

kindly confirmed my opinion as to their nature, said they were "a development of a heterologous variety of epithelium, and free from the more prolific and malignant forms of cell-growth." There was no history of any irritating cause.

BRITISH MEDICAL JOURNAL.

SATURDAY, AUGUST 7TH, 1869.

NOTE FROM DR. CHADWICK.

THE President of the British Medical Association desires to express to the members present at the Leeds meeting, his heartfelt thanks for the cordial vote of sympathy and condolence, forwarded to him by their Secretary, on the loss sustained by himself and his family.

The kind forbearance exercised towards him in his compelled absence from the duties of his office, and the numerous expressions of sympathy in his sad bereavement which he has on every hand received, will never be effaced from his memory. He trusts this general recognition will be accepted, as a reply to each one would be impossible.

He is gratified to find that the success of the meeting was so complete, and that the comfort of the assembled Associates and friends was not materially interfered with through the untoward circumstances specially affecting himself.

Leeds, August 3rd, 1869.

The following is a copy of the vote of condolence with Dr. Chadwick, which was passed on the last day of the meeting.

"That the members of the British Medical Association cannot separate without expressing their condolence with their President, Dr. Chadwick, on the severe bereavement which he and his family have recently sustained, and which has deprived the Association of his valuable services in presiding over this meeting."

THE AMERICAN GOVERNMENT AND THE ASSOCIATION.

DR. PINKNEY, of the United States Navy, arrived in Leeds on Tuesday last, bearing a special commission from his Government, and also credentials as the representative of the American Medical Association. The delay in his arrival has been caused by a mistake as to the date of our meeting. He is ordered by his Government to give a report of the proceedings of the Leeds meeting, and of the International Medical Congress at Florence, to his department. This recognition, for the first time, of the British Medical Association by the United States Government, is an interesting fact, which we record with much satisfaction, as one additional proof of the importance to which the Association has attained not only at home, but in distant countries.

THE ORIGIN OF LIFE.

III.

WHEN a fluid containing an organic substance in solution is allowed to remain in contact with air, under the conditions already stated, phenomena of fermentation, or incipient putrefaction, are soon established. A slight evolution of gas takes place, and after a variable time—hours or days, according to the temperature, nature of the solution, etc.—a slight whitish cloud or pellicle, which soon thickens into a membrane, makes its appearance on the surface of the fluid. This constitutes the "primordial mucous layer" of Burdach and the "proligerous pellicle" of Pouchet. On microscopical examination by the highest

powers, it is found to consist of a dense aggregation of the most elementary organic particles, or spheroidal molecules, known by the name of monads; of short staff-like bodies, or bacteria; and of large-jointed filaments, or vibrios. The largest of the monads, which are mere actively moving granules, being only about 1-30,000th of an inch in diameter. Bacteria are supposed to result from the fusion and coalescence of monads; and vibrios from the union of bacteria—at least, this is the view of Dumas, though it is doubted by Pouchet and others. It is also possible that both bacteria and vibrios may be only later stages in the growth and development of certain primary nomad forms. Different kinds of pellicles are described by Pouchet, according to the different proportions of these three ingredients entering into their composition. Mantegazza and Jolly have watched the appearance of monads and bacteria under the microscope: after continuously observing for hours, they have seen previously clear organic solutions become quite clouded from the appearance of myriads of these rapidly moving organic particles. But the life of these molecules is of brief duration: after twenty-four hours, or less, they all die, and then the pellicle on the surface is found to be composed of a densely aggregated but uniform layer of granules, composed of monads and bacteria, embedded in a thin, pellucid, and almost invisible jelly-like stratum. The changes which are said to ensue in this granular membrane, constituted by the mere dense aggregation of the dead—or, at all events, motionless—monads, bacteria, and vibrios, are marvellous indeed; changes which have been watched and described, more or less fully, by Pineau, Nicolet, Wymann, Schaaffhausen, Mantegazza, Pouchet, Jolly, Musset, and others. These observers affirm that, from this mass of mere granular debris, the higher ciliated infusoria (*Paramecium*, *Kolpoda*, etc.) are evolved in some cases, and the lower microscopic fungi (*Aspergillum*, *Penicillium*, etc.) in others. Pouchet describes the series of changes which take place in the proligerous pellicle from which infusorial animalcules are to be developed, as follows.

