ABSTRACT OF
Lectures
ON
EVOLUTION IN PATHOLOGY.

Delivered at the Royal College of Surgeons.

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LECTURE II.

MR. PRESIDENT AND GENTLEMEN,—In the last lecture the subject of “retarded coalescence” was considered in some detail; in the present lecture we must deal with the third form, and then proceed to apply the principles involved to the explanation of many malformations connected with the alimentary canal.

3. *Excessive coalescence*.—In many parts of the body during early embryonic life coalescence takes place normally between two structures originally distinct. Should the union overstep the ordinary limit, then it is excessive. Thus, in the formation of the mouth, from the partial closure of the mandibular fissure, the edges of the cleft may unite beyond the normal limit and produce the deformity termed *microstoma*. Excessive coalescence may occur in another way. A tube or duct, functional only in the embryo, becomes occluded as development proceeds. In rare instances the occluding process may involve a neighbouring tube. This may be illustrated by the curious malformation known as coarctation of the aortic arch. It is well-known that occasionally the arch of the aorta has been found impervious at the spot where the arch joins the thoracic aorta—that is, in the immediate neighbourhood of the ductus arteriosus. In a few cases the aorta has been found completely divided at this spot, in others a septum has been present, and in a third class of cases the vessel becomes contracted, but a channel sufficient to admit a thin probe has persisted. Such conditions are not incompatible with life, owing to the establishment of anastomotic circulation. To account for this coarctation two opinions have found adherents. Thus it has been supposed that when the ductus arteriosus became obliterated, the occluding process extended to the aorta and produced the obstruction. The other much more probable explanation is, that in the adult the aorta between the origin of the left subclavian and the ductus is often contracted, the coats being thin at this point. This is more marked in children even than adults; in some cases this contraction is so decided that the ductus arteriosus is prevented from closing. Regarding the nature of this contraction we are absolutely in the dark.¹ Which of these opinions is the correct one, for the present purpose it matters little, either serving as a type of excessive coalescence. This process will be illustrated by many serious defects we shall find occasion to study.

Having endeavoured to assign a particular significance to the terms *abnormal*, *retarded*, and *excessive* coalescence, let us endeavour to make a practical application of the law. The ontogeny of the alimentary tract is replete with illustrations of the value of coalescence; at the same time it furnishes evidence of the serious inconvenience attendant on retarded fusion—some of the defects arising from this cause are incompatible with life; it will also furnish examples of the effects of excessive coalescence. Notwithstanding the extraordinary diversity of form, length, and arrangement of the alimentary canal in the various classes of mammals, it arises in all upon a common plan. The facts of modern embryology enable us to represent the parts as a U-shaped tube lined with a continuous epithelium. Each limb ends at the cephalic extremity as a cul-de-sac. The ventral limb is connected with the yolk sac. (Fig. 17.) The dorsal section of this tube ultimately becomes the cerebro-spinal axis; the ventral portion is represented in the adult by the alimentary tract, from the commencement of the oesophagus to the anus, including the coccygeal body. The ventral limb is lined with epithelium derived from the

hypoblast, whilst that of the dorsal segment belongs to the epiblast. The ventral limb may be subdivided into a fore-gut and hind-gut. The anterior end of the fore-gut becomes connected with the exterior by an epiblastic involution—the *stomodæum*,—which not only opens up the gut, but has intimate relations with the cephalic end of the dorsal tube by means of the pouch of Rathké. From the stomodæum is derived the buccal and oral chambers, the tongue, and pharynx. From the fore gut we get the oesophagus, lungs,

FIG. 17.

The primitive alimentary canal of a vertebrate. Ch, Notochord; X, the subnotochordal rod; N, the neural axis; N.C., neurenteric passage; V, intestines; M, vitelline duct.

stomach, and duodenum as far as the entrance of the bile-duct. The hind-gut furnishes the remainder of the small intestines, the large gut, the rectum, a portion of the cloaca, the allantois, and post-anal section of the gut. The dilatation of the hind gut, which ultimately becomes part of the cloaca, is opened to the exterior by means of an epiblastic involution—the *proctodæum*,—which represents the anus and external genital passage. After the coalescence of the

FIG. 18.

S, The stomodæum; X, the pouch of Rathké; L, lungs; M, the vitello-intestinal duct; A, allantois; G, the cloacal dilatation; P, proctodæum; *, the coccygeal body.

FIG. 19.

