomen, very troublesome inflammation of the external organs of generation, requiring an anti-phlogistic treatment, supervened, and the mammæ became greatly enlarged, and furnished a milky secretion in considerable quantity.

Dr. Bückner states that the topical application of the leaves of the *Betula Alnus* is much resorted to in Stadt-Steinach, to cause the cessation of the lacteal secretion, and the resolution of tumours of the breast in women who do not suckle, and in those who wish to wean their children.

M. Negrier* has promulgated the curious fact that bleeding from the nose may be immediately arrested by the elevation of the arms, with simultaneous pressure upon the nostril. He relates several cases where the epistaxis readily yielded to this remedy; and Mr. Davie, of Haddingham, reports an aggravated case which was likewise successfully treated by this method. M. Negrier offers the following explanation: when a person stands in the ordinary posture with his arms hanging down, the force needed to propel the blood through the upper extremities is about half that which would be required if the arms were raised perpendicularly above the head. But since the force which sends the blood through the carotid arteries is the same as that which causes it to circulate through the bronchial arteries, and there is nothing in the mere position of the arms above the head to stimulate the heart to in-

* *Gazette Medicale.*

creased action, it is evident that a less vigorous circulation through the carotids must result from the increased force required to carry on the circulation through the upper extremities.

FORENSIC MEDICINE.

The journals of the past year have, in many departments of this branch of medicine, added considerably to our information.

Arsenic.—With regard to the habits of that most important of poisons, arsenic, in the human body, and its detection, our knowledge is being completed to the highest state of certainty.

It now appears established that the view, which was promulgated three years since by Orfila, of the human tissues in a state of nature containing this mineral, as likewise copper and lead, is incorrect. Another point of discussion between this chemist and his pertinacious rivals, M.M. Flandin and Danger, has also been tested by M. De la Fond, viz.: the influence of poisoning by arsenious acid upon the urinary secretion, who concludes, that this secretion, though greatly diminished, is not suppressed, and that it contains a notable quantity of the poison. It is also now decided that the blood and some of the chief organs of the body may contain portions of the metal even after all traces of it have passed away from the stomach; but that the liver is the organ which it particularly affects. Mr. Taylor* reports a case of rapid death from acute poison-

* *Guy's Hospital Reports*, October, 1842.

ing by this substance, in which it was detectable in the liver, but not in the blood or in the spleen; and Mr. Herapath detected it in the liver, when undiscoverable in the stomach. It therefore becomes a matter of serious importance, in investigations of the cause of death from poisoning, to analyse the contents of this viscus.

MM. Chevalier and Barse have published a memoir in which the merits and mode of application of Marsh's test are fully canvassed; and M. Meillet, in reviewing its operation, has shown that it is not applicable if the sulphuret be the salt of arsenic present; and consequently, if much sulphuretted hydrogen were formed, the whole of the arsenic present would be converted into sulphuret, and the spots obtained yellowish. Independently of this, there can be no doubt that the minuteness of analytical chemistry has thrown some little trouble in the way of Marsh's very beautiful test, from the too great probability of the presence of some small quantity of arsenic either in the zinc or sulphuric acid required for the generation of the hydrogen. It is therefore, with the greatest satisfaction, we record a method proposed by Hugo Reinsch* for its detection. This process consists in acidulating the arsenical fluids with muriatic acid, and boiling them with metallic copper, which then becomes covered by a steel-grey crust of metallic arsenic. This test is rendered more valuable by being applicable to organic fluids. M. Reinsch conceives that, compared with Marsh's method, his own enjoys the following advantages. Its execution is easier and

* *Repertorium für die Pharmacie*, vol. xxvii., p. 13.

requires less time. It cannot give rise to errors, because the arsenic can be obtained at first in the metallic state, then in the form of arsenious acid, and again in the metallic state on a plate of porcelain without any loss. It is exempt from the inconvenience of frothing of liquids, the carbonization of tissues, &c. It equals Marsh's method in point of sensibility, since we are able by it to detect a millionth part of a grain of arsenic in a fluid.

