The paper was illustrated by several diagrams exhibiting the relation of the families and genera.

Prof. FORBES exhibited specimens of animals which had been dredged up on the coast of Ireland by Mr. Hoskins. He then read a communication from Mr. Alder, describing a new species of mollusc found at Dalkey Island, near Dublin, having a shell in all respects similar to that of the genus Rissoa, from which, nevertheless, the animal differs materially. The most striking peculiarities were the presence of four tentacula, and the position of the eyes, which are placed on the back, at some distance behind the tentacula, and not at their base, as in Rissoa and the allied genera.

Prof. Forbes also read a paper by Messrs. J. Alder and A. Hancock, 'On some new Species of *Mollusca nudibranchiata*, with Observations on the Structure and Developement of the Animals of that order.'—The species described were a beautiful Calliopœa, the first discovered in Britain, and four new species of Eolis. The authors then gave an account of their observations on the developement of the ova in that order, stating the remarkable fact of these animals undergoing a complete metamorphosis, and being, in their first or larva state, furnished with a nautiloid shell, which afterwards entirely disappears. They next alluded to some interesting anatomical peculiarities, describing the gastro-vascular system in Eolis, and the ejection occasionally of some curious bodies from the ends of the papillæ, apparently connected with this system. The organs of the external senses were next remarked upon, and the existence of organs of hearing in this class of gasteropodes for the first time pointed out. They consist of small capsules filled with very minute concretions, which, in the living animal, are in a continued state of oscillation. Several reasons were also adduced for supposing that the dorsal tentacula of these animals are the true organs of smelling. The whole was illustrated by a series of drawings by Mr. Hancock.

Mr. THOMPSON observed that these researches had doubled our knowledge of the number of species of Nudibranchiata Mollusca.—Prof. OWEN said these papers cleared up the difficulty that had hitherto been experienced with regard to the developement of the Nudibranchiata Mollusca. Many of the young of these animals had been described and figured as belonging to very different genera and species. Their whole structure was now made out by the researches of Messrs. Alder and Hancock.

Mr. THOMPSON called attention to the circumstance of the nidification of the Woodcock in Ireland, with especial reference to Tullamore Park, in the county of Down, the seat of the Earl of Roden. Here the species was first observed to remain throughout the summer, and rear its young, in 1835, since which period the numbers so remaining have been gradually on the increase; and in the present year twenty-two nests have been found, so that now woodcocks are as plentiful in summer as in winter in the park.

Mr. THOMPSON noticed some additions to the Fauna of Ireland, comprising altogether, in the various classes (excepting Insecta, Entozoa, and Infusoria), about sixty species.

Mr. THOMPSON read his report 'On certain portions of the Invertebrate Fauna of Ireland,' drawn up at the request of the Association. It contains ample catalogues of the Irish species of Mollusca, Cirrhipoda, Echinodermata, Acalepha, Zoophyta, Annelida, Crustacea, &c.; together with a comparative view of the Irish and British species; and a notice of the distribution of the former over the island or around the coast.

Prof. FORBES remarked that Mr. Thompson's report on the Fauna of Ireland was one of the most complete that had hitherto appeared in the English language. He hoped that Mr. Thompson would yet comprise in his report the insects and infusoria.

Thanks having been voted to the President and Vice-Presidents, the Section adjourned.

SECTION E.—MEDICAL SCIENCE.

MONDAY.

Sir James Pitcairn in the chair.—The Secretary laid before the Section a Meteorological Table from Mr. Prichard, of Beddgelert, in which were detailed the mean results of observations made in that locality, during the year commencing July, 1842.

Dr. HOUSTON read a paper 'On the Circulation of the Blood in Acardiac Fœtuses.'—Dr. Young, Sir Astley Cooper, and Dr. Marshall Hall, held the opinion that the circulation in an acardiac fœtus was maintained by the action of the heart of the perfect fœtus which accompanies it in utero, but this opinion was disproved by the fact that such were not always found in twin cases, but occurred singly, as was proved by Blandin and others; but even omitting such cases, Dr. H. argued, from theoretical principles, that the efficient cause of the circulation must be the innate vital action of the capillaries; the existence of such a power, he contended, was shown in several instances in comparative anatomy: in the earth-worm, the leech, and in the rudimentary vessels of the chick in ovo. This was the power recognized by Alison under the term "vital attraction and repulsion."

Dr. POPHAM read a paper 'On the treatment of Gangrene of the Lung by Chloride of Lime.'—The author stated that the rarity of the occurrence of gangrene of the lung after idiopathic pneumonia induced him to lay the details of a case successfully treated by chloride of lime before the Section; he detailed cases which had proved fatal, and which, on *post mortem* examination, were proved to be gangrene of the lung, and the symptoms of the successful case were perfectly analogous; there existed the sudden exhaustion, with the haggard collapsed countenance, the expectoration of quantities of thin fœtid sanious matter, and the intense fœtor of breath, setting in suddenly after a protracted case of pneumonia. The case appeared rapidly hastening to a fatal termination when the chloride of lime was exhibited, and the improvement was immediate. The fœtor of the breath and expectoration were corrected, the strength improved, and the patient finally recovered; on a relapse occurring, the same remedy was successfully resorted to.