Imperforate pharynx and obliteration of the oesophagus. (The parts are represented from behind.)

proctodæum and gut, the post-anal section shrinks and is finally represented by the coccygeal body and its pedicle; the neurenteric passage, by means of which the dorsal and ventral sections communicated, now disappears. The fate of the original U-shaped tube is represented diagrammatically in Fig. 18.

This brief epitome of the ontogeny of the alimentary canal is sufficient to indicate the importance of coalescence.

¹ See Peacock, Brit. and For. Med.-Chir. Review, 1860. No. 3365.

Let us now consider some of the defects which arise when it is at fault. In the first place, it is easy to perceive that when the stomodæum fails to coalesce with the fore-gut imperforate pharynx in some form or other will be the result. Of imperforate pharynx there are three distinct varieties:—1. The pharynx ends as a cul-de-sac near the cricoid cartilage, and is separated by a variable distance from the œsophagus, the two being usually connected by an impervious cord. In these cases the œsophagus usually communicates with the trachea by means of an oval opening. 2. The stomodæum and œsophagus are joined, but the œsophagus fails to grow *pari passu* with the rest of the bowel, and at birth is represented by an impervious cord (Fig. 19). 3. The stomodæum and gut meet as usual and coalesce, but a diaphragm with a central perforation persists at the point of fusion. (For an excellent summary of the literature relating to malformations of the pharynx and œsophagus the reader is referred to Sir Morell Mackenzie's work on Diseases of the Throat and Nose, vol. ii., p. 217.)

The next eventful spot occurs immediately above the bile papilla in the second portion of the duodenum. It has already been mentioned that a line drawn across the gut immediately above the bile papilla corresponds to the posterior limit of the fore gut. It marks the region whence the diverticula proceed from the primitive gut to form the liver and pancreas respectively; it also marks the anterior limit of that portion of the gut originally in relation with the yolk sac. At this spot excessive coalescence may occur, and produce a condition of things analogous to coarctation of the aorta already referred to. We may find an imperforate diaphragm in this situation, or a perforated septum. Rarely the duodenum may end as a cul-de-sac (Fig. 20).

FIG. 20.

The duodenum as a cul-de-sac immediately above the entrance of the bile papilla. P, Pylorus. D, Duodenum.

Specimens of complete occlusion of the duodenum are extremely rare. The malformation is figured in Förster's admirable work, "Missbildungen des Menschen." The case from which the drawing (Fig. 20) was made I described some time ago in the Medical and Chirurgical Transactions² (vol. lxxvii.), and I have since been able to study a specimen of the same nature in the possession of Dr. Thomas Barlow. It has been suggested that the valve-like septa found at this part of the intestines are enlarged valvulæ conniventes; this view, however, is untenable, for these curious folds of mucous membrane are not developed until the last two weeks of intra-uterine life, and in most cases not until after birth. In the paper alluded to I have given references to several carefully described cases of this nature. It is of course needless to state that such conditions are incompatible with life. It is not uncommon to find at a spot varying from twelve inches to two feet from the ileo-cæcal valve a diverticulum from the gut, of variable size, known as Meckel's diverticulum. This represents a persistent vitello-intestinal duct, which should normally become obsolete. It may vary in length from half an inch to six inches, and may or may not be fixed to the umbilicus. In rare cases it may open at this spot, and the child defecate at the umbilicus. Not unfrequently we may study the reverse of this process; the obliteration of the duct may exceed the normal, and involve the bowel to such an extent that it becomes obstructed. In rarer cases the coalescence

may extend to the bowel below, and a foot or more become impervious. Such malformations are not uncommon. I have dissected two such in the course of my investigations into foetal pathological anatomy. Two carefully described cases are easily accessible—one by Mr. Davies-Colley,³ and another by Dr. Hobson.⁴

We may next study an example of excessive coalescence in the cæcum. The vermiform appendix is in its early stage as large as the cæcum, but, failing to grow at the same rate as the gut immediately in relation with it, becomes in the adult vestigial. In some rare cases the appendix not only fails to grow at the same rate as the colon, but may become reduced to a thin impervious band of fibrous tissue. This degenerative or occluding process may not be restricted to the appendix, but extends to and involves the cæcum, giving it a very peculiar blunted appearance.