To the value of this test we shall quote the opinions of Dr. Christison and Mr. Taylor. The former says* that he has obtained from it the most satisfactory results. In medico-legal investigations he considers it superior to any other in point of convenience, where complex fluids or mixtures of organic solids are to be examined—and a process which, on the whole, is likely to supersede all others hitherto proposed. Mr. Taylor† says, among the obvious advantages of this test are—first, its extreme simplicity and the consequent facility with which it may be applied; and secondly, the rapidity with which an analysis of the most complex solid or liquid may be performed. Indeed the analysis of the contents of the stomach of a person suspected of having died from arsenic may now as it were form part of the *post mortem* examination. It will detect and separate a smaller quantity of arsenic than we shall probably ever have to encounter in a medico-legal analysis; and it is far more easy to obtain arsenious acid from a minute quantity of the metal than to obtain the metal from the reduction of a minute quantity of the sesqui-sulphuret, accord-

* *Edinburgh Medical and Surgical Journal*, 1842.

† *British and Foreign Medical Review*, July, 1843.

ing to the process commonly adopted. Further, there is as much certainty in this as with Marsh's test or other modes, and where it fails it is pretty certain that no other test will succeed.

The question in dispute upon the distinctive characters of arsenical and antimonial spots is equally applicable to this process of Reinsch as to that of Marsh, and it therefore now becomes doubly necessary to be clear upon this matter. Independently of its having been shown that the arsenical spots are soluble in the chloride of soda, which is not the case with those of antimony, Mr. Watson* has proposed a test dependent upon the difference in volatility of these substances:—crusts of metallic arsenic and of antimony, on slips of glass, are inclosed in test tubes and immersed in boiling oil; in one minute the arsenic disappears from that part of the glass surrounded by the hot oil, which will not be the case with the antimony until after the expiration of seven minutes. Wackenroder has proposed several methods to secure accuracy; the only one which need be noticed depends on the crystalline form of arsenious acid. A metallic film having been produced, the tube, open at both ends, is held in a slanting position, and the ring is heated; a deposit is produced some distance from the place where the ring was, and which may be either arsenious acid or oxide of antimony. The tube is carefully broken, and one of the pieces brought under the microscope with a magnifying power of 900. If the crystals are regular octohedrons, they are arsenious acid; but if prismatic, oxide of antimony, this oxide never forming octo-

* *Memoirs of the Philosophical Society, Manchester*, vol. vi.

hedral crystals, but only prisms. Notwithstanding the certain assurance of Wackenroder, I am inclined to think the attempt to decide the nature of the grey metallic spots from their external characters alone will not be found satisfactory, and that therefore they should be further subjected to chemical examination.

Corrosive Sublimate.—M. Mialhe* says he has discovered from experiments that hydrated protosulphuret of iron, a perfectly innocuous substance, instantly decomposes corrosive sublimate; it is equally useful in counteracting the deleterious operation of several other metallic salts, especially those of copper and of lead. According to the experiments of MM. Sandras and Bouchardat, the best antidote to corrosive sublimate is the hydroguret of iron. But as there is great difficulty in preserving this substance, the authors think that the persulphuret of the hydrate of iron is preferable. In poisoning by the acetate of copper, they recommend the administration of the persulphuret of the hydrated peroxide of iron; given even after an interval of forty minutes, when symptoms of poisoning had already commenced, this preparation has sufficed to check their progress. With regard to the salts of lead, the authors have instituted no experiments, having seen dogs get well without any especial treatment after the administration of this class of poisons. The antidotes to arsenious acid are the peroxide of iron and the persulphuret of the hydrated peroxide of iron. This latter substance is thus found to be suit-

* *Academy of Medicine*, August, 1842.

able to many different kinds of poisoning, and is, therefore, a very valuable preparation; it may always be administered, even where we are doubtful as to the nature of the poison.

