BIBLIOGRAPHIC NOTICES.

Das Eisen-Oxyd-Hydrat, ein Gegengift der Arsenigen Säure.
Von ROBERT W. BUNSEN, Doctor der Philosophie, und Privat-Dozent an der Universität zu Göttingen, und ARNOLD A. BERTHOLD, Doctor der Medizin, der Kaiserl. Leopold, Carolin, Academie der Naturforscher, etc., Mitglieder.—Göttingen, 1834.

Hydrated Per-Oxide of Iron, an Antidote to Arsenious Acid.
By ROBERT W. BUNSEN, D. P., Private Lecturer in the University of Göttingen, and ARNOLD A. BERTHOLD, M. D., Associate of the Imperial Academy of Sciences.—Göttingen, 1834. Dieterich.

“AUCUNE antidote reel de l'arsenic n'est encore connu, ainsi ni le lait, l'huile, le vinaigre, la theriaque recommandés par le vulgaire, ni le charbon en poudre vanté par Bertrand, ni les infusions adstringentes, conseillées par Chansarel, ni les sulfures alcalins n'ont la vertu spécifique qu'on cherche si gratuitement à leur accorder; en un mot ce phenix pharmaceutique est encore à trouver.”

This expression, of one of the most distinguished toxicologists of the present age, evinces how much importance is attached to the subject of the *brochure*, of which we purpose giving an account. According to MM. Bunsen and Berthold, this bird of the wilderness has been encaged, chemical research has given to them a means of constantly and completely neutralizing the deadly action of the arsenic existing in the intestinal tube, by an agent, which, is itself not merely destitute of injurious power, but possessed of energies positively beneficial to the human frame.

In the world generally, and we regret to say, even in the medical profession, there are very many persons who value scientific discovery, by the fraction expressing the ratio of profit to the capital expended; adherents of Smith in the position, that intellectual labour cannot be considered as real wealth, or

intellectual power, as beneficial to its possessor : men who would enumerate Newton, Dumas, and Laplace, as unproductive consumers ; and reverence Davy, not because he demonstrated the nature of the alcalies and the relations of chemical and electrical attraction, but because he was the source of a reduction of perhaps three farthings a ton in the price of coals, by having somewhat diminished the chances of the machinery being injured by explosions. It is good to be able to meet such objectors on their own ground, to show them that from the abstract speculations or delicate experiments of the philosopher in his cabinet, have issued almost every comfort and enjoyment that as civilized and educated people we possess ; that the mighty engine which is now changing the social position of every nation of the earth, had its origin in the abstract researches of Black ; that commerce owes its really beneficial existence to the aggregated intellectual labours of that host of abstract inquirers into truth, who have given to us to understand the system of which we form a part.

Let it not be imagined that in thus speaking of the sentiments of such men we mean to undervalue the applications of science to the purposes of common life. To confer happiness upon his fellow-men is always the noblest aspiration of the sage, and he does it the more effectually by considering it to follow from the inquiring after truth. By abstract study he arms himself with improved implements of warfare, fits himself the better for successful contest against the darkening forms of ignorance and prejudice that flit around, and partially obscure the calmly-burning light of inextinguishable truth. The beneficial applications of a principle, when thus discovered, follow necessarily and as naturally as the stability of our proud architectural monuments result from their very tendency to fall.

Thus we find that until we apply to the action of poisonous substances the aids of scientific knowledge of their history,—until we have, by research, made out the combinations they are capable of entering into, and the change in their nature thus resulting, we cannot advance one step towards the discovery of a counter poison ; and that not merely are popular or general ideas of their chemical relations necessary for that purpose, but that the most minute and accurate knowledge is required before we come to a decision. Thus a want of scientific knowledge left the unfortunate victim of poisoning by arsenic, to be destroyed by milk, by oil, or water. Imperfect knowledge made him put his trust in charcoal powder, lime, or an alkaline sulphuret. More accurate research has proved the injurious, or at least inefficient action of all these, and if it has not yet led to the discovery of a real antidote, at least gives to us a means of

strictly examining the results of those who may imagine they have succeeded.

The poisonous properties of a body are best removed by rendering it completely insoluble; and we must recollect that the peculiar fluids of the digestive canal possess a power of dissolving many bodies insoluble in pure water. An antidote must therefore convert the poison into a body insoluble in liquids of such nature as those generally met with in the stomach, and hence the inefficiency of a sulphuret in preventing bad effects from arsenic. Lead is thrown down by sulphuric acid, in a form completely indissoluble and inert; but if we apply an alkaline carbonate we obtain a matter insoluble in water, but dissolving so easily in the fluids of the stomach as actually to prove a most poisonous preparation. Another requisite for the good performance of an antidote is, that, as it must always be exhibited in excess, in order to leave as little chance as possible of any portion of the poison remaining unaffected, the antidote shall be of such nature as that the excess may not itself possess injurious action on the system. A third, if not indispensable, at least useful property, is, that the necessary quantity of antidote shall not occupy too great volume, but rather be of a nature easily administered.

In seeking on these principles for an antidote to arsenious acid, we are met by numerous and very serious difficulties; we have many combinations insoluble in water, but so easily acted on by acid or alkaline solutions, as to render it very doubtful whether in the intestinal tube they should be equally inert. In addition, the peculiar nature of arsenious acid, being very slowly dissolved by tepid fluids, and the insolubility of the material which may be used as the antidote, retard exceedingly their mutual action. The old maxim, *corpora non agunt nisi sint soluta* is not quite true in chemistry, but it yet prevails so far as to show the slowness with which a totally insoluble base can unite with an acid only sparingly soluble in the menstruum.

We shall now briefly enumerate the principle heads of MM. Bunsen and Berthold's work; we shall give a statement of the results they have announced, and the methods they pursued, and, finally, compare the principles upon which they acted with those that have been cursorily explained above.

Arsenious acid, or even an alkaline arsenite, does not precipitate solutions of the sulphate, nitrate, or muriate of iron, but if we add arsenious acid to a solution of acetate of iron, there is produced a clear brown precipitate, which is soluble in strong acids, but insoluble in water, acetic and arsenious acids.

MM. Bunsen and Berthold analyzed this precipitate, they found it to be composed of, in 100 parts,

Arsenious acid,		21,73
Peroxide of iron,		68,28
Water,		9,99

Evidently corresponding to a formula of one atom of arsenious acid united to eight atoms, or four double atoms, of peroxide. In the decomposition of acetate of iron by arsenite of potash, and the consequent formation of this precipitate, the acetic acid of eleven-twelfths of the acetic acid of the acetate decomposed becomes free. This appears to be the reason why it is not produced by a salt of iron with a stronger acid. The following passage, as containing the chemical grounds of the power of the antidote, we translate entire.

