

the lower animals, will depend on our point of sight—whether that of mere anatomy and physiology, or that of psychology and pneumatology as well. This distinction is the more important, since, under the somewhat delusive term "biology," it has been customary to mix up all these considerations, while on the other hand those anatomists who regard all the functions of organic beings as merely mechanical and physical, do not scruple to employ this term biology for their science, though on their hypothesis there can be no such thing as life, and consequently the use of the word by them must be either superstitious or hypocritical.

Anatomically considered, man is an animal of the class *Mammalia*. In that class, notwithstanding the heroic efforts of some modern detractors from his dignity to place him with the monkeys in the order *Primates*, he undoubtedly belongs to a distinct order. I have elsewhere argued that if he were an extinct animal the study of the bones of his hand or of his head would suffice to convince any competent paleontologist that he represents a distinct order, as far apart from the highest apes as they are from the carnivora. That he belongs to a distinct family no one anatomist denies, and the same unanimity of course obtains as to his generic and specific distinctness. On the other hand, no zoological systematist now doubts that all the races of men are specifically identical. Thus we have the anatomical position of man firmly fixed in the system of nature, and he must be content to acknowledge his kinship not only with the higher animals nearest to him, but with the humblest animalcule. With all he shares a common material and many common features of structure.

When we ascend to the somewhat higher plane of physiology we find in a general way the same relationship to animals. Of the four grand leading functions of the animal, nutrition, reproduction, voluntary motion, and sensation, all are performed by man as by other animals. Here, however, there are some marked divergences connected with special anatomical structures on the one hand and with his higher endowments on the other. With regard to food, for example, man might be supposed to be limited by his masticatory and digestive apparatus to succulent vegetable substances. But by virtue of his inventive faculties he is practically unlimited, being able by artificial processes to adapt the whole range of vegetable and animal food substances to his use. He is very poorly furnished with natural tools to aid in procuring food, as claws, tusks, etc., but by invented implements he can practically surpass all other creatures. The long time of helplessness in infancy, while it is necessary for the development of his powers, is a practical disadvantage which leads to many social arrangements and contrivances specially characteristic of man. Man's sensory powers, while inferior in range to those of many other animals, are remarkable for balance and completeness, leading to perceptions of differences in colours, sounds, etc., which lie at the foundation of art. The specialization of the hand again connects itself with contrivances which render an animal naturally defenceless the most formidable of all, and an animal naturally gifted with indifferent locomotive powers able to outstrip all others in speed and range of locomotion. Thus the physiological endowments of man, while common to him with other animals, and in some respects inferior to theirs, present in combination with his higher powers points of difference which lead to the most special and unexpected results.

In his psychical relations, using this term in its narrower sense, we may see still greater divergences from the line of the lower animals. These may no doubt be connected with his greater volume of brain; but recent researches seem to show that man has more to do with motory and sensory powers than with those that are intellectual, and thus that a higher brain is only indirectly connected with higher mental manifestations. Even in the lower animals it is clear that the ferocity of the tiger, the constructive instinct of the beaver and the sagacity of the elephant depend on psychical powers which are beyond the reach of the anatomist's knife, and this is still more markedly the case in man. Following in part the ingenious analysis of Mivart, we may regard the psychical powers of man as reflex, instinctive, emotional and intellectual; and in each of these aspects we shall find points of resemblance to other animals, and of divergence from them. In regard to reflex actions, or those which are merely automatic, inasmuch as they are intended to provide for certain important functions

without thought or volition, their development is naturally in the inverse ratio of psychical elevation, and man is consequently in this respect in no way superior to lower animals. The same may be said with reference to instinctive powers, which provide often for complex actions in a spontaneous and unreasoning manner. In these also man is rather deficient than otherwise; and since from their nature they limit their possessors to narrow ranges of activity, and fix them within a definite scope of experience and efficiency, they would be incompatible with those higher and more versatile inventive powers which man possesses. The comb-building instinct of the bee, the nest-weaving instinct of the bird, are fixed and invariable things, obviously incompatible with the varied contrivance of man, and while instinct is perfect within its narrow range it cannot rise beyond this into the sphere of unlimited thought and contrivance. Higher than mere instinct are the powers of imagination, memory and association, and here man at once steps beyond his animal associates, and develops these in such a variety of ways that even the rudest tribes of men, who often appear to trust more to these endowments than to higher powers, rise into a plane immeasurably above that of the highest and most intelligent brutes, and towards which they are unable, except to a very limited degree, to raise those of the more domesticable animals which they endeavour to train into companionship with themselves. It is, however, in these domesticated animals that we find the highest degree of approximation to ourselves in emotional development, and this is perhaps one of the points that fits them for such human association. In approaching the higher psychical endowments the affinity of man and the brute appears to diminish and at length to cease, and it is left to him alone to rise into the domain of the rational and ethical.

