Silvester on the Spleen.—In this able pamphlet Dr. Silvester has started an entirely new theory as to the nature of the spleen.

In a brief history of the views held concerning this organ, he remarks that most of the theories with regard to it can be classed under one or other of the two following heads:—1. That it is the imperfectly developed left homologue of the liver. 2. That it is an originally mesial symmetrical organ, having no connection with the liver either in structure or function. With the latter view he entirely dissents. With regard to the former, he observes that one great difficulty in considering it as the left homologue of the liver, is the fact that it is ductless, and has never been shown to secrete bile.

Nevertheless, he inclines to this view, and regards the spleen as the left homologue of only a portion of the liver. We will now endeavour to give as shortly as possible an outline of his theory and the grounds upon which he bases it.

He thinks that while the alimentary canal from the mouth to the end of theoesophagus, and from the commencement of the large intestine to the anus, is, undoubtedly, mesial, and bilaterally symmetrical, as is shown from the division of the palate, the raphé of the tongue, &c., and from the fact that these portions of the digestive tract are supplied with double arteries, yet the intermediate portion with the organs attached is only in reality the right half of a bilateral symmetrical set of organs. Of the left set of these organs the cardiac portion of the stomach, the spleen, and vermiform appendix, are the only traces, the spleen being the left homologue of a portion of the liver, and the vermiform appendix that of the small intestine.

The stomach, small intestine, and liver are, therefore, not mesial and symmetrical, but lateral organs; for he considers that were the stomach fully developed according to his hypothesis, the cardiac portion of it would be furnished with a valvular apparatus similar to that of the pyloric end, and that to this would be attached a left small intestine with a left pancreas and liver.

This theory he chiefly bases on the law of symmetry, and on the fact that the stomach, liver, and small intestine, are only supplied by single not by double arteries, whereas were they mesial, bilaterally symmetrical organs, they would with this method of blood-supply form an exception to the rule observed in all other laterally symmetrical organs, which are always supplied with double arteries, one arising from each side of the aorta.

He also gives an outline of the different forms of stomach in the

1 The Discovery of the Nature of the Spleen. By Henry Silvester, B.A., M.D. London.
vertebrate series, to show that this organ is merely separated into right and left portions *distinct in structure and function*, and is not merely a dilated part of a mesial canal.

He furthermore adduces several other facts in support of his theory; for instance, the situation of fetal liver in the right hypochondriac region, rather than in the middle line; the absence of a double portal system, one for each side of the abdomen; the facts that the lacteal system of the left side of the body is smaller than that of the right side, and is not connected with the small intestine; that there is only one umbilical vein, although there are two umbilical arteries, &c.

We mentioned above that the author considered the spleen to be the left homologue of only a portion of the liver, and this statement needs explanation. Dr. Silvester shows that the liver is a complex gland, composed of at least two sets of apparatus, a biliary and a glycogenic, and he thinks that there may be a third set with functions similar to those of the spleen.

The function of the spleen is evidently that of purifying the blood by producing certain changes in its constitution—as is shown by the enormous hypertrophy of the organ in certain cases of blood poisoning,—and also that of forming colourless blood-corpuscles, as exemplified in the greatly increased number of these cells present in the blood of the splenic veins.

But the spleen, Dr. Silvester argues, both from the smallness of its size, and from the small proportion of the entire blood of the body which passes through it, is incapable of producing by itself the entire amount of these corpuscles. Now, their number is found largely increased in the hepatic vein also, and, therefore, he thinks that the liver as well as the spleen is employed in their production.

He asserts also that a fibro-cellular structure supporting blood-vessels, such as forms the substance of the spleen, may be observed in the liver, and with this portion of that organ he thinks the spleen is the left homologue. If this be the case, which, indeed, we consider not improbable, the extirpation of the spleen without ill effects to the system may be accounted for from the fact that one of two smaller glands is able to perform the functions of both, when the other is absent from disease or other cause; as, for instance, in the absence of one kidney the other can perform the amount of work proper to the two.

Dr. Silvester's opinion that the spleen is a sanguiferous gland coincides with that of most modern observers, but we think that the bilateral theory of the liver, stomach, and small intestine, requires greatly stronger evidence to support it than has been, or than, in our opinion, can be adduced. In this essay, Dr. Silvester brings forward facts in comparative anatomy to support his theory, by showing that in certain cases, one of two bilateral organs may
be developed to an extent very different from the other. He cites, in illustration, the left incisor of the male narwhal, which reaches the length of six or eight feet, while the right remains of an ordinary size; the left ovary and oviduct in birds, which alone are functionally developed, the right being obstructed at an early stage; the difference in size between the right and left lung in ophidia.