After a short time, the membrane, at first uniform and evenly granular, changes in aspect here and there, owing to a concentration of the granules at tolerably equal distances, into more densely aggregated spherical masses, which at last become limited by a more or less clear border, suggestive of a resemblance to the *zona pellucida* of the egg of higher animals. This mass does constitute, in fact, according to Pouchet, the egg of the future ciliated infusorial animalcule. The next change which takes place is, that the granules, which had been at first more densely aggregated towards the centre, then disseminate themselves uniformly through the ovum, whilst, at the same time, the simple clear zone thickens into a distinct membrane. A short time after this, differentiation still proceeding, the mass of enclosed granules gradually becomes converted into a real embryo, which manifests its existence by slow movements—at first, by simple oscillations in the mass of granules, and then by regular, uniform movements of revolution of the whole contents within its enveloping membrane. The slightest shock, at this stage, immediately arrests the gyration. Then, after a time, a pale spot appears in a certain part amongst the granules, and soon the alternate contraction and dilatation of this show that it is the rudiment of the future heart, or contractile space, of the infusorial animalcule. As other parts become differentiated, and the proper structure of the animal is attained, it begins to exhibit movements of quite a different kind—sudden and irregular, no longer checked, but rather increased, by slight shocks from without. In one of these sudden plunges, the enveloping membrane is ruptured, and there enters into the world of waters a free swimming and perfectly formed infusorial animalcule—the offspring of Death, the embodiment of Life.

Such is the marvellous story, told in substantially similar terms by all the observers before named. It should be distinctly understood, that monads, bacteria, and vibrios, do invariably precede the higher

infusorial animalcules in organic solutions : this is a rule to which there are no exceptions. But, after some of the latter have formed, the process of development may cease, the proligerous pellicle falling to the bottom of the fluid and disintegrating; then another pellicle may gradually form on the surface, owing to a new birth of monads, bacteria, and vibrios, resulting in the production of a new proligerous pellicle, out of which other free swimming infusorial animalcules are evolved. Pineau has followed all the stages in the evolution of a tailed infusorial animalcule, known by the name of *Monas lens*, and also that of specimens of the genus *Oxytrycha*; Nicolet, that of *Amœba*; whilst Pouchet, Jolly, Musset, Wymann, Mantegazza, and Schaaffhausen, declare they have watched the evolution, not only of specimens of *Monas lens*, but of individuals of the genera *Paramecium* and *Kolpoda*. But Dr. Bennett says: "At other times, it happens that the molecular mass, instead of being transformed into animalcules, gives origin to minute fungi. In this case, the molecules form small masses, which soon melt together to constitute a globular body, from which a process juts out on one side. These are *Torula*, which give off buds, which are soon transformed into jointed tubes of various diameters, terminating in rows of sporules (*Penicillium*), or capsules containing numerous globular seeds (*Aspergillus*). Occasionally filaments are formed from the direct melting together of molecules arranged longways (*Leptothrix*)." Dr. Bennett, therefore, thinks that the elementary vegetable organisms have no specific constancy; but that they readily pass from one form into another, under the influence of some slight change in their external conditions. He believes, also, that the same mutability characterises the low animal types of which we have previously spoken.