“When a solution of arsenious acid is decomposed by freshly precipitated peroxide of iron, which is suspended in water, then filtered off the precipitate, acidulated, and tested by a stream of sulphuretted hydrogen gas, no trace of arsenious acid can be detected. To precipitate in this way one part of the arsenious acid, a quantity of the hydrated oxide will be required corresponding to ten or twelve parts dry. Yet with a much smaller quantity a very perfect separation is effected, inasmuch as a stream of sulphuretted hydrogen produces a mere trace of sulphuret of arsenic in the filtered and acidulated liquor. If the material be previously heated, or if the arsenious acid be added in small quantities at a time, there action takes place still more rapidly. When we add to the water in which the hydrated oxide of iron is suspended a few drops of caustic ammonia, it changes, by digestion, even solid, finely powdered, arsenious acid into basic arsenite of iron. The presence of ammonia, of chlorides, or other salts, does not prevent the precipitation of the arsenious acid. These properties teach us to recognize in freshly precipitated hydrated peroxide of iron, a body, answering to all the demands that even in the most particular chemical point of view can be made upon an antidote to arsenic.

“This body is endowed with two properties, which distinguish it beyond all known antidotes: on the one hand it appears as perfectly insoluble, and therefore without any action on the organization; on the other its hydrated enveloping quality, from the commencement fits it for overcoming the objection, which the difficult solubility and state of aggregation of the arsenious acid place to the exertion of chemical affinity. We have made many experiments by an attentive microscopic examination of the excrements of animals, to whom the poison had been given in the solid form, mixed with hydrated oxide of iron, and found that by the influence of the animal heat and peristaltic motion of the intestinal canal, it had been all changed into arsenite of iron.

“On the preparation of the hydrated peroxide of iron we shall add only a few words. The cheapest way to obtain it consists in peroxidizing, by nitric acid, a solution of pure proto-sulphate of iron, and

precipitating the hydrated peroxide by ammonia added in excess. The nitric acid should not be added until the sulphate of iron be completely dissolved, and the liquor should be boiled until it has become clear. The precipitate should be washed by decantation, and preserved in close vessels."—pp. 18-20.

The authors devote considerable space to discussing whether experiments on animals be a legitimate mode of determining the utility of an antidote; they then pass to consider what quantity of arsenic could, if left to itself, produce death in certain animals, and under this head are related several curious cases of the toleration of arsenic in very large quantities by man. They next prove by experiment, that an excess of the antidote can do no harm, and that the product of its action, the basic arsenite of iron, has no influence on the system. In the succeeding section, in which the mode of action of the arsenic on the animal economy is discussed, we did not find any matters of sufficient interest to justify their being translated. The injurious effects are considered, as being produced by the absorption of the poison and its being brought by the blood-current into contact with all the organs, but the pathological descriptions are of too loose a nature to make any important additions to our knowledge. We shall, however, deal more particularly with the fifth section, which treats of "*The rational Treatment of Poisoning by Arsenious Acid.*"

The ordinary though incorrect treatment of poisoning by arsenic consists in the administration of vegetable decoctions, as of linseed or mallow, the giving of milk, lime water, solution of soap, warm water, white of eggs, &c., together with the exhibition of hippo, sulphate of zinc, or tartar emetic, when vomiting does not come on of itself, or by the ingestion of such fluids. Occasionally there are given, so called antidotes, the liver of sulphur or charcoal powder. Of these means the majority are useless and some injurious; our object should be to keep the poison undissolved, whilst by the use of soap and water, warm drinks, &c. we favour in every way its solution. The expulsion of the poison from the stomach therefore remains, as the only method applicable in such cases, and very moderate experience is quite sufficient to show how completely incapable that is of fulfilling the end proposed. Having thus stated the poorness of our former means, we shall allow our authors to state the advantages of their proposal in their own words.

"The evil consequences of the mode of treating poisoning by arsenic followed up to the present day, raise to a high degree of interest the hydrated oxide of iron as a well-proved counter-poison to

arsenious acid, and it attains still more importance, as the direct action which that substance exerts upon the animal organization not merely is uninjurious, but may prove even most beneficial. Whilst it on the one hand removes every trace of the poison in solution in the stomach and intestines, and precipitates it as arsenite of iron, and absolutely prevents the solution of any further quantity of arsenic, it possesses equally the property of acting as a tonic and astringent, and of diminishing the absorbing power of the sanguiferous and chylous vessels.

“ By an application of this antidote, the vomiting, so much required in poisoning by arsenic, as well as the continual purging, produced for the evacuation of the poison, are rendered quite unnecessary. But yet it cannot be considered hurtful when these evacuations have come on either by themselves or by drinking innocuous fluids. There are even some cases where gentle vomiting should be wished for, as first, where the quantity of poison swallowed is so large as to require very considerable quantities of antidote : second, where there is reason to suppose the stomach to contain either vegetable colouring matter, as after the use of tea, brown or green, or sulphuretted hydrogen, as after the use of sulphur or eggs ; for these bodies have a powerful affinity for oxide of iron, and diminish, by uniting with a quantity of the antidote, the certain operation on the poison ; such an evil is avoided by giving the counter-poison in increased doses : third, where the stomach became very full of food, about the time of swallowing the poison, so that it cannot hold a sufficient quantity of antidote.

“ There are few cases in which vomiting does not occur before the arrival of the physician, but whether such has been the case or not, he should immediately proceed to the administration of the antidote. Should he not have the hydrated oxide of iron immediately by him, cold water is to be preferred to all other fluids, as it possesses less active powers of solution, and best serves to hold back the working of the poison until the antidote is prepared. The counter-poison should be given continually until it passes from the bowels in combination with the arsenious acid ; but if vomiting comes on the doses must be small.

“ When such time has elapsed that the poison may have entered into the intestinal canal, the antidote should yet be given in smaller doses, and particularly if the arsenic has been given in substance, as many undissolved particles may remain behind. In such cases clysters of the antidote with water should be given, in order to neutralize the poison contained in the intestines and not yet absorbed. It can scarcely be necessary to add any laxative medicines to the clysters, but if it be, a little of the sulphate of soda or other neutral salt is preferable ; castor oil should not be used.”—pp. 73-79.