Lead—M. Chevalier* relates a case of poisoning by lead in cider, which is chiefly interesting from his announcing the fact, that the malate is a soluble salt, contrary to the opinions of Thomson and Berzelius.

Professor Otto, of Copenhagen, details two cases where symptoms of poisoning were induced, apparently, by the use of Macaba snuff, adulterated by red lead. The snuff, on chemical examination, was found to contain from 16 to 20 per cent. of lead.

Copper.—M. Degrange† records a case of poisoning by native verdigris, the deuto-subcarbonate of copper, which is chiefly remarkable for the absence of alvine dejections and vomiting, freedom from tenderness of the abdomen, and for the presence of apoplectic symptoms. A *post-mortem* examination showed decided congestion over the whole surface of the brain, with inflammation and ulceration of the stomach, a green tint of the whole bowels, which was not the produce of putrid decomposition, and in several parts of them ecchymosis, with blackish spots and vascular ramifications. By analysis it was found that copper pervaded the whole alimentary canal, was discoverable in the urine, but not in the blood or heart.

* *Annales d'Hygiene Publique*, January, 1842.

† *Journal de Medecine pratique de Bordeaux*.

Phosphorus.—M. Lafarge* relates the case of a child, six months old, who died from sucking the ends of lucifer matches: the symptoms were violent vomiting, the matter ejected being luminous and, as well as the breath, emitting a strong phosphorescent odour; coma and convulsions supervened: on examination after death the pyloric orifice of the stomach and the whole course of the ilium exhibited patches of thickened and softened mucous membrane.

M. Orfila† has contributed some valuable papers on the absorption of vegetable and mineral acids, metallic salts, and fixed alkalis, into the system. It is impossible to give anything like an analysis of these papers; we may however observe, that the question is one of great importance in a medico-legal point of view, as they show that it may be incumbent on the chemist to carry his researches into organs situated at a distance from the stomach. M. Orfila has satisfied himself that traces of the acids can be discovered in the urine of persons poisoned, but not in the liver or spleen; of the metallic salts and fixed alkalis, in the urine, the liver, and the spleen; but that evidence of the exhibition of these latter is rather to be found in the alimentary canal itself, and in the disorganisation consequent upon their presence.

Hydrocyanic Acid.—M. Morin‡ gives notice of a case in which it was decided that an individual had been poisoned by hydrocyanic acid, from the smell

* *Provincial Medical Journal*, December 24, 1842.

† *Journal de Chimie Medicale*.

‡ *Bibliothèque Univ. de Genève*, December, 1842.

pervading all the organs after death. This conclusion became the matter of investigation, and the result arrived at agreed with that promulgated by Orfila, namely, that smell was not sufficient to decide the question; for in several cases no such smell was detectable, though death had been produced by large doses of the acid; and, because it appears highly probable, that both during life and after death, this acid may be generated in the human body. Moreover, M. Bonjeau has ascertained that animal substances distilled in a sand-bath in water, at a temperature of 212° to 248° Fahrenheit, will sometimes yield a small quantity of prussic acid combined with ammonia.

Opium.—MM. Larocque and Thibierge* have carefully examined the proposals of Dr. Christison for the discovery of opium in organic fluids; and they come to the conclusion that iodic acid ought to be used as a reagent for morphia with the greatest circumspection; that the re-agents most deserving of confidence are nitric acid, the neutral perchloride of iron, and the perchloride of gold; with these the presence of morphia, which had been mixed with beer, soup, or milk, has been ascertained; and it is also easy to show the presence of meconic acid in these fluids, especially when the meconate of lead has been decomposed by weak sulphuric acid.

Alcohol.—Dr. Christison† has shown the possibility of detecting alcohol in the stomach, even three months after death. The process of analysis con-

* *Journal de Chimie Medicale.*

† Edinburgh Medico-Chirurgical Society, January 4, 1843.

sisted in cautious distillation from carbonate of potash; neutralization of the distilled fluid with sulphuric acid to remove ammonia; re-distillation till a fifth of the fluid passed over; and agitation of the new distilled liquor with dry carbonate of potash.