The rectum and anus furnish us with many examples of arrested and imperfect coalescence. Thus the proctodæum may fail to unite with the rectum, or they merely come into contact. In such a case the condition is known as imperforate rectum. The degree of malformation may vary greatly: in some cases merely a thin partition intervenes between the two segments; in others several inches of bowel may be impervious. Some of the latter cases may be explained in the same way as coarctation of the gut induced by excessive coalescence in connexion with the vitello-intestinal duct. Thus it will be seen on reference to Figs. 17 and 18 that a considerable section of the original gut posterior to the anus suffers obsolescence. Should this process exceed its normal limit, the gut will then become impervious for a greater or shorter distance anterior to the anus. In the early embryo, at a period when the proctodæum and gut have fused together, we have a common opening for the gut, the urinary and genital ducts. This common chamber or cloaca consists, then, of two distinct parts, one belonging to the original bowel and lined with hypoblast, the other derived from the proctodæum and covered with epiblast cells. It may be subdivided in the opposite direction into a ventral or urino-genital chamber, and a dorsal portion proper to the gut. Later these parts become actually separated by the formation of the perineal body. In some cases the anal or vaginal orifice may become secondarily obliterated—that is, they may have been normally formed from the proctodæum, but, coincident with the ingrowth of the perineal body, one or other may become occluded secondarily. Indeed, most workers engaged with the pathology of the foetus are agreed, that it is extremely difficult to decide in a given specimen whether an occlusion is due to a primary or secondary cause.

So far as the rectum and anus are concerned, imperfections may arise from three distinct causes: 1. Failure of the proctodæum to unite with the gut. Of this there are several degrees. 2. The two segments—bowel and proctodæum—may unite normally, but the anus becomes secondarily occluded. 3. The process of occlusion in connexion with the post-anal gut may be excessive, and, extending beyond the anus, may involve the rectum to a greater or less extent. In this last class of cases the rectum may end as a cul-de-sac as high as the point known as the sigmoid flexure, or even beyond this spot. When two cul-de-sacs fuse to form a continuous tube, the coalescence takes place in a definite manner. We find the two closed ends come into contact, and exert pressure upon each other. The opposed portions unite, but at first the lumen is obstructed by a thin septum; gradually the central portion of the septum atrophies, leaving a perforated diaphragm; this in its turn disappears, and leaves the lumen of the tube uniform.

We may utilise this knowledge in order to explain the nature of the hymen. The vagina near its orifice consists developmentally of two parts: an upper portion derived from the urino-genital section of the cloaca, and an outer piece from the proctodæum. The point of union between these two corresponds to the situation of the hymen. Should the union be imperfect and the passage obstructed by a complete septum, imperforate hymen is the term applied; should it be perforated in several spots, it is said to be cribriform. Normally, however, there is only a central perforation; occasionally this septum is absent at birth. Hence in the hymen we may study every variety of imperfect coalescence. On the evidence which has been placed before you, it may be fairly inferred that the hymen represents a persistent portion of the proctodæum which remains after its union with the urino-genital section of the cloaca. It

² On the Systematic Examination of Still-born Children.

³ Path. Soc. Trans., vol. xxix., p. 115.

⁴ Ibid., vol. xxxvi., p. 217.

seems to me that the embryological testimony offers a much more satisfactory explanation of the nature of the hymen than that put forward by Budin: this author would simply regard it as a fold of the vaginal mucous membrane. Indeed, it offers an explanation of those rare cases described by Dr. Matthews Duncan, in which the hymen is present when the vagina is absent. For a more detailed account of this matter the reader is referred to my paper in the *Gynæcological Journal*, Part 12, 1888.

Spina bifida.—Next to the alimentary tract, there is no part of the body which so forcibly illustrates the application of the law of coalescence in pathological anatomy as spina bifida; further, the intimate relation of the intestinal canal and the cord phylogenetically forbids their separation in a review of this nature. Ontogenetically, the spinal cord is formed by the coalescence of the medullary folds across the dorsal median line. The fusion occurs first in the thoracic region and extends into the caudal and cephalic portions. For a short time after the coalescence of the medullary folds the embryonic cord and the superficial epiblast remain for a time in contact. Gradually they become separated by the intrusion of mesoblastic tissue, part of which chondrifies, and finally ossifies to form the vertebræ, the softer portions becoming transformed into meninges, muscles, &c. In its early stages the spinal cord has a longitudinal extent equal to that of the notochord, and this structure in the embryo is relatively longer than the vertebræ, which eventually replace it. For some time after the closure of the medullary groove the cord still maintains its original relation to the notochord, but as the embryo increases in length the vertebral column grows at a greater rate than the nervous tube which it surrounds. The result of this is that at the time of birth the conus medullaris is opposite the second

one or more vertebræ may exist, but no cyst appears and the skin covering is normal.