“ Concerning the form of the antidote ; it is to be given suspended in water. The quantity of it must be arranged according to that of the poison swallowed. From the composition of the ar-

senite of iron given before, it results that 3,11 parts of oxide of iron are necessary to precipitate one of arsenious acid; but he should commit a great error, who would conclude from this composition of the salt formed, to the quantity of antidote. The almost complete insolubility of the oxide of iron, the often considerable quantity of materials in the stomach, with which it mixes, and the moderate degree of solubility which arsenic possesses, render it necessary to apply a considerable quantity more than theory indicates. Experiment, which alone can instruct upon this subject, teaches, that from ten to twenty parts of oxide of iron as hydrate are more than sufficient to change one of arsenious acid into the basic salt. Now, suppose the quantity of poison taken to be four drachms, a case which could not be subdued by the most unintermitted vomiting, there should only be required a few pounds of water, mixed with hydrated oxide of iron, to counteract its action. But since the amount of poison in the stomach and bowels can only be subjected to a very rough approximative valuation, so it is the best way to let the patient swallow the hydrated oxide of iron in as large quantities as he is able. It should likewise be applied as warm as possible, as thereby not only is the action quicker, but a smaller quantity suffices. If the arsenious acid has arrived in the stomach in an undissolved condition, there should be added to the antidote some drops of caustic ammonia, so as to give a slightly alkaline reaction. This addition seems to increase the solubility of the arsenious acid, and thus to facilitate the action of the oxide of iron upon it."—pp. 90-92.

In the above extracts we have preferred giving, in a somewhat condensed form, the spirit of the authors, than a quite literal translation. Even so, we have far transgressed our limits originally marked, and must very briefly discuss the remaining considerations. The work is concluded by remarks on the symptoms remaining after recovery from poisoning by arsenic, and those occurring when the dose has been too small to produce a violent acute attack, particularly exemplified in the diseased condition of workers in arsenic and kobalt mines. For them and the treatment recommended we must refer to the work itself, which, as a monograph on poisoning by arsenic, should have a place in the library of every toxicologist.

It must be owned that the object of MM. Bunsen and Berthold is one of paramount importance, and they certainly bring to aid in its accomplishment, an acquaintance with medicine and chemistry possessed by few. So far as their own evidence goes, the success has been complete, the chemical reasoning is without a flaw, and the numerous experiments which they instituted upon animals have given results highly confirmatory of their views. But the very importance of the subject should make us require an unusual weight of testimony

before according to it our belief; we must have not only the evidence of the proposers, which cannot be but tinged by their hopes, and subjective to their wishes, but the experiments must be again and again repeated by other persons, and under other circumstances. We know, how, even amongst the most upright, impartial, and honourable men, prejudices will creep in, and they will become biassed in favour of evidence upon one side; above all, in our own profession, we know the burst of acclamation with which a new medicine is received; no matter what its properties or composition, when first discovered it is a panacea: administered for every disease, people recover, and the cure is attributed it: after some time, failures are remarked, a counter-current sets, and the body, become unfashionable, is thrown by, until another and unprejudiced generation ascertains for what it is really of use. This was the fate of opium, quicksilver, tartar emetic, bark, and kreosote, and exact observation has determined, that for many evils even gold yields no relief.

In these remarks we do not mean to throw the slightest doubt upon the results stated by the German authors, their talents, patience, and zeal deserve, and must receive, the warmest approbation. We merely state, that to establish completely their results, it is necessary that others should repeat such trials, and particularly as in Paris we have reason to believe some contradictory opinions now prevail. The subject is one well calculated to afford to the inquirer a rich harvest of popularity and fame, and we trust that by some of the eminent medical jurists of whom our city boasts, and whose chemical knowledge so well qualifies them for the task, the question, being decided here, shall add one more to the many triumphs, the medical school of Dublin has achieved.

ROBERT J. KANE.

On Dropsies, connected with suppressed Perspiration and coagulable Urine. By J. OSBORNE, M. D., President of the King and Queen's College of Physicians in Ireland, &c. &c. London, Sherwood, 1835, pp. 64.

THE connexion between albuminous urine and an organic change of the kidney was first pointed out by Dr. Bright, and Dr. Osborne's work must be very gratifying to that distinguished pathologist and physician, inasmuch as it records opinions which agree with his, and to which the author, though

originally holding different views, was led by the observation of facts. To such of our readers as have not examined into these new doctrines, we may state, that it is held by Dr. Bright and his supporters, that a particular organic change of the cortical portion of the kidney produces an albuminous urine, and is followed by dropsy, and that for the cure of such a disease remedies must be directed to the kidney itself.

The first part of Dr. Osborne's work has already appeared in the form of a paper in this Journal, and as in the commencement of the second he states the result of his continued experience, we shall give it in his own words :

“ On a former occasion I stated the facts which appeared to me to prove that albuminous urine, when continuously secreted, ought to be considered as a symptom of disease of the kidneys. Since that time I have continued to enjoy the same opportunities of observation as before ; and, though I have anxiously sought for evidence, either adverse or favourable to this opinion, I have not met with a single instance of urine coagulating in a constant manner, in which an opportunity of examination after death was afforded, that did not present the disease of the kidney ; nor, on the other hand, an instance of the disease being found in the kidney after death, in which, on taking a specimen of the urine in the bladder, it did not coagulate. On a review of the notes of all the fatal cases, I am also enabled to state, that the extent of the disease discovered after death has been, in every instance, in proportion to the degree of coagulation. Thus, when the urine only frothed on the application of heat, the kidneys, although gorged with blood, contained the grey, granulated structure exclusively in the outer portions of the cortical substance, and especially at the extremities of the gland ; while in cases of complete coagulation, the entire cortical substance was filled, or rather superseded by the deposition now mentioned, and the tubuli were both compressed and rendered indistinct. In some of the cases which have last occurred, I have also to mention that the emulgent veins were filled with a substance resembling the buffy coat of the blood, but of a curdy texture.

“ I wished to pause before bringing forward this second part of my observations, in order to be enabled to ascertain the precise effect of several remedial agents. I was much surprised to find that this disease, which last year and in former years had been so frequent, had now become comparatively rare ; and consequently a greater delay took place than I had anticipated. During this summer and autumn, however, it has been nearly as prevalent as formerly. The fact appears to be, that chronic as well as acute diseases take place more in consequence of peculiar changes in the atmosphere, than from any other agency acting on our organization. They, like acute diseases, occur epidemically, but move, as it were, in a larger cycle, and cannot

be observed in a limited space of time; and hence their epidemic character has escaped notice. Those who have the charge of large hospitals will, however, be able to recall to their recollection, periods in which chronic rheumatism, dropsies, chronic bronchitis, or diarrhœa, prevailed, as well as those which were signalized by the simultaneous occurrence of acute diseases."—pp. 21-23.

