THE SCOTSMAN. TUESDAY,

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THE DUKE OF ARGYLL ON MR DARWIN'THEORY OF DEVELOPMENT.

Last night, the Duke of Argyll delivered the opening address of the session of the Royal Society of Edinburgh, in presence of a large audience of members and visitors. The principal subjects of His Grace's address were the idea of "creation by law," and the bearing which existing theories on the origin of species had upon our knowledge and conception. We give the portion of the address of greatest interest to the general reader, referring to recent theories of development, and especially to that of Mr Darwin.

The Duke of ARGYLL, after noticing the various Senses in which the word law might be used in connection with creation, said :- It is certain that nothing is known or has been even guessed at, in respect of the history or origin of life, which corresponds with law in its strictest and most definite sense. There is no knowledge of any one or more forces-such as the force of gravitation, or of magnetic attraction, or repulsion-to which any one of the phenomena of life could be traced. Far less have we any knowledge of any such laws which could be connected with the successive creation or development of new organisms. There is one idea which has been common to all theories of development, and that is the idea that ordinary generation has some-how been producing from time to time extraordinary effects, and that a new species is in fact simply an unusual birth. It is worthy of observation that the earlier forms, in which the theory of development appeared, did suggest something more nearly approaching to a law of creation than is contained in the later form which that theory has assumed in the hands of Mr Darwin. He looked upon the adaptation and arrangement of natural forces, which could compass these modifications of animal structure in exact proportion to the need of them, as an adaptation and arrangement which was in the nature of creation. It has not, I think, been sufficiently observed that the theory of Mr Darwin does not -address itself to the same question, and does not even profess to trace the origin of new forms to any definite law. His theory gives an explanation, not of the processes by which new forms first appear, but only of the processes by which, when they appeared, they acquire a preference over others, and thus become established in the world. A new species is, indeed, according to his theory, as well as with the older theories of development, simply

an unusual birth. The bond of connection between allied, specific, and generic forms is, in his view, simply the bond of inheritance. But Mr Daewin does not pretend to have discovered any law or rule according to which new forms have been born from old forms. He dees not hold that outward conditions, however changed, aresufficient to account for them. Still less does be connect them with the effort or aspiration of any organisation after new families and powers. He frankly confisees that "one ignorance of the laws of variation in profound," and says, that in speaking of variation is profound," and says, that in speaking of plainly our generance of the not only "in acknowledge of plainly our generance of the not only "in acknowledge of plainly our generance of the not only "in acknowledge of plainly our generance of the not only "in acknowledge of plainly our generance of the not only "in acknowledge of plainly our generance of the not only "in acknowledge of plainly our general His index general be far better than a mere theory—to be an established scientific trush—in so far as it accounts, in part, acknowledge of the sources, and establishment, and speed of new seasons with the plainly dependent of the plainly of the not of the n

employed by creative nower. The truth is that the theory which fixes upon inheritance as the came of creamic likeness starties as only when it is applied to forms in which unlikeness is the company of the product of the company of it is applied to focus in which unlikeness is the theory of the many of the ma a kind of difference between ourselves and the door animals, which is, n sober truth, unmesseurable in noise of the close affinities of bodily structure. But the closeness of these affitties is a lack. Mno, as Archbishop Whatuly has said, beddes being man, is also an animal. The fact which is has always appeared to me most difficult to disenges from the Cherry of development is the existence of radimentary or aborted organs—the existence of the common and the laws of the whale, teeth which hever not the gum, and which are entirely assessed to the animal. We have an inherent conviction that this must have some usen in her future, or it must have bed in the past. Whether we look at it in the hight story, or prefer to regard it in the light of prophecy, it points to the existence of some derivative form in which those took had not prophecy, it points to the existence of some derivative form in which those took had retructures can arise. In the inorganic world we know that not mere the control. in the only cause from which such structures can arise. In the inorganic world we know that not master similarity but sorted identity of form, as in crystals, is the result of laws which have nothing to do with the structure, but the forces whose nature is a congregate the particles of matter in identic shapes. It is impossible to say how far a similar unity of effect may have been impressed on the forces through which will organisations are first started on their way. There are some essential resemblances between all forms of life, which it is impressible even in imagination to cannot with community of blood by descent. For example, she bittered arrangement is common to all organisms down at least to the Radiasts. Again, the general mechanism by which food is in part assimilated and part rejected, is also common through a range of equal extent. There are fundamental minilarities of plan, depending probably on the very nature of forces of which we know ruthing, but which we have not the dightest reason to suppose are due to inherit