The Spina Bifida Committee of the Clinical Society performed its work extremely well, and founded an excellent nomenclature, but an inquiry into the matter shows that it is not sufficiently extensive, owing to the fact that the work of the committee was limited to the material at its disposal. The amended classification is as follows: (1) myelocoele, (2) syringo-myelocoele, (3) meningo-myelocoele, (4) meningocele, (5) syringo-meningocele, and (6) spina bifida occulta. The last term must be used for the present as a convenient clinical label, until we are in possession of more material to enable us to arrive at some definite conclusions regarding the pathological anatomy of the condition.

We must now proceed to consider each group in detail, and then frame definitions for each of the above terms.

1. *The medullary plates fail to unite dorsally*.—Examples of this are not only very rare but they are incompatible with life. The clearest account of this variety is furnished by Lebedeff;⁵ the specimens observed occurred in chicks.

The medullary plates coalesce imperfectly.—This condition is well illustrated by the specimen represented in Fig. 21. In this case the cord is normally formed above the defective spot, but in the lower lumbar region the central canal suddenly opens on to a shallow depression, the sides of which are slightly intumescent, and then gradually become continuous with the skin. The tissue surrounding the furrow represents the medullary folds, and consists mainly of nervous matter and vessels arranged in a manner suggestive of teleangiectasis; when fresh it has the appearance of a capillary nævus, or the bright-red colour of the tissue which represents the brain in the malformation known as anencephalia. The specimen from which the drawing is taken is preserved

FIG. 21.

Posterior view of the lower part of the trunk of a fœtus affected with spina bifida—var. myelocoele.

lumbar vertebra, unless from some pathological cause it is retained lower than usual. Indeed, cases are on record in which the conus medullaris was opposite the third piece of the sacrum. It is important to bear these things in mind when dealing with the subject of spina bifida. These facts enable us to arrange the varieties of spina bifida in groups as follows:—1. Failure of union of the medullary plates; the defect may involve the whole axis. 2. The medullary folds form a complete tube, which may adhere to the surface epiblast, and becomes subsequently dilated. 3. The complete cord thus adherent to the surface epiblast may be compressed by fluid collected in the meninges. 4. The cord may be normal, but a local dilatation and bulging of the meninges occurs. 5. The cord may be retained at an abnormal situation in the canal, or may be in part bifid. 6. The arches of the vertebra may be defective throughout the whole length of the column, or the defect may be limited to two, three, or even one vertebra, with a cyst protruding externally. 7. A defect in the arches of

FIG. 22.

A diagram to represent the microscopic characters of a transverse section of a myelocoele.

in the museum of the Middlesex Hospital. It has been dissected, described, and figured by the Spina Bifida Committee of the Clinical Society. In the Report this committee "assumed that the neural furrow has never closed in, and that the median portion of the sac below this is represented by the attenuated tissue of the spinal cord, furnished only, perhaps, with an epithelial investment." Since this Report was published three similar specimens have come into my possession for dissection. One of them I saw during life. All three were submitted to microscopical examination, and the result thoroughly justifies the assumption of the committee already mentioned. I am of opinion that this form of spina bifida is not so rare as many hold, but as the patients do not present a tumour in the loin, the specimen is cast aside as atypical. Seeing that the central canal of the cord is open to the exterior, and there is a continual draining away of cerebro-spinal fluid, these children very rarely survive their birth more than a few days. For this variety of spina bifida I venture to propose the name of *myelocoele*. Its characters would be as follows: The neural arches are unclosed, and the defective portion of the spine is occupied by a reddish or bluish-red tissue resembling a nævus. In the centre of the mass a furrow may be usually detected, which leads upwards to the central canal of the cord; from this cerebro-spinal fluid continually leaks. Microscopically examined, we find on each side of this median furrow a mass of tissue composed chiefly of nerve cells, neuroglia, and a few nerve tubules, intermixed with plexuses of arterioles, venules, and capillaries. A diagram of the microscopic appearances is represented in Fig. 22. In one case

the central groove was absent; when examined microscopically, it was found to be occupied by a collection of arterioles. It is exceedingly difficult to determine the existence of epithelium on the surface of myeloceles, because there is usually some inflammation and sloughing of the parts.

2. *The cord adheres to the surface epiblast, and the central canal becomes dilated.*—This very rare form is known as *syringo-myelocele*; it is represented diagrammatically in transverse section in Fig. 23. It will be seen in the drawing that one characteristic difference between this and meningo-myelocele is that the nerves, instead of traversing the cyst,

FIG. 23.