In the majority of Dr. Osborne's cases, the disease seemed to originate from suppressed perspiration, and after describing the dry and morbid state of the skin, the author makes the following important observation:

"Whenever general perspiration came on, either spontaneously or in consequence of medicine, then the case always terminated favourably."

In the progress of the work accurate observations are given with respect to the complications occurring in the cases observed by the author, from which it results, (unfortunately for the doctrine of renal disease being indicated by albuminous urine,) that in most instances there was decided complication with visceral disease, and in particular with irritation of the mucous membranes. In the fatal cases, death occurred under a variety of circumstances. Among these were some instances of a low arachnitis, and in others of peritonitis, both of which the author believes to be produced by or connected with the renal disease.

It is not our intention to enter on the discussion of this pathology of dropsy; but we must remark, that in cases where numerous organic changes of other organs, and indeed a morbid condition of the entire system are admitted to coexist with the renal disease, as is the case in the majority of instances, it becomes a matter of the greatest difficulty to isolate the kidney affection, and shew that the albuminous urine and dropsy are to be considered as resulting from it alone; this has not yet been done, and in many cases, the yellow degeneration, described by Bright, seems to be only a lesion of nutrition, which at the same time has engaged many other glands. We almost fear to give utterance to the aphorism anathematized by the author, "*that further observations are required*;" but we hesitate not to say, what all must join us in, that further researches by Dr. Osborne will be received by the profession gladly, and with that respect which the importance of the subject, and the character of the author, must always command.

In the section devoted to treatment we meet with a number of important practical observations, not only on the management of the simple disease, but on its more complicated,

and consequently more common form. For these we shall refer to the work itself, as we do not wish to be piratical as well as critical; but we must not omit the following passage. After describing his treatment of bronchitis, Dr. Osborne says,

“ Under the use of these and other similar applications, I have frequently had the satisfaction of believing not only that the bronchitis was at an end, but that portions of emphysematous lung were restored to a healthy state. If asked for the evidence of this latter fact, I answer, that regions of the thorax, which had an unnaturally clear sound on percussion, and yet no audible respiration, or which presented the dry crepitus, and clear sound of emphysema, were, when subjected to this treatment, found gradually to resume the respiratory murmur of health, while the peculiar dyspnoea, characterized by longer expirations than inspirations, was at the same time removed, or notably diminished.”*—pp. 53-54.

To Dr. Osborne then is due the merit of bringing the question of the curability of Laennec's emphysema before the profession. On this point the discoverer of the stethoscope speaks doubtfully. After alluding to the combination of extravasated air with dilated cells, he observes, that it is of slight consequence as compared with the latter affection, as it may be removed by absorption; whilst we cannot well see how either nature or art can remedy the other morbid change. At the same time, he adds, that if the intensity of the cause which keeps up the habitual distention of the cells be diminished, we may hope that they will be actually lessened in volume.

From our own observations we fully agree with Dr. Osborne as to the fact, that Laennec's emphysema is often a curable disease, or at least one capable of great alleviation, *for we possess evidence which is quite satisfactory of the diminution of the volume of the lung by treatment*, such as Dr. Osborne has described. We may consider the pathological condition of the air cells in the same point of view that we look upon chronic dilatations of other hollow organs, such as those of the stomach, colon, bladder, and heart. In these cases we commonly observe the two following circumstances to occur; first, that the cause of the dilatation is some mechanical obstruction to the exit of their natural contents; and next, that if this obstruction be

* “ It will be recollected how traumatic emphysema of the cellular texture under the skin is often absorbed with facility; and there is no reason why emphysema of the lung, caused by rupture of the air vesicles from violent coughing, may not, in like manner, be absorbed, when once the coughing has been stopped. And yet emphysema has been considered as incurable, and no treatment beyond palliatives is usually applied to it.”

long-continued, what was first a mere dilatation or distention of the organ becomes a combination of this with an organic alteration of the parietes, which is in most cases an increase of their thickness and strength. Hence the hypertrophy of the muscular fibres of the stomach when the pylorus, and of the bladder, when the urethra or prostate is diseased; of the colon in stricture of the rectum, and of the right cavities of the heart in affections of the lung. This change from mere dilatation to increase of growth seems to be a condition very unfavourable for cure, and the chances of its production may be stated to be directly as the length of time the obstruction is allowed to remain; for we know that in the early periods of these mechanical dilatations the removal of the obstruction is often followed by the return of the cavity to its natural dimensions. Applying these considerations to the case of dilatation of the air cells, it seems not impossible that in earlier periods the removal of the obstruction would be followed by a subsidence of the disease; for when we inquire into the causes of the affection we find these be principally, obstructions to the free exit of the contents of the cavities; the viscid mucus and the turgescence of the bronchial tubes being to the air cells what pulmonary obstruction is to the heart or urethral to the bladder, and the distention in these cases being perfectly analogous.

We cannot conclude this notice better than by the insertion of the following propositions, which contain the summary of Dr. Osborne's opinions on dropsy with coagulable urine:

" 1st. That it is always connected with disease of the kidney, which, when sufficiently advanced, is marked by the deposition of a greyish structure, impermeable to injections, within the substance of that organ.

" 2d. That the suppression of perspiration is the most general cause of this disease; and the long-continued excitement of the organ by spirituous liquors, or diuretics, the next in order of frequency and importance.

" 3d. That the most successful treatment consists in the restoration of the functions of the skin; which being accomplished, the disease, if free from complications, never fails to be removed.

" 4th. That bleeding and purgatives are also suitable remedies; while diuretics are either injurious, or, if removing the swellings for a time, tend ultimately to cause a return of the disease, under a more aggravated and intractable form."

W. S.

A practical Treatise on Midwifery, containing the Result of sixteen thousand six hundred and fifty-four Births, occurring in the Dublin Lying-in Hospital, during a Period of seven Years, commencing November, 1826. By ROBERT COLLINS, M. D., late Master of the Institution.