Now we would say, concerning these statements of the heterogenists, that, if they are true and correct, so that any other microscopist, with the exercise of ordinary care, can verify them, then the establishment of the truth of these statements concerning the mode of evolution of specimens of *Paramecium*, *Kolpoda*, and other low organisms, whether animal or vegetable, does practically afford an abundant proof of their main position. They say that new organisms may arise by "spontaneous" generation in organic fluids. The terminology, of course, is bad; and, as Mr. Herbert Spencer maintains, the use of the word "spontaneous" tends to convey an entirely erroneous conception—one quite adverse to the general doctrines of evolution, which he, for one, has so admirably expounded. But the essential idea which they wish to convey is, that an organism may come into existence without that parentage and derivation from a similar organism of like kind, which has been hitherto, by most biologists, regarded as invariable and essential. Dismissing for a moment our consideration of the mode of origin of those minute organic particles, known as monads, bacteria, and vibrios, which would seem to form a sort of neutral starting point, both for the animal and the vegetable kingdoms, let us concentrate our attention upon the mode of evolution of the higher ciliated infusoria. Now, as we maintain, if it can be shown that ciliated infusoria do in reality arise from differentiations taking place in a granular pellicle, formed by the aggregation of motionless monads, bacteria, and vibrios, whether dead or living, then the heterogenists have, so far as these ciliated infusoria are concerned, proved their case. They would then have established the truth and reality of phenomena so marvellous and so different from what have been hitherto conceived possible by the majority of biologists—so subversive of our ordinary notions—that it would seem scarcely worth while after this to quarrel so pertinaciously about the mode of origin of the monads, bacteria, and vibrios. We do not mean to say that it is not a question of the most fundamental importance as to how these bodies originate; but we do say that it should be really almost less startling to us to be asked to believe that these minute organic particles can separate from fluids containing formless organic matter in solution, than for us to believe that out of the heaped-up dead corpses of these organic units, there can deve-

lope, under the influence of certain conditions, beings so totally different as the comparatively highly organised ciliated *Paramecium* or *Kolpoda*. What possible relation of parentage, in its old sense, could exist between the monads, bacteriæ, and vibrios, on the one hand, and the ciliated infusorium on the other? Why, it would be somewhat comparable—so far as the question of parentage is concerned, and the relative complexities of parent and offspring—to saying that a human being might be evolved out of an aggregation of dead, or apparently dead, sprats. If it be a fact that ciliated infusorial animalcules may originate in the way described by the heterogenists, then this will undoubtedly prove one, if not the most fundamentally important discovery ever made in biology, and all honour should be meted out to those by whom it has been ascertained.

It will, of course, be easily seen that the phenomena described as taking place in the proligerous pellicle may be watched by all who are conversant with such methods of investigation. We do not require to call in the aid of the chemist, we need exercise no special precautions; the changes in the proligerous membrane are of such a kind that they could be readily appreciated by any skilled microscopist; and it would not seem possible that he should be unable to decide whether such a body as a *Paramecium* did or did not originate out of gradual differentiations, such as have been described, taking place in this membrane. This part of the question, therefore, seems to us a simple matter of observation; and all interested in the question, and competent for the investigation, should satisfy themselves whether it be true or false. But the problem is quite a different one when we come to consider the mode of origin of the most simple organic forms—the monads, bacteria, and vibrios. If we set ourselves to inquire how these arise, we certainly propose a problem of a much more difficult nature—one whose solution cannot possibly be achieved without the aid of numerous precautions, whilst the results of experimentators may even then be questioned, be they ever so conclusive.

But, if the heterogenists can show, and have demonstrated how the higher ciliated infusorial animalcules are evolved out of pre-existing monads, bacteria, and vibrios, then they have, in fact, now only to prove that these latter may originate *de novo* in organic solutions, in order completely to substantiate their position. And we think they would have made their case clearer throughout, if they had reduced the question to these distinct issues. They should have said to their opponents: "The mode of origin of infusoria and of fungi out of aggregations of monads, bacteria, and vibrios, is a simple matter for observation, about which it is mere idleness to waste words. It is useless, therefore, to endeavour to impress us with the truth of your panspermic doctrines. Suppose it granted for a moment (which we do not) that the air is so full of germs of infusoria, etc., as you represent, this does not in the least affect the essentials of our position, that some ciliated infusorial animalcules have such an origin as we describe, even though the occurrence of others in solutions may be accounted for in the manner you propose, by means of germs conveyed by the atmosphere." They might also have added: "The only question, therefore, worth our while to dispute about is as to the origin of these primary organic forms; and, to establish the truth of what we believe, we are willing to abide by all the precautions in our experiments which you yourselves would prescribe."