Dr. Page, of Valparaiso, and Dr. Cazentre, report cases of poisoning by cubebs, in which, by analysis, no deleterious properties could be found; the symptoms during life and the examination after death were indicative of inflammation and congestion.* Dr. Wolfring relates a case of poisoning by squills.† Dr. Dawosky details a case of poisoning by digitalis, which is interesting from the symptoms coming on after twenty days' use of moderate doses: and Dr. A. T. Thomson one by colchicum; the symptoms were fall of pulse, both in force and frequency, cold clammy sweats, wild delirium, and maniacal stare; the morbid appearances on dissection were increased vascularity of the arachnoid, a deposit of grumous blood in the colon, and small triangular points, surrounded by greenish-coloured bands and lines, in the interior of the liver. Dr. Lieber relates cases of poisoning by decayed carrots: the symptoms were violent vomiting and convulsions, with a quick and full pulse.‡ Dr. Poumet has entered largely into the examination of poisoning by cantharides; and he comes to the conclusions: 1. That the presence of cantharides, administered internally, either entire or in fine powder, may

* *Lancet*, February, 1843.

† *Chemist*, October, 1842.

‡ *Schmidt's Jahrbücher*, August, 1842.

be demonstrated in the vomited matters, in the fæces passed during life, in the mucus of the œsophagus, in the contents of the stomach and large and small intestines, in the matters formed in the margin of the anus, and on the internal surface of the insufflated, stretched, and desiccated alimentary canal. 2. That the traces of the poison may be discovered and recognized six months after death. 3. That the shining particles of the Spanish fly cannot be mistaken for red or copper filings.*

Tannin has been recommended by Dr. Meyer as an antidote to cicuta, and by Chauserel† to poisonous mushrooms, on the ground of its forming an insoluble combination with many vegetable poisons.

M. Mandl‡ has produced an elaborate paper on medico-legal researches on the blood, in which he shows that by the aid of the microscope it is possible to distinguish blood spots on linen, &c.

A number of cases are reported of that peculiar disease originated by eating spoiled meats, and often terminating in death. Dr. Sigg§ relates the history of a party of 600 who had eaten of spoiled ham, 550 of whom were attacked, nine died, and all, who had severe attacks, lost their hair. Dr. Röser|| relates the case of a family of eight, who were poisoned by liver sausages, which had become sour, three of whom died; and Dr. Pollias mentions nine persons who were poisoned by a kind of strong cheese.¶ It would appear that the characteristic

* *Annales d'Hygiene Publique*, October, 1842.

† *Wackenard Archives de Physiologie*.

‡ *Gazette Medicale de Paris*, September 3, 1842.

§ *Ibid*, July 2, 1842.

|| *Schmidt's Jahrbücher*, August, 1842.

¶ *Chemist*, December, 1842.

lesions after death in these cases were inflammation and disorganization of the mucous surfaces, more especially of the pharynx, a leaden colour and broken down character of the liver, and a large and softened spleen.

STATISTICS.

The Registrar-General has published his fourth report on the births, deaths, and marriages, in England and Scotland. It would obviously be impossible in the present retrospect to give an analysis of this work; we may, however, briefly mention that it refers to the state of the population in 1840, a year characterised by a temperature rather higher than that of the four years immediately preceding; that the mortality of this year was above the average, the summer and autumn months being the most fatal; that the diseases that swelled the amount more particularly were scarlatina, which was the prevailing epidemic, and from which the deaths were nearly four times more than in 1838, diarrhœa, cholera, influenza, ague, and dropsy; that the deaths from small-pox, typhus, hooping cough, and hydrophobia, were rather below the average of previous years.

The Statistical Society of London have formed a committee, to inquire into the progress of diseases and causes of death in the public hospitals, &c., of the metropolis, and have issued their first report, which consists chiefly of directions. We trust that it is now in full operation, and have no doubt that some interesting results may be obtained from it.