But in all these cases evidence of the normal type of the organs is shown, either in certain stages of their development in the very individual in which they afterwards become abnormal, or even in other species of the class to which these abnormal individuals belong the type fully exemplified in its normal development.

But Dr. Silvester can adduce no evidence of this sort to show that the digestive tract from the end of the oesophagus to the commencement of the large intestine is formed upon a double bilaterally symmetrical type, for in no species in the whole animal kingdom is there any trace of two pyloric orifices or of two separate small intestines, and we may not rashly assume simply from a law of symmetry that such is the type of these portions of the digestive apparatus.

Moreover, we do not consider that the distribution of blood to these organs by single arteries can be considered as very weighty evidence in favour of the view that they are not originally mesial and symmetrical; for the aorta itself in the early stages of development is divided near its origin into two branches, and a right and left aorta are actually present throughout life in the lower vertebrata, although in mammalia the right branch is early obliterated, and the left is alone functionally developed.

Besides, the arguments concerning the division of the stomach into right and left portions, structurally and functionally distinct, may be adduced in reality in opposition to the bilateral theory; for this hypothesis would be more probable were the two portions of the stomach similar in structure and function; for how can one organ be the homologue of another from which it differs in both these points? But we do find differences of structure and functions in different portions of the length of the alimentary canal, which render it more probable that the cardiac portion of the stomach is a dilatation of the upper portion of a mesial canal, and not a lateral homologue of the pyloric portion. This view is confirmed by comparative anatomy, for in the lowest fishes the alimentary canal, including the stomach, is quite straight, and there is no appearance of a division into right and left portions, but the cardiac portion is a dilated continuation of the oesophagus. On the whole, we incline to the view that the spleen and the digestive apparatus are originally mesial organs, and this view is not shaken by the possibility of a portion of the liver being devoted to the same functions as the spleen. For it is probable that the thyroid gland and supra-renal capsules have
much the same functions as the spleen, which has by some modern anatomists been classed with them; at the same time it is certain that the spleen is not homologous with them, and, therefore, it follows that the spleen need not be regarded as homologous with a portion of the liver, because they both perform similar functions.

Space forbids us to enter further into the arguments for and against the theory examined. We conclude, then, by stating our opinion that, although Dr. Silvester has come to a true conclusion with regard to the functions of the spleen, yet his theory concerning the structural relations and homology of that organ is incorrect.

We advise those interested in the subject to study the pamphlet, which certainly has the merit of being both original and ingenious.

The Year Book of Pharmacy.—This volume is one of great value and interest, and will, we trust be the precursor of a series of the same excellent quality. It contains abstracts of papers relating to pharmacy, materia medica, therapeutics, and chemistry, contributed to British and foreign periodicals during the year ending June, 1870; and after these abstracts comes an account of the proceedings at the Pharmaceutical Conference held at Liverpool last year. Amongst the most striking features of this book we have particular pleasure in pointing out the fruit of scientific research, and the just and honorable view of the duties of the pharmacist which it exhibits. A very long notice would be required to do thorough justice to the merits of this volume; but we may rapidly indicate its chief contents by giving a list of those subjects which are treated with considerable fulness. Amongst these we reckon the peculiarities of foreign pharmacy (p. 27); discoveries and experiments in materia medica (pp. 67, 96—146); novelties in physiological and pathological chemistry, such as the sulpho-carbulates and preparations of chloral (p. 147); chemical analysis, apparatus, and manipulation useful in pharmacy (p. 157); and miscellaneous notes and observations (pp. 177 and 258). The bibliographical notices of chemical and pharmaceutical works are useful and well written, but the last hundred pages or so of the volume present matters of really unusual interest. "A Century of Old Books," relating to pharmacy and allied subjects engages the attention of some eight reporters, and we are bound to say that the notices of these old books are far the most singularly entertaining, and withal instructive. Though there are a few useful hints to be got from some of the old-fashioned prescriptions and formule, yet there are certainly some scores of humorous recipes which it is difficult to do anything with but laugh at. Take, for instance (p. 32), a German receipt of the year 1693 for the Extractum carnis, Liebig, of that period. To prepare Extractum munific

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1 Year-book of Pharmacy. Issued by the British Pharmaceutical Conference. Pp. 596. London, 1870.