Dr. SARGENT inquired the doses that were used, and if any other remedies were exhibited at the same time.—Dr. Popham replied, that he gave the concentrated solution of Labarraque in mixture of six ounces, containing six drams of the solution, which was given in the course of twenty-four hours—that he gave at the same time, wine, opium, and generous diet.—Dr. Sargent deemed the diagnosis to have been fairly established from the symptoms, and that the case was an important confirmation of the value of the remedy used, but that it was not a new one.—Dr. WALL was aware of the value of chloride of lime as a local remedy, but could not conceive how it was applicable in internal gangrene.—Dr. O'CONNOR observed, that it had the power of acting as a general stimulant where there was a tendency to constitutional sinking: it was this property which made it valuable in collapse in low fever.

Dr. OLLIFFE, of Paris, read a paper 'On Intestinal Obstructions.'—The author's object was to lay before the Association the principle, mode of performance, and results, of Amussat's operation for artificial anus, and to advocate its adoption from the experience he had of its success in cases which must necessarily have proved fatal if it had not been performed. Dr. O. gave the details of eight cases, in many of which he had assisted; of those, four had proved successful; three are still living, one of them a child two years old, in whom the operation was performed twenty-four hours after birth, being rendered necessary by an organic defect.

A MEMBER condemned the operation, not only for its partial fatality, but also from the sufferings of a patient who had survived it for three years, whom he had seen at Rouen.

The Secretary read an abstract of a paper by Mr. I. Erichsen, 'On the Cause of Death after the introduction of Air into the Veins.'—The theories of former physiologists were alluded to and disproved by a series of original experiments; the principal of these theories were that of Bichat, who supposed death to be occasioned by distension and irritation of the vessels of the brain, causing fatal congestion in that organ, and that of Dupuytren and Bouillaud, who supposed that the circulation was arrested by distension, and consequent paralysis of the heart. After disproving these opinions by experiment, the author arrives at what he conceives the true pathology, which he sums up in the following conclusions: first, that the primary arrest of the circulation takes place in the capillaries of the lungs, in consequence of inability of the right ventricle of the heart to overcome the mechanical obstacle presented by the air bubbles in these organs; second, that respiration and animal life cease from want of a supply of arterial blood in the central organ of the nervous system. In conclusion, the author made suggestions for preventing the occurrence in operations, and for averting a fatal termination when it had partially taken place: for the former purpose he advised suppression of the respiration as much as possible, by bandaging the abdomen and thorax; and as remedies to be adopted on its occurrence, he recommended pressure on the principal veins leading from the wound, insufflation of the lungs, and stimulants to increase the heart's action.

TUESDAY.

Mr. CRONIN read a paper 'On the Statistical Results of Amputation.'—The peculiarities of about twenty cases, with the results and brief observations, were communicated from a Report drawn up in a tabular form. He said he brought the subject forward from the desire which now exists to have uniformity in the mode of keeping hospital reports, and the results of such reports, he believed, would be much more valuable, if exhibited in a uniformly constructed table: as a specimen of such a table he communicated the cases.

Dr. O'CONNOR detailed the particulars of a remarkable case, in which the hair was entirely lost from the effects of extreme terror; a healthy boy twelve years of age, awoke screaming from the vivid impression made on his mind by a dream, in which he thought he was about being murdered; the next day his hair began to fall off, and in a fortnight he was quite bald, and he continues so, though several years have elapsed. Dr. O'Connor observed, that although the opinion exists among physiologists, that depressing passions, such as grief or terror, may turn the hair grey, or cause it to fall off, yet well authenticated cases of such phenomena are very rare: for this reason he deemed it right to lay this case, which came under his own observation, before the Section.

Dr. BEVAN read a paper 'On the Tests for Arsenic,' in which he pointed out the difficulties and unsatisfactory results in the modes of detecting that poison hitherto used in medico-legal investigations; that of Marsh's test, he said, failed in giving a quantitative result. In conclusion, he proposed a new method of testing, which, he said, had the advantage of extreme simplicity in its manipulation, and certainty in its result. Into a narrow glass bottle he introduced dilute nitric acid (1 part acid to 4 of water) until it was half full; into this he introduced a thick copper rod, and on the surface of the acid he poured melted tallow, which, when concrete, formed a diaphragm between the immersed and free portions of the rod. On this diaphragm he poured the solution of arsenic, and within six hours metallic arsenic was deposited on the upper portion of the rod; this test will detect the $\frac{1}{100}$th of a grain. A zinc rod will render the result more rapidly.

Dr. WHERLAND detailed the particulars of a remarkable case of Midwifery, which was deemed by the Section perfectly unique, no similar one existing in the records of practice.

The SECRETARY read a Report by Mr. James Blake, 'On the Physiological Action of Medicines.'—This was an account of a very few experiments instituted by the author in the progress of his researches on the general subject of his inquiry. After alluding to his former publication on the effects of medicinal agents injected into the veins, he detailed a few experiments instituted to ascertain how far chemical substances introduced into the stomach became discoverable in the various tissues and structures, by their appropriate tests. In the first, he fed a rabbit for some time on food mixed with strontian, expecting that this substance might be discovered in the bones, where it would replace the lime; but he could not arrive at any satisfactory result, from the difficulty of separating the strontian from the lime in analysis. Acetate of lead was the next substance he experimented with. Two rabbits which had taken this substance with their food, died at different intervals, without any appreciable paralysis having taken place; on the most minute chemical investigations not a trace of the salt could be detected, even in the cerebral tissue; the mucous coat of the stomach was so altered in these experiments, that in separating the contents of that viscus, its internal lining was removed, appearing as a soft unorganised layer.