A syringo-myelocele in transverse section. (Diagrammatic.)

FIG. 24.

Diagram to show the relation of the cord in a meningo-myelocele.

run round its convexity. It should be remembered that the central canal may become dilated in one or more parts, or even throughout its whole length, the vertebral arches remaining intact. This condition is termed *syringo-myelus*.

3. *The cord remains permanently united to the superficial epiblast.*—This variety is, as a rule, readily recognised; the defective spot of the spine is occupied by a cystic tumour, usually of some size. Lying in the middle of the most projecting part of the cyst wall is the flattened strap-like spinal cord. (Fig. 24.) Not infrequently the centre of the cyst presents a small umbilicus leading into the central canal of

FIG. 25.

A congenital sacral cystic tumour due to dilatation of the terminal portion of the spinal meninges. (After Braune.) S.C., Spinal canal; D.M., dura mater.

the cord. On section, the part representing the cord is seen to be occupied by a central canal lined by epithelium. This is of importance, as it demonstrates that the cord was normally formed, but became subsequently flattened. The spinal nerves arising from the cord on the back of the sac traverse the cyst to gain their appropriate foramina. This form of defect is known as a *meningo-myelocele*; it constitutes by far the largest proportion of cases of *spina bifida*. The strongest support to the argument that in

meningo-myelocele the cord has never been completely differentiated from the surface epiblast is the absence of meningeal spaces behind the cord, as determined by the microscope. Further, in the majority of cases it is impossible to determine, except by careful dissection—and in many cases the aid of a microscope is necessary,—whether a given *spina bifida* is a *syringo-myelocele*, a *meningo-myelocele*, or a *meningocele*.

4. *The cord is normal, but the membranes may form a cystic mass and project through defective arches, or even through the normal hiatus sacralis*, as in Fig. 25.—This variety is uncommon, but it certainly occurs, and is of interest on account of its tendency to become pedunculated, and the connexion of the cyst with the spinal canal may be cut off. In very rare cases the cyst may even occupy a lateral position, as in the interesting case represented in Fig. 26. The details of the anatomy of the cyst and its history are furnished by Virchow in the *Archiv*, Bd. 101. A similar case, occurring in the cervical region, was published by Solly in the *Med.-Chir. Transactions*, vol. xl., p. 19. Finally, as serving to show how difficult it is to decide between the various forms of spinal congenital tumours clinically, an

FIG. 26.

An African child with a congenital sacral tumour. The tumour is a *spina bifida* with an obliterated pedicle. (After Virchow.)

apparently simple *meningocele* may be associated with a *syringo-myelocele*, as in the valuable case recorded by Mr. Clutton.⁶ Such a condition may be conveniently termed *syringo-meningocele*. As the mesoblastic somites are so intimately related to the developing cord, the defects of one naturally react upon the other. As a consequence of the formation of a cyst, or from more profound morbid changes, the arches of the vertebrae in the forms of *spina bifida* just considered are prevented from uniting across the median line. The malformations of the vertebrae are for the most part secondary to those of the cord, and the subject is far too extensive for consideration on the present occasion.

In concluding this lecture, I propose to draw attention to an important consideration which has been forced upon me, partly on embryological and partly on teratological grounds, and the subject may with fitness be introduced here, for the final links in the chain of reasoning were found whilst engaged on the material utilised in the preparation of these lectures. The central canal of the cord has long been a puzzle to morphologists; not long since, whilst dealing with certain forms of cysts, I ventured to state that although we are absolutely in the dark regarding the central canal of the

⁶ Trans. Clin. Sec., vol. xix.

cord, nevertheless it is justifiable to regard it as an obsolete canal—that is to say, a canal once functional in the ancestors of the present vertebrata. This central canal, like obsolete passages in general, is extremely prone to become dilated and form a cyst, such dilatations being termed syringomyelocoeles. It has recently been pointed out by Recklinghausen that certain forms of spina bifida, especially the varieties known as syringo-myelocoele and syringo-meningocoele, are very frequently associated with congenital defects in the alimentary canal, such as umbilical hernia, atresia ani, &c. In a foetus born at nearly full time which I dissected, a spina bifida occulta with syringocoele was accompanied by imperforate pharynx, obliteration of the vermiform appendix, and atresia ani. In a second foetus, born at about the eighth month of gestation, the following defects were found associated. There was anencephalia; the spinal cord was represented by a tube with thin membrane-like walls, the tube being capable of admitting an ordinary penholder; from the sides of this tube the roots of the spinal nerves arose, and bore the same relation to it as the nerve roots bear to the sac of a syringomyelocoele. The vertebral arches, from atlas to coccyx,

FIG. 27.