At length we congratulate the profession upon the appearance of a work worthy of that noble institution the Dublin Lying-in Hospital; we say at length, advisedly, for although no single school has more contributed to disseminate a knowledge of practical midwifery than that of Dublin, and although none has given rise to more numerous and important improvements in the management of the diseases and accidents to which parturient women and young children are liable, yet it has been justly complained, especially by foreigners, that the statistical information published has not been proportioned to the means so great an establishment affords. Doctor Collins states, that in seventy-seven years this charity has afforded relief to one hundred and thirty-one thousand women and upwards; had pains been taken during the whole of this period to collect statistical data, what a mass of useful tables would have been now accumulated. But let us not blame the excellent men who have occupied successively the station of Master to the Lying-in Hospital; they have, *without a single exception*, been most useful and diligent cultivators of the obstetrical art, and have all contributed largely to its advancement. It is only lately,—it is only within a few years that the necessity for enlarging what may be termed the statistics of practical medicine has been felt, and consequently the omission of many details cannot be attributed so much to the negligence or inattention of former Masters, as to the defective state of medical investigations during the times in which they lived. The advantages of the Dublin Lying-in Hospital have not been confined to the relief afforded to the patients, nor to the formation of such distinguished practitioners as its Masters have invariably been; it has conferred other and numerous benefits on the public, among which the most important is the practical education of students, who afterwards, scattered over the country, are the means of carrying into the remotest and most sequestered parts of the island the lights of science, in a department of medicine of all others the most important. By a wise enactment, both the Master and his two Assistants are obliged to reside in the hospital, so that no time is lost in affording aid on emergencies, and the task of making statistical inquiries on a large scale and with accuracy is facili-

tated, the inquirers being always on the spot and able to relieve each other, for the Assistants are always young men of known abilities and of considerable experience.

As the statistical part of Dr. Collins's work presents most novelty, we shall, in the first instance, direct the attention of our readers to some results to which the details lead. "Of the 16,654 children born in the hospital, during my residence, (says Dr. C.) 1121 were still-born; of these 614 were males." Our attention must be here directed to two points of inquiry, viz.—1st, the proportion of still-born children to the whole number born; 2dly, the relative proportion of male to female still-born children. With regard to the first, the proportion obtained from the data afforded by the Dublin Lying-in Hospital gives the number of still-born to other children as 1 to 27 very nearly, a proportion which exactly coincides with that of London, as given by Block. The proportion in Strasbourg is 1 : 11, Berlin 1 : 20, Vienna 1 : 24, Stockholm 1 : 36, and the means of these cities and several others is 1 : 22. So that Dublin exhibits in this respect a decided advantage; a fact which becomes still more interesting on finding that the proportion of still-born children in Prussia and Flanders, as reported by Caspar and Quetelet, varies according as the births take place in a rural or in an urban population, or, in other words, according as the mothers are more or less exposed to the influence of moral or physical causes detrimental to the health. Now there is no doubt these causes are more numerous and energetic in cities than in the country, and accordingly we need not be surprised at finding the proportions of still-born children in the former to those in the latter as 20 : 38. As both London and Dublin exhibit a mean between those two numbers, the general conclusion we arrive at is, that these cities present comparatively fewer moral or physical causes of ill-health, capable of affecting the life of the fœtus in utero, than the Prussian or Flemish cities, although still inferior to the rural population of these countries, and much inferior to the inhabitants of Stockholm.

The second point of inquiry presents results still more striking and interesting, for as Quetelet observes, the male still-born children are much more numerous than the female: thus in Flanders, of 2,597 still-born, 1,517 were males, and 1,080 females, which gives a proportion of 14 : 10. It is very singular that Caspar, in investigating this subject, has found that exactly the same proportion obtained in Prussia. In Amsterdam the result obtained by examining twelve years, from 1821 to 1832 inclusive, gives 13 still-born males to 10 females. In Paris we have the proportion of 12.2 : 10. In Dublin Doctor Collins's

numbers gives the proportion very nearly the same as that of Paris, so that here we have an additional fact corroborative of those already brought forward to prove that *a greater mortality before birth prevails among males than among females*; a most curious result, well calculated to puzzle both physiologists and philosophers.

If we can attach credit to the returns cited by Doctor Hawkins, which from the year 1757 to 1825 gives the average of still-born to other children as 1:17, it is evident that a remarkable improvement has taken place, for during Doctor Collins's mastership it was only 1:27.

It is deserving of remark, that a very large proportion of the still-born children were *first* children; add to this the curious fact, that puerperal convulsions are much more frequent in women with their first children, (of 85 cases observed by Dr. Collins, Dr. Clarke, and Dr. Merriman, 73 were first children,) and it becomes apparent much greater dangers threaten both mother and child from the first than from subsequent conceptions.

With regard to puerperal convulsions, a review of the cases observed in the Dublin Lying-in Hospital has led to the following extremely singular and totally inexplicable result. We give Doctor Collins's words:

"There was but one case of convulsions during my residence in the hospital, where the child presented preternaturally; there was not one case with a preternatural presentation during Doctor Clarke's residence, and Doctor Labatt has stated the same fact, in his lectures while Master of the Hospital. In these three different periods there were 48,379 women delivered; so that from this we may infer, where the presentation is preternatural, there is little cause to dread the attack.

"This fact might be brought forward to support the opinion, that puerperal convulsions were caused by the irritation produced in the dilatation of the mouth of the womb. This, however, is not the case, as we not unfrequently find patients attacked when the os uteri is completely dilated, and all the soft parts relaxed. I conceive we are quite ignorant as yet of what the cause may be; nor could I ever find, on dissection, any appearance to enable me to even hazard an opinion on the subject."—pp. 200-201.

Here seems some connexion between preternatural presentations and an immunity from puerperal convulsions; and, nevertheless, it appears that convulsions occur much more frequently with first children, among whom, on the other hand, preternatural presentations are unusually frequent, for they amount to three-eighths of the whole number observed.

First conceptions then are much more productive of still-

born children, of preternatural presentations, and of puerperal convulsions, than are subsequent conceptions.

But Doctor Collins's tables still further swell this catalogue of evils attending first pregnancies, as at pages 172 and 196 we find that the proportions of hæmorrhages subsequent to expulsion of the placenta, and the proportion of retentions of the placenta, are much greater in first than in subsequent pregnancies; while at page 305 we find that the only set-off against this list of dangers is a supposed comparative immunity from rupture of the vagina and uterus, an immunity, however, which Doctor Collins cannot confirm by his experience.