Drs. Omond and Maclagan, in a third and elaborate report on the diseases of Edinburgh, drawn from 3044 cases occurring during the past year

in the New Town Dispensary, affirm, as regards the locality of fever, that though the history of any one year, viewed apart from the others, may indicate its prevalence in a particular locality, yet the more extended observation of three years fails to discover any one district as peculiarly liable.

Dr. Guy has contributed an article to the *Journal of the Statistical Society*,* purporting to show the influence of the seasons and weather on sickness and mortality ; from which it appears that the atmospheric conditions, following the same order as the amount of sickness, are the temperature and the dew point ; that the dew point, however, is merely a coincidence, and that the quantity of moisture in the atmosphere has no relation to the prevalence of sickness ; so that the atmospheric condition, which exercises the most marked influence on sickness and mortality, is temperature.

Dr. Joslin† has examined the influence of season on spontaneous hæmorrhage, as exemplified in the occurrence of hæmoptysis and uterine hæmorrhage. The months in which the greatest number of cases occur are June and September ; hæmoptysis in the former, and uterine hæmorrhage in the latter. From this and other data he infers, that neither the extremes of heat nor of cold are among the most influential causes, and that the atmospheric condition of the period preceding a storm is more conducive to hæmorrhage than that which immediately succeeds one.

Dr. John Webster has contributed a paper on the statistics of insanity, compiled from the registers

* January, 1843.

† *Quarterly Journal of Meteorology*, July, 1843, from *American Journal*.

of Bethlehem Hospital for the last twenty years ; according to which it appears that there are admitted 47 per cent. more women than men ; that cure was effected in females in 55.14 per cent., and in males in 46.20 per cent., thus giving a preponderance in favour of the former of 8.94 per cent. The number of deaths also among the male patients was 6.25 per cent., and only 4.25 per cent. among the females. The author therefore concludes that insanity is not only more common among women than men, but also a more curable disease ; so that, *cæteris paribus*, the prognosis may be considered as more favourable in female than male patients. The diminished rate of mortality and the greater proportion of recoveries are also clearly shown by the records of the institution ; since it appears that during the three years ending the 21st of December, 1752, the proportion of patients discharged cured was only $31\frac{1}{4}$ per cent. on the total admissions, whilst for the three years ending December 31, 1842, the cures amounted to nearly 55 per cent. The ratio of deaths also during the former period was as high as $25\frac{1}{2}$ per cent., but only $5\frac{5}{8}$ during the last-named three years ; that is about one-fifth of the amount reported nearly a century ago. The author next remarks on the diminished number of suicides in the insane patients admitted into Bethlehem, observing at the same time their greater frequency among females than among males. A synopsis is next given of 70 dissections recently made by Mr. Lawrence, in which the various morbid appearances met with are carefully detailed. The author concludes his paper with an allusion to the two sections of pathologists at present dividing the

opinions of medical writers respecting the alterations of structure met with in cases of insanity, viz., the "anatomists" and "vitalists;" the former considering them as causes, the latter only as consequences of the previous mental affection. In his opinion the theory of the anatomists is the more rational, and most in accordance with the present state of our knowledge of the pathology of mania.

M. Leuret has also published a statistical account of insanity from the cases occurring in the Bicêtre; and Mr. Hare, from those in the Retreat, near Leeds.* The details of these papers are too minute and extensive to be quoted here; they will, however, amply repay a perusal.

MEDICAL BIBLIOGRAPHY.

Though medical literature during the past year has not received any addition of great or stirring novelty, yet it offers for notice several works and papers of considerable interest.

The local reports of the sanitary condition of the labouring population of this country abound in a mass of information which has been digested by Mr. Chadwick, the secretary to the Poor Law Commissioners, into a general report. The volume in which this latter is comprised, is one of peculiar value, and has been very justly styled by an eminent reviewer† as "constituting the most valuable and complete treatise on certain departments of medical police" ever published either in this or any other country. It must not be forgotten that the conception and carrying out of these inquiries

* *Provincial Medical Journal*, June, 1843.