Pharynx, oesophagus, stomach, and lungs of a foetus which was anencephalic and had a spina bifida. (Natural size.)

were widely open, but from the lower dorsal region downwards the cord and neural canal were covered in by the skin and superficial structures. There was an umbilical hernia, containing coils of small intestine; the large gut was represented by a tube four inches in length, which ran direct from the caecum into the pelvis. The stomach was unusually small, and each lung was a rounded spongy mass of the size of a nut. (Fig. 27.) This association of defects of the lungs and intestine need not surprise us, for the lungs originate as a diverticulum from the fore gut. The association of defects of the central canal of the cord with malformations of the alimentary tract, including of course the lungs, is something more than casual; and a careful consideration of all the facts furnished by embryology, anatomy, and teratology induced me to publish in *Brain* (January, 1888) a paper containing arguments to the effect that *the brain and spinal cord must be regarded as an extremely modified section of the primitive alimentary canal*. The opinion that the cord is a modified segment of bowel need not be rejected on account of the apparently extraordinary nature of the metamorphosis: it is not more remarkable than the modification of a swim bladder into a lung, the assumption of respiratory functions by the urinary bladder as the allantois, or the transformation of opaque epithelial cells into a crystalline lens.

THE EFFECTS OF MODERATE DRINKING ON THE HUMAN CONSTITUTION;

ITS INFLUENCE ON LIVER, KIDNEY, HEART, AND BRAIN DISEASES.

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No. I.

It having been so frequently said, as almost to have assumed the form of an aphorism, that a well-educated medical man is the most entertaining of all companions, one feels inclined to ask the question, Why is he so? more particularly as it requires a person to be himself possessed of a certain amount of talent before he is capable of appreciating talent in another; and the above remark is almost invariably observed to fall from the lips of those who are themselves naturally gifted. In my humble opinion the reason is not far to seek, seeing that the mentally gifted estimate the conversational powers of their companions in direct proportion to the amount of fresh ideas they derive from them. And the professional training of a medical man is such as not only to give him a special knowledge of medical matters, but to expand his mental faculties in a manner, and to a greater extent than the specific training of any other profession or avocation. The main factors leading to this exceptional result lie in the insight he acquires into the fundamental and immutable laws of organic and inorganic nature, during his studies in physiology, chemistry, physics, zoology, botany, and geology. For while the study of divinity, law, history, mathematics, and the classics go but little beyond stocking the mind with facts and general principles, and thus preparing it for the reception of new ideas, the information derived from listening to lectures on natural science, and more especially from working practically at it, develops the brain-power of observing, comparing, analysing, and generalising to a far greater extent than any other form of mental training. Consequently it may be truthfully said that, as a rule, the medical man's special studies enable him to take not only broader, but at the same time more original views on general topics than other men of precisely the same mental abilities and scholastic attainments. This fact is not improbably the reason why the well-educated medical man is not only regarded by the learned as an instructive companion; but likewise as one whose opinions on quasi-medical and semi-scientific social questions are always listened to with pleasure, and oftentimes even accepted with deference. The mere knowledge of this fact ought of itself to be sufficient to stimulate every member of the profession to make himself as fully acquainted as he possibly can with all the bearings of the alcoholic question, seeing that the subject of total abstinence as well as mere temperance is at present being hotly discussed by the laity, not alone in the light of an individual, social, and national question, but even in that of a purely hygienic one. And while the opinions of the profession are on all sides being eagerly sought for, they are not only freely canvassed, but oftentimes adversely commented upon, in consequence of their apparent want of uniformity as regards the effects of moderate drinking on the human body. No doubt it is partly in consequence of this divergence of opinion on questions purely medical, and seemingly so simple, that we are for ever having the unreasonable taunt that "doctors differ" dinned into our ears by people who fail to perceive that a difference of opinion among men who think for themselves is but a law of necessity, from the fact that human brains, like human faces, although possessing a marked general similarity, have nevertheless each its own special innate characteristic individuality. Consequently, differences of opinion on matters strictly appertaining to their own special calling is in no wise limited to the votaries of medicine, but are the common attributes of every other profession. Our spiritual advisers are not exempt from this weakness, even on some points of divine doctrine upon which *a priori* one might anticipate there could not possibly exist any schism. Notwithstanding this, however, as it is an undoubted fact that all minds of equal mental calibre and similar training must of necessity hold the same views on any given subject