All this leads us to infer, *a priori*, that comparatively more mothers must perish in the first, than in any subsequent accouchement, and a reference to the table of deaths confirms this inference, for we find that of 164 deaths, 86 were of mothers giving birth to a first child. This proportion much exceeds that of the number of first-bearing to the whole number of women, for of the 16,414 delivered, 4,969 gave birth to *first* children, which consequently amount to more than a quarter, and less than a third of the whole number, or about three-tenths; whereas the number of deaths exceeded one-half. We beg the particular attention of our readers to this absolutely greater mortality of mothers in the first than in any subsequent accouchement, for it proves that the vulgar opinion on this subject is well-founded, although, no doubt, the real excess of deaths among mothers of first children is much exaggerated, and for this simple reason, that *few people are aware that of all the women annually brought to bed in any city, or country, so great a proportion as between one-fourth and one-third are always of first children!*

We regret that Doctor Collins affords us no data for judging whether the proportion of still-born children is greater in winter than in summer in Dublin, as in Flanders and in Prussia. It is probable the greater mildness of our winters would make the difference between the two seasons very trifling.

Doctor Caspar has shown that the number of the still-born is about doubled among illegitimate children as compared with legitimate; a very curious fact, but one which may be accounted for by the numerous causes of anxiety attending the period of pregnancy among the mothers of the former class. It is to be regretted that Doctor Collins could not, from the nature and regulations of the institution over which he presided, make the inquiries necessary to elicit information on this subject.

One of the most singular facts connected with still-born children, is the great number that are putrid when born. Thus of the 1121 above referred to, 527 were putrid, a proportion

much exceeding that which our notions concerning the operations of living organs would have led us to expect, and, indeed, nothing short of the absolute and direct testimony of Doctor Collins could induce us to rely upon its accuracy. How does it happen, that an organ so delicate in its sensibility as the pregnant womb, does not immediately feel the death of the foetus, and that with such a degree of intensity as to secure its speedy expulsion? The connexion between the living foetus and the womb, whether direct or indirect, is so extensive, so far as the circulation of both is concerned, that we cannot conceive how it happens that the death and consequent cessation of the foetal circulation can ever take place, without at once deranging the vital action of the womb so as to bring on speedy abortion; and yet, strange to say, about 300 of the putrid children were retained in the womb until the full period of gestation was accomplished!

"It is difficult," says Dr. Collins, "to assign a reason why so great a proportion of still-born children are expelled in a *putrid* state. Where the labour is very protracted, the cause is obvious; but in the great majority of such instances this is not found to be the case, as the general table here given clearly shews; nor is the child born *putrid* in the greater number of tedious labours."*—p. 460.

We turn with great pleasure to the chapter (p. 500) on the number of children dying in the hospital, as it exhibits in a most triumphant manner the superiority which the Dublin Lying Hospital can justly lay claim to, when compared with any similar establishment in Europe.

"The total number of children born was 16,654; of these 284 died previous to the mother leaving hospital; this is nearly in the proportion of *one* in $58\frac{1}{2}$, which must be considered a moderate mortality under any circumstances; however, when it is considered, that this includes not only *all the deaths that occurred in children born prematurely, and in twins, but also every instance where the heart even acted, or where respiration ceased in a few seconds after birth*, the proportion of deaths becomes *trifling* indeed."—p. 500.

"I have thus given as many of the particulars respecting such children as died in the hospital as practicable without lengthening the detail to a wearisome extent. I have shown, that of the 284 deaths, 100 were *premature* births; thirty-two born at the full period, died in a *few minutes*; seventy, also at the full period, died in a short time after birth; more than the *half* within twenty-four hours; nine were

* "In the brute species, the birth of their young in a *putrid* condition is, I believe, very rarely met with."

destroyed by their mothers; nine were either diseased or imperfectly developed at birth; thirty-seven died of *nine-day fits*; fifteen were twin children born at the full period. Of the remaining cases, as also of such as exhibited any peculiarity, I have given the most important features.

"I have been thus minute, in order to satisfy those who will examine this subject with attention, of what I have no hesitation in stating as a fact, viz. that death in children, from the *effects of disease* during the first ten days, (with the exception of those attacked by trismus,) is not a common occurrence. The chief mortality is observed in children expelled *prematurely*, and in such as are born in an *extremely feeble* state, so as not to have strength to survive delivery many *hours*. This feeble condition is frequently the consequence of delivery, where the child presents preternaturally; or of the labour being tedious or violent; yet in the great majority of such cases, we shall find much difficulty in attempting to explain how this is the case. To prove, that tedious labour is not often the cause, it will be sufficient to mention, as is clearly shewn by the tables, that of the 284 children dead, the labour, in 246 instances, did not exceed *twelve hours*."—pp. 512-513.

We may observe that our friend, Doctor Jörg of Leipzig, has in a former number of this Journal pointed out a new cause of disease of death in infants, viz. an imperfect dilatation of the lungs during their first respiration.

The comparatively trifling mortality among the women delivered in the Lying-in Hospital, Dublin, is another subject of congratulation, as, on comparing it with former Reports of the same institution, it appears that the number of deaths had fallen to 1 in 100, from 1 in 89, the average number of deaths taking all the years from 1757 to 1825.

"Thus of the 16,414 women delivered, 164 died; or in the proportion of 1 in 100. If from this number we deduct the deaths from puerperal fever, which may be considered *accidental*, the proportion becomes greatly diminished, viz. to 1 in 156 deliveries; and again, if we subtract those deaths from causes *not the results of childbirth*, (which are marked thus * in the table,) the mortality from effects arising in consequence of *parturition* is vastly reduced, viz. to 1 in 244.

"Could the *great hazard* of entrusting a female in child-bed to the care of an individual ignorant of his profession, or as it is sometimes done to one of her *own sex*, be more clearly demonstrated, than in the catalogue of diseases which proved fatal to our patients? Here we see diseases as varied and obscure as under any circumstances whatsoever, requiring on the part of the practitioner, the utmost skill and experience. Out of the 164 deaths, there were no less than 97 cases arising from diseases perhaps amongst the most difficult of treatment; nor is it possible for a medical man to be placed in a situation demanding more decision and information, than in the management of

the 67 remaining cases, to which in the table the star is *not* prefixed.

"I know of no department in the profession, where the life of the patient is more immediately dependent on the measures adopted by the medical attendant, than that of midwifery; and I am happy in adding, that I believe there is none better provided with highly qualified and competent practitioners."—pp. 356-7.

In the latter observation we most heartily concur. The excellence of the Dublin Lying-in Hospital becomes more apparent on contrasting the mortality which takes place among the mothers delivered in foreign hospitals. Ought not enlightened Paris be ashamed of a mortality of one in thirty, and yet such it was in 1822 in the *Hospice de la Maternité* of that city? In Stockholm it is one in twenty-nine! In this respect Berlin exhibits a most decided advantage over the other capitals of continental Europe, for, according to Caspar, from 1819 to 1822, the mortality among the mothers did not exceed one in 152.