† *British and Foreign Medical Review*, July, 1842.

are owing to one who is not a member of the medical profession, and that in bringing them to a conclusion Mr. Chadwick has proved himself equal to the task so well conceived.

On the subject of medical biography we have two works, the one a life of the late Dr. James Hope, physician to Saint George's Hospital, which lays open to us the career of an arduous investigator of disease, and one on whom the principles of the Christian religion appear to have made the deepest impression; the other of Sir A. Cooper, from the pen of his nephew, Mr. B. Cooper, which though not a work of a high philosophical tone, yet abounds in amusing incidents of this distinguished man's career.

The subject of insanity has occupied much attention. In a small volume Dr. Pritchard has given us a very succinct and useful digest of his views "on the different forms of insanity in relation to medical jurisprudence," which, though ostensibly addressed to the legal profession, will be found of value to the medical man.

The admission of students to the wards of establishments set apart for lunatics, and the clinical lectures of Dr. Sutherland at Saint Luke's, are evidence that a new and enlarged system of education on mental diseases has commenced; as the reports of Dr. Conolly, of Hanwell, of Dr. Browne, of Dumfries, of Dr. Thurnam, of the Retreat, are of the extension of the more humane system of treatment which modern days have called forth.

The acquittal of M'Naughten for murder, on the plea of insanity, has aroused the indignation and excited the fears of the public for the course of public justice, and a statement of the position of the law as

regards such pleas has been called for from the judges of the land and duly responded to. In the answers to the queries submitted to them, the certainties and dignity of the law are fully sustained, and may probably remain so until the ingenuity of council shall set them at nought on the first occasion that offers.

Sir Alexander Crichton, the greater part of whose life has been passed in active practice at St. Petersburg, offers for observation perhaps one of the most remarkable works that has issued from the press for many years. At the age of 79 he publishes a volume, purporting to be commentaries on some doctrines of a dangerous tendency in medicine, and on the general principles of safe practice, which are not only valuable from the experience that a long life of useful observation has enabled him to exercise upon the various subjects of which he treats, but the manner in which this is done is evidence of an untiring energy rarely to be met with at so advanced a period of life—the newest and most abstruse philosophical views of the present day being weighed, digested, and applied. The commentaries comprise discussions on the functions of the heart and arteries, on typhus, insanity, and syphilis.

Dr. Bence Jones has produced a small volume on the application of Liebig's physiological views to the pathology of urinary and gouty diseases; and Dr. Walshe a manual on the physical diagnosis of diseases of the lungs, which is, perhaps, the most complete, and at the same time the most compendious, that has been ever offered for the consideration of the medical world.

Sir Henry Marsh has concentrated into a small pamphlet a collection of facts and observations on

the curious subject of the evolution of light from the living human body. The remarks on the luminousness attendant on the dying bed of some consumptive cases are very interesting.

Dr. Graves has brought together and re-published with considerable additions his very valuable lectures on clinical medicine, which have at various times appeared in the *Dublin Hospital Reports*, and the *Dublin Medical Journal*; this volume will be found replete with sound, and in many instances novel, practical information: it constitutes a work of great value.

Mr. Julius Jeffreys has published a very original volume on human statics; and Dr. Charles Loudon a "Solution du problème de la Population et de la subsistence." The views of this author are chiefly Malthusian, and he discusses a plan calculated, as he thinks, to prevent population increasing beyond the means of subsistence.

The various medical reports and journals contain numerous papers of interest; it would be quite beyond our limits even to particularise them; we may however observe, that the *Medico-Chirurgical Transactions* and *Guy's Hospital Reports* are not deficient in their usual interest; that the *British and Foreign Medical Review* maintains the high character which the talents and industry of its editor have acquired for it, and that the very excellent and valuable retrospects edited by Mr. Braithwaite have been continued, the usefulness of which has only to be known to ensure them a place on the library table of every medical man. Nor must I omit to mention the establishing, on the continent, of a journal, the "*Annales Medico-Physiologiques*," by Baillarger, Cerise, and Lorget, devoted entirely to

subjects connected with the nervous system ; nor Dr. C. Canstell's annual report of the progress of medicine in general in all countries, the main feature of which is, its being divided into 36 different sections, and each section being written by an author celebrated in the peculiar province of medical science to which it is devoted.