extent. There are fundamental similarities of obac depending probaby on the very sature of forces of which we know nothing, but which we have not the which we know nothing, but which we have not the which we have not the control of the propose are due to inheritance, of the case of the control of the cont

arrangement, and pliability to use, of physical laws. In like manner, "adherence to type" is the expression of a fact, or the statement of a purpose which, like all the other purposes fulfilled in nature, invites to an investigation of the instrumentality employed. We see the purpose, but we do not see the method. We see the purpose, but we do not see the method. We see the purpose, but we do not see the method. We see the purpose, for example, in the wonderful adaptability of the vertebrate type to the infinite variation of life to which it surpose, as an organ and a home. There is at least one conclusion which I hold to be certae, namely this state no theory in respect to the means and method employed in the work of oreation can have she eligible to continue the most of the continuents of the purpose of the continuents of the continuen for a coment on the light, small as it may be, which hysiology has east on the great mystery of life. We never see life separate from some meterial organisation. Yet what is the doctrine problemed? I believe—first by the great John Hunter, and now emphatically typested by men his Professor. Hurley and Dr Carpenter—it is that organisation is not the came of life, but life is the cause of organisation. Material organs are merely the special forms built up and fashioned by the vital forces—whatever these may he—for the discharge of special forces of large and the same of the his test are to be round in some of the lowest forms of life, revealed to us only by the microscope. Professor Hurley and Dr Carpenter but refer to the Foramicifers, in which the most beautiful and compleased forms of shell are evolved by the sital force working in greatures composed of simple jelly, without parts, without attractive, without organs of any kind. Thus, the deeper we go in science the more certain is becomes that all the realities of nature are in the region of the line is the composed of simple selly, without parts, without attractive, without organs of any kind. Thus, the deeper we go in science the more certain is becomes that all the realities of nature are in the region of the invisible; so that the saying is liferally troug, that the things which are seen are temporal, each is conjugated. These declarines some to me rather to bring into the strict domain of science ideas which, in the earlier stayes of human knowledge, lay are eteroid. Sursity, if this is materialism sprittailised. These dectrines some to me rather to bring into the strict domain of science ideas which, in the earlier stages of human knowledge, lay wholly within the region of faith or of belief. For example, the writer of the Episte to the Helbuwa specially declares that it is only by faith that we understand that "the things which do appear." Yet this is now one of the most assured doctrines of neismen, that invisible forces are above and behind all visible phenomena, moulding them in forms of infinite variety, of all which forms the only real knowledge we possess lies in our perseption of their beauty and their finness—in short, of their being all the work of "toll co-operant to an end." Creation by law meass nothing but creative force directed by creative knowledge weeked made the control of ovestive power, and in fulfilment of creative purpose.

purpose.

His Grace, at the close of his address, resumed his seat smid loud applause.

The Duke of ARETES said he had not had time to mepare the smul obstract motions of the Follows of the Society who had died during the past year, which he regretted the more as they find loud, among others, Mr Leonard Horner, Professor Pillans, Professor Miller,

and some others, whom he should gladly have noticed more at length. Professor Balfour, however, had kindly prepared notices, which perhaps might now be read.

Lord NEAVES then read the notices of the Fellows who had died during the year. Of foreign Honorary members the Society had lost one-Baron Plana, of Turin. On their home list they had to lament the loss of ten of their ordinary Fellows, namely-Leonard Horner, Professor Miller, Robert Morrison, Dr Newbigging, Professor Pillans, Dr Archibald Robertson, Dr Smyttan, Lieutenant-General Swinburne, Dr R. D. The whole number of Thomson, and Lord Wood.

The whole number of this Fellows of the Society at the commen. session was 279, a larger number than had their list for many years.

The Council of the Society reported that the Makdougall Brisbane Prize for the biennial period 1862-64 heen awarded to Mr John Denis Macdonald, R. N.,

F.R.S., surgeon to H.M.S. Icarus, for his zoological papers published in the Transactions of the Society

during that period.

On the motion of Principal FORBES, of St Andrews, on thanks was given to the Duke of Argyle for his interesting and able address, which was briefly acknowledged by his Grace.

Tea was then served to visitors and member in the

new Seath Room,