We will now summarise the statements which have been made on each side concerning this part of the question.

DR. THOMAS SKINNER of Liverpool has been elected a member of the Gynæcological Society of Boston, United States.

CHOLERA and small-pox have been raging very severely in the Jubulpore district in India. In the week ending June 12th, there were 381 cases of small-pox, and 37 deaths; 811 cases of cholera, and 578 deaths. A cattle-plague was prevailing in some districts.

We understand that Mr. Cowell is the successful candidate for the Assistant-Surgeoncy at the Westminster Hospital.

THE Edinburgh Medico-Chirurgical Society has conferred the honorary diploma of corresponding membership on Dr. John William Ogle.

BENGAL SANITARY COMMISSION.

COLONEL MALLESON, Sanitary Commissioner for Bengal, has just been promoted to a superior appointment in the Civil Department; and Dr. Cuninghame, for some time Secretary to the Sanitary Commission, succeeds him as Commissioner. This is as it should be.

POOR-LAW MEDICAL QUALIFICATIONS.

THE President of the Royal College of Surgeons, Edinburgh, has received a letter from the Secretary of the Poor-law Board, dated 10th July, 1869, stating, in reply to a communication addressed to them by Drs. Andrew Wood and J. G. Fleming, that the diplomas of the Royal College of Surgeons of Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow, are recognised by the Board as conferring surgical qualifications upon those medical gentlemen who possess them.

ROYAL COLLEGE OF PHYSICIANS.

THE following officers were elected by the College on July 29th, 1869. *Censors*: E. L. Birkett, M.D.; H. W. Fuller, M.D.; A. W. Barclay, M.D.; E. H. Sieveking, M.D. *Treasurer*: F. J. Farre, M.D. *Registrars*: H. A. Pitman, M.D. *Librarian*: W. Munk, M.D. *Examiners*: *Anatomy and Physiology*: H. H. Salter, M.D.; J. S. Bristowe, M.D. *Chemistry, Materia Medica, and Practical Pharmacy*: S. O. Habershon, M.D.; W. Odling, M.B. *Medical Anatomy and the Principles and Practice of Medicine*: G. Owen Rees, M.D.; P. Black, M.D. *Midwifery and the Diseases peculiar to Women*: R. Barnes, M.D.; W. O. Priestley, M.D. *Surgical Anatomy and the Principles and Practice of Surgery*: T. B. Curling, F.R.C.S.; T. Holmes, F.R.C.S. *Curators of the Museum*: F. J. Farre, M.D.; T. B. Peacock, M.D.; W. Wegg, M.D.; F. Sibson, M.D.

THE BRITISH ARMY AND THE KNAPSACK.

THE knapsack, that has been so long a source of mischief in the British army, is at last done away with, and the new valise equipment adopted in its stead. A Supplement to the 4th Report of the Knapsack Committee has just been issued, containing some further reports upon trials with the valise, and announcing the final decision of the Secretary of State for War and the Duke of Cambridge on the subject. Ten regiments are to be supplied annually with the valise equipment, until the whole army is furnished with it. This supplement contains a very interesting report from Colonel Walker, the Military Attaché at Berlin, to which city two patterns of the new kit-bags were sent some months ago for trial in the Prussian army. The Prussian military authorities under whom the trials have been conducted express themselves strongly in favour of the new equipment. Colonel Walker mentions that the general commanding the 11th Brigade of the 3rd Army Corps kept him for half-an-hour while he spoke in unmitigated praise of the new invention; and that Prince Frederick Charles, after having subjected the kits to a rigid inspection, told him that a great and difficult question had been solved, and that he was indebted to this invention for carrying out an idea he had had for ten years without succeeding in bringing it to perfection. There appears to be a hearty desire on the part of the Prussian infantry, Colonel Walker says, to get rid of the knapsack, which, however practical in shape and well-fitting, always interferes with respiration; indeed, the name the Prussian soldiers give it, "*der Affe*," the monkey, is very characteristic of it as an incubus on the back. Not long since, a soldier was asked whether the new Prussian knapsack, which is far superior in many respects to the present English knapsack, was not a great improvement? To which the man replied, "Oh yes, sir; but it's monkey all the same—*Affe bleibt immer Affe*." The history of the knapsack in the British army, and of the difficulties which have