We hope that the present enlightened and learned Master of the hospital, Doctor Evory Kennedy, will pursue the statistical investigations commenced by Guiette, and which led to the conclusion, that about five children are born at night for four in the day. Every thing which illustrates the laws of periodicity in the human frame is deeply interesting to the physiologist and pathologist.

Nothing is more remarkable with regard to the Irish women than the frequency of twins.

"It is singular," says Dr. Collins, "that in Ireland, the proportional number of women giving birth to twins, is nearly a third greater than in any other country from which I have been able to obtain authentic records. Thus in France, the proportion is *one* in every 95 births; in Germany, *one* in 80; in England, *one* in 92; in Scotland, *one* in 95; but in Ireland, the proportion is *one* in every 62. Of 129,172 women delivered in the Lying-in Hospital of Dublin, 2062 gave birth to twins. *Twenty-nine* of the 129,172 produced three at each birth, which is in the proportion of *one* in 4450; *one* only gave birth to *four*."*—p. 309.

This and the rapid increase of the population in Ireland have much amazed many statistical calculators, and an Irishman, aware of the enormous annual increase of his fellow-countrymen, may well feel proud in giving his assent to the general result arrived at by Quetelet: "*La fécondité est faible chez les peuples pauvres et opprimées.*"

* "See Philosophical Transactions for 1787, where a case is recorded by Doctor Garthshore, of five children at a birth. This is the greatest number I am acquainted with, recorded upon good authority, by any modern writer."

So far with regard to the most obvious statistical deductions derivable from the work before us. We shall now present our readers with a few observations on its practical contents, a subject we hope to see far more ably and fully handled hereafter by others more conversant with this important department of the medical profession.

In the section on tedious labour, Dr. Collins, with much earnestness, recommends the use of the stethoscope as a valuable means of enabling us to detect the life or death of the foetus in utero, and at pages 19 and 20, gives some remarkable cases of sloughing of the urethra, as illustrations of the lamentable results which might have been obviated by a knowledge of its use. Speaking of these cases he says:

“Had its application been known at the time of their occurrence, and delivery effected shortly after the child’s death took place, without waiting till the natural efforts expelled it in a *putrid* state, I have little doubt these women would have escaped the truly deplorable consequences that ensued. Such,” he concludes, “must ever have continued to the incalculable injury of the patient and disgrace of the medical attendant exhibiting his imperfect knowledge, had not the means of detecting the death of the foetus with accuracy been found out.”

The observations, p. 59, as to the *mortality* in footling and breech presentations, “being comparatively little, owing to any difficulty experienced in the actual delivery of the child, but rather referrible to causes operating previous to the setting in of labour,” are well worthy of attention. The statement he sets forth of the numerous cases met with in the hospital, leaves, in our opinion, little room to doubt this fact, which, *being contrary to the general inculcated opinion*, is particularly deserving of notice.

In the treatment of the next species of preternatural presentation, viz. shoulder or arm, the author trusts solely to turning, or perforating the thorax and delivering with the crotchet; he does not see any advantage to be derived, but rather danger to be feared, for waiting for the occurrence of spontaneous evolution. “No instance of it,” he says, “was witnessed in the hospital during his assistant or mastership, nor did one take place during the residence of Dr. Clarke, one excepted, of which the Doctor was not certain, as it merely depended on the report of a midwife, during which period *thirty-four thousand five hundred and seventy-six* women were delivered.” The further remarks on the management of this form of presentation, with the delineation of those cases where perforation of the thorax becomes necessary, it would be injustice to curtail. The result with regard to both mother and child proves highly satisfactory.

The sections on the different forms of hæmorrhage contain a fund of valuable instruction, evidently the result of close observation and much practical experience, and occupy eighty-nine pages of the work. Of these it would be impossible in a review to give an analysis in any way satisfactory, as the observations in the several sections are so intimately connected with each other, the whole must be perused to become acquainted with the contents. The remarks with regard to the forcible introduction of the hand into the uterus, as also against premature measures for the delivery of the patient when labouring under hæmorrhage, should be carefully studied by every junior practitioner. "Such measures," Dr. Collins adds, "are only justifiable in the *most extreme cases of danger*." His comments on the utility of opiates, in connexion with that restlessness which so frequently succeeds severe hæmorrhages, are important, and the advantage derived from such treatment is markedly evidenced in the cases detailed.

In the succeeding section on Retention of the Placenta, the causes are accurately pointed out, with the treatment applicable in each. The statement as to the extreme danger consequent on the introduction of the hand under such circumstances, and also in hæmorrhage, during the *prevalence* of puerperal fever, is well worthy the attention of the midwifery practitioner, and cannot fail to afford him a most salutary caution. He concludes, "I have no hesitation in stating, that almost all of the cases where such a measure was resorted to which terminated unfavourably at this particular period, would, under ordinary circumstances, have recovered without any serious consequences."

The article on Convulsions is one of peculiar interest, and as the exhibition of tartar emetic and opium, which forms a striking feature in the treatment adopted by Dr. Collins, has not been put forward by any previous author, and bears a striking analogy to the effects of these remedies in delirium tremens and in the delirium of fever, as recommended by ourselves, we would direct particular attention to the cases detailed, which seem to us most satisfactorily illustrative of the benefit derived from its adoption. Its utility in those cases where convulsions set in previous to labour, or in the early stage, before any attempt whatever can be made to deliver, or in such cases as he might be disposed to trust to the efforts of nature, is strongly dwelt upon, as the after-consequences of a delivery, effected when the os uteri is in an unrelaxed state, prove, in his opinion, singularly dangerous to the patient. Dr. Collins's successful use of opium in certain stages of convulsions must attract the notice of the profession, as many of our best

writers on midwifery are of a directly contrary opinion. We can safely recommend to our professional brethren the highly practical observations set forth in this interesting section.

In the next article, on Rupture of the Uterus or Vagina, Dr. Collins records two interesting cases of recovery from this generally fatal occurrence; one of these patients subsequently gave birth to two living children, with the first of which premature delivery was induced. In nine of the thirty-four cases the peritoneal covering of the uterus did not give way, yet he states death ensued with equal rapidity. We entirely agree with the author as to the necessity of speedily counteracting the sudden and dangerous inflammation rapidly consequent on this injury. Its more frequent occurrence in women giving birth to male children is fairly adduced by the author as to disproportion between the child's head and mother's pelvis giving rise in most instances to this accident. The fatal cases are recorded with much accuracy, and will be found to afford much useful information as to the treatment, cause of death, and appearances on dissection.