Long as this paper has been I must not bring it to a close without some brief mention of those illustrious labourers in our profession, whose career has been terminated by the hand of death during the past year.

The first to whom I shall allude is the last of the "two Lathams," men who, it may be in the recollection of some that now hear me, the venerable Chancellor Pott, at the previous meeting of this Association in Exeter, appealed to as being of those whose opinions and career refuted the calumny that had been urged of the infidelity of the medical profession. The following interesting notice is taken from the *Medical Gazette* :—On the 28th of April last the venerable John Latham, "Father of the College of Physicians," breathed his last, at the very advanced age of 81. None of his immediate contemporaries are now alive, and his juniors by ten years are almost all passed away. He had himself long retired from the cares of the world, so that of the physicians now in active practice few could have known him ; yet he was eminent in his time, and enjoyed a large share of the esteem and confidence of mankind. Half a century ago he was one of the physicians of St. Bartholomew's Hospital. At the age of 46, worn

out by the hard labour of his early success, he was believed to be consumptive, and retired into the country (it was thought) to die. But he recovered and resumed his profession; and removing from Bedford Row to Harley Street, he enjoyed, with a more moderate practice, a larger share of health than he had known during his days of greater labour and success. In the year 1814 Dr. Latham was elected President of the College; in 1816 he founded the Medical Benevolent Society; he contributed several papers on practical subjects to the *Medical Transactions*; in 1809 he wrote a small volume entitled *Facts and Opinions concerning Diabetes*; in 1829, having reached his 68th year, he finally left London. Fourteen years of life yet remained to him: for two-thirds of this period he enjoyed the comforts which are still within the reach of a vigorous old age; for the last was reserved the sharpest of all bodily afflictions—the formation and gradual increase of stone in the bladder. Under this he sank and died.

The fame of physicians, except the few in any age who have pushed forward the boundaries of physiological and pathological knowledge, does not outlive the recollection of those who knew them and have derived benefit from their skill and care. Those who knew Dr. Latham, both his fellow physicians and his patients, speak of him with great esteem and affection: his patients remember the confidence and encouragement which accompanied his address, his sincerity, his straightforwardness, his liberality; and there are physicians now grey-headed who speak of the kindness and countenance they received from him in the days of their youth.

More need not be said of Dr. Latham, except that he was singularly temperate, when temperance was hardly yet thought a virtue ; he was most pure in life and conversation, when to have been otherwise would have provoked no censure ; and he was religious, when religion had yet no recommendation or countenance from the world.

Amongst those who have also been removed from this scene, after completing their days of usefulness, are Dr. Henry Locock, of Northampton, who had attained the age of 80 ; Dr. Mitford, the father of the distinguished authoress of " Our Village," at the age of 81 ; Sir James Leighton, formerly physician to the Emperor of Russia ; and Dr. Algernon Crampton, physician to the London Hospital, at the age of 76.

We have also to mourn some friends taken from us before their promise of usefulness was fulfilled : Dr. R. Sims, of Brompton, and Dr. Adam Hunter, physician to the Leeds Infirmary.

Amongst our continental neighbours death has also not been inactive ; we can only hastily mention the well-known names of Double, the editor of the *Journal Generale de Medicine* ; of Bulard, who had devoted the greater portion of, comparatively speaking, a short life to the investigation of the nature and treatment of the plague ; of Vigne, the author of the *Treatise on Apparent Death* ; of Joseph Frank, son of the illustrious John Peter Frank, and author of perhaps the best treatise hitherto published on the " Practice of Physic ;" and of the theorist Hannemahn.