been encountered in the attempts to improve it, if it should ever be written, will form an entertaining though from some points of view a painful record. We congratulate the Knapsack Committee on the successful termination of their labours.

SCOTLAND.

WATSON'S HOSPITAL AND THE ROYAL INFIRMARY.

AT a meeting of the Governors of Watson's Hospital, it was resolved not to part with the building for a sum less than £43,000. This resolution is subject, of course, to the approval of the Merchants' Company."

MR. SYME'S CLASS IN THE UNIVERSITY OF EDINBURGH.

THE pupils of the class of Clinical Surgery in the Edinburgh University have presented to Dr. Joseph Bell an address expressive of their appreciation of the manner in which that class has been conducted by him during the illness of Professor Syme. In it, they state that they have been mindful of the peculiarly difficult position which he was called upon to occupy, as the substitute of one whose world-wide reputation is indissolubly associated with his position as a teacher of clinical surgery. They assure Dr. Bell that he has obtained their admiration and esteem, as possessing in an eminent degree those qualities which are essential in a teacher of clinical surgery; and that, while by the clear and forcible way in which his lectures were delivered, their subject-matter was impressed upon the memories of his pupils, the hours spent in his class-room were rendered equally pleasant and profitable. Forty-three names are appended to the address.

UNIVERSITY OF EDINBURGH.

THE ceremonial of graduation of students in medicine took place on Monday in the General Assembly Hall, which was filled by a gay assemblage of ladies and gentlemen. Vice-Chancellor and Principal Sir Alexander Grant presided. A large number of members of the Senatus were present, and amongst them Mr. Syme. At the commencement of the ceremony, the degree of Doctor of Laws was conferred on Sir Roderick Murchison. There were twenty-six candidates who received the degree of Doctor of Medicine under the new statutes, and five under the old statutes. Thirty-nine candidates received the degree of Bachelor of Medicine and Master in Surgery, and five received the degree of Bachelor of Medicine only. Two gold medals were awarded for distinguished theses—one to Dr. John Haddon, for a most original thesis on "The Sphygmograph and Thermometer in Health and Disease", and the other to Dr. John Miller Strachan, for an equally able thesis on "The Histology and Functions of the Cerebellum." The Ettles Medical Scholarship, which is annually awarded to the most distinguished graduate in medicine of the year, was conferred on Dr. Henry Alleyne Nicholson. Short addresses were afterwards given by Professor Balfour and Sir Roderick Murchison.

IRELAND.

THE RECENT DEBATE ON LYING-IN HOSPITALS AT THE DUBLIN OBSTETRICAL SOCIETY.

IN the August number of the *Dublin Quarterly Journal* there appear, *in extenso*, the speeches or essays of those who took part in the recent debate on lying-in hospitals which occupied the attention of the Obstetrical Society during so many nights. The report occupies no less than 205 pages of the *Journal*; and we think that we do better to draw the attention of our readers to the report itself, rather than attempt an abstract, which could not be long enough to please either our readers or the authors. The subject is one which should receive the most earnest attention of all philanthropists; and it is especially necessary that on such a subject, involving such momentous interests, the unbiassed judgment of the entire profession should find expression.