In the section on Twin-births, the results in 240 cases are given with much minuteness, and will be found, on examination, highly satisfactory. The assistance of the stethoscope, as here noticed, may be interesting to such practitioners as have not yet applied it as a means of diagnosis in detecting the existence of twins.

We pass over with reluctance the three following sections, viz. on Triplets, Prolapsus of the Umbilical Cord, and Sloughing the Urethra, all of which appear deserving of attention, and proceed to notice that on the subject of Puerperal Fever, in which the author has given a minute history of the several periods at which this disease was epidemic in the hospital, and he states some interesting facts as to its occurrence during the prevalence of typhus fever, which strongly tend to show some connexion between these two diseases. It is singular that in Dublin the upper ranks of society, according to our author's statement, seem almost exempt from the low form of this disease, whereas in London, Edinburgh, and other cities, it is at times most fatal. Dr. Collins has accurately given, in eighty-eight cases, the period at which it attacked the patient, and also the date at which death occurred in fifty-six cases, in many of which is shown the rapidity with which it often proves fatal. Doctor Collins differs in opinion with those authors who state that patients who have suffered from tedious or fatiguing labours, or whose constitution has been much impaired previously, are the most frequent subjects of this attack; this, we think, the statements brought forward seem fully to justify. On the subject

of prevention, Dr. Collins enters with much earnestness, and his statements seem to us highly deserving of attention.

“Of 10,785 patients delivered in the hospital,” subsequent to the adoption of the plans he recommends, he adds; “only 58 died, which is nearly in the proportion of *one* in every *one hundred and eighty-six*, the lowest mortality perhaps on record in an *equal number* of a *similar class of females*.”

With regard to the extreme discordance of opinion as to the treatment of this disease, we think our author's explanation just, as the adoption of such opposite measures as are recommended, arises chiefly, in his opinion, from physicians treating of every variety of puerperal fever as one and the same disease, “whereas, perhaps, no other exhibits a greater diversity of character,” a fact long ago pointed out by John Peter Frank, whose observations on the subject of puerperal fever are among the best we possess.

The cases detailed are numerous and satisfactory, and cannot fail to make the reader perfectly acquainted with the treatment adopted in the hospital.

With regard to the importance of visiting the patient immediately on the seizure, we quote his own words:

“I cannot here omit urging the great importance of the medical attendant seeing his patient *instantly* on her being attacked. In the hospital we made it an invariable rule at *all times* to visit every patient *twice* daily; but when puerperal fever prevailed, we visited every *six hours*; in truth it may be said, we nearly lived in the wards, and in my opinion, to discharge the duty effectually in such an establishment this must be done.”

Such close attention on the part of the officers of this institution is highly creditable, and must have been productive of incalculable benefit to the patients; indeed the cases reported are self-evident proofs of this industry.

In thirty-seven of fifty-six cases which proved fatal, the morbid appearances are given. Effusion of fluid, though differing in character and quantity, was found to have taken place in all. In *twelve*, it seemed serum of a straw colour; in *eighteen*, sero-purulent, and in *seven*, a bloody serum without any deposit whatever of lymph. All the cases but one in which the *latter* description of fluid was found, occurred in January and February, 1829, and rapidly proved fatal. This is an interesting fact, and if observed at the *same period* in Paris or London, in both of which places puerperal fever was at that time prevalent, might tend much to prove the dependence of this disease on atmospheric influences.

On the subject of Still-born Children, Dr. Collins has endeavoured with much care, as far as practicable, to give the cause of death in every instance.

He considers a venereal taint to be a frequent cause of the death of the child in utero, but in such its expulsion is in general premature. It is a remarkable fact noticed by Dr. Collins, that of the examples given of women who were delivered *two, three or four* times with the crotchet, but one died; "thus satisfactorily proving, that where death succeeds this operation, the fatal result is not dependent on the *mode of delivery*, but upon the *circumstances* demanding such interference." We entirely agree with our author as to the necessity of physicians directing their attention rigidly to the *cause* of death in such children as are still-born.

In the latter part of the section on the deaths of infants some most instructive observations will be found in connexion with the occurrence of trismus nascentium in this hospital, and on the means used for its prevention, formerly suggested by the late Dr. Joseph Clarke, and productive of the happiest effects. The author concludes this subject by saying,

"Thus by his (Dr. Clarke's) valuable suggestions 16,371 lives have been saved; as had the mortality of infants continued *one* in six till this day, the number of children dying of the 131,227 (which is the total number born in the hospital) would be 21,871, instead of 5500, as the hospital registry now shews."

This is an *astounding* fact, sufficient to arouse the attention of all those engaged in the management of large institutions, where numbers of young creatures are assembled together under the same roof, and calculated to enforce upon them the necessity of paying that attention to *ventilation* to which it is so pre-eminently entitled. We may further observe, had the mortality from the period at which the hospital was opened been in the proportion of one in $58\frac{1}{2}$, as during the last *seven years*, the deaths would not have amounted to *one-half* even of the reduced number 5500 as above stated, and thus the number of lives saved would have been more than *doubled*.

We give the following interesting registry in the author's own words, which must have cost him much time to furnish:

"In order to ascertain, as far as possible, the mortality in the *earlier* periods of life, I kept a correct registry during my residence in the hospital, of the *total* number of children each patient had *previously* given birth to, and of the number *alive* at the time of her delivery.

"The result is, that at different periods the 16,414 women had

given birth to 53,458 children ; of these, 28,532 were males, or rather more than eight-fifteenths of the entire, and 24,926 females. Of the 28,532 males 17,437 were living, or rather more than three-fifths, and of the 24,926 females, 16,468 were alive, or nearly two-thirds.

“ Of the entire 53,458 children, 33,905, or more than three-fifths, continued to *live* at the time the mothers were *last* delivered.”

Such is a very cursory, and of course unsatisfactory notice of the volume before us ; we cannot conclude without expressing the great satisfaction we have experienced in its perusal ; we can most confidently recommend it to the profession as eminently deserving their attention ; indeed we consider it a most valuable and necessary addition to the library of every midwifery practitioner. No work we are aware of exhibits more decided marks of unwearied industry, nor do we know any more likely to stand the test of experience, whether we consider the valuable practical remarks, the general success evinced in the reports of the cases, which are exceedingly numerous, and calculated to afford much useful information, the relative mortality, or the extensive tables appended to each section. Any one who takes the trouble of examining these tables, will be ready to acknowledge that vast labour, industry, and patience were required for their compilation. In this point of view we have no hesitation in asserting that Doctor Collins's book is unrivalled, and that it will be read with avidity in every country in Europe.

ROBERT J. GRAVES.