Those supreme endowments of man we may, following the nomenclature of ancient philosophy and of our Sacred Scriptures, call "pneumatical" or spiritual. They consist of consciousness, reason and moral volition. That man possesses these powers every one knows; that they exist or can be developed in lower animals no one has succeeded in proving. Here at length we have a severance between man and material nature. Yet it does not divorce him from the unity of nature, except on the principles of atheism. For if it separates him from animals it allies him with the Power who made and planned the animals. To the naturalist the fact that such capacities exist in a being who in his anatomical structure so closely resembles the lower animals, constitutes an evidence of the independent existence of those powers and of their spiritual character and relation to a higher power which, I think, no metaphysical reasoning or materialistic scepticism will suffice to invalidate. It would be presumption, however, from the standpoint of the naturalist to discuss at length the power of man's spiritual being. I may refer merely to a few points which illustrate at once his connection with other creatures, and his superiority to them as a higher member of nature.

At first we may notice those axiomatic beliefs which lie at the foundation of human reasoning, and which, while apparently in harmony with nature, do not admit of verification except by an experience impossible to finite beings. Whether these are ultimate truths or merely results of the constitution bestowed on us or effects of the direct action of the creative mind on ours, they are to us like the instincts of animals—infallible and unchanging. Yet just as the instincts of animals unfailingly connect them with their surroundings, our intuitive beliefs fit us for understanding nature and for existing in it as our environment. These beliefs also serve to connect man with his fellow-man, and in this aspect we may associate with them those universal ideas of right and wrong, of immortality, and of powers above ourselves, which pervade humanity.

Another phase of this spiritual constitution is illustrated by the ways in which man, starting from powers and contrivances common to him and animals, develops them into new and higher uses and results. This is markedly seen in the gift of speech. Man, like other animals, has certain natural utterances expressive of emotions or feelings. He can also, like some of them, imitate the sounds produced by animate or inanimate objects. But when he develops these gifts into a system of speech expressing not mere sounds occurring in nature, but by association and analogy with these properties and relations of objects and

general and abstract ideas, he rises into the higher sphere of the spiritual. He thus elevates a power of utterance common to him with animals to a higher plane, and connecting it with his capacity for understanding nature and arriving at general truths, asserts his kinship to the great creative mind and furnishes a link of connection between the material universe and the spiritual creator.

The manner of existence of man in nature is as well illustrated by his arts and inventions as by anything else; and these serve also to enlighten us as to the distinction between the natural and the artificial. Naturalists often represent man as dependent on nature for the first hints of his useful arts. There are in animal nature tailors, weavers, masons, potters, carpenters, miners, and sailors independently of man, and many of the tools, implements, and machines which he is said to have invented were perfected in the structures of lower animals long before he came into existence. In all these things man has been an assiduous learner from nature, though in some of them, as for example in the art of aerial navigation, he has striven in vain to imitate the powers possessed by other animals. But it may well be doubted whether man is in this respect so much an imitator as has been supposed, and whether the resemblance of his plans to those previously realized in nature does not depend on that general fitness of things which suggests to rational minds similar means to secure similar ends. But in saying this we in effect say that man is not only a part of nature, but that his mind is in harmony with the plans of nature, or, in other words, with the methods of the creative mind. Man is also curiously in harmony with external nature in the combination in his works of the ideas of plan and adaptation, of ornament and use. In architecture, for example, devising certain styles or orders, and these for the most part based on imitations of natural things, he adapts these to his ends just as in nature types of structure are adapted to a great variety of uses, and he strives to combine, as in nature, perfect adaptation to use with conformity to type or style. So in his attempts at ornament he copies natural forms, and uses these forms to decorate or conceal parts intended to serve essential purposes in the structure. This is at least the case in the purer styles of construction. It is in the more debased styles, that arches, columns, triglyphs, or buttresses are placed where they can serve no useful purpose, and become mere excrescences. But in this case the abnormality resulting breeds in the beholder an unpleasant mental confusion, and causes him, even when he is unable to trace his feelings to their source, to be dissatisfied with the result. Thus man is in harmony with that arrangement of nature which causes every ornamental part to serve some use, and which unites adaptation with plan.

(To be continued.)

ECHOES FROM THE OCCIDENT.

BY J. S.

And so the Sunday newspaper has reached Toronto—that model Sabbath-keeping city! It is very refreshing, however, to note the decisive measures which have been taken to nip it in the bud, and the adverse comments which have appeared in the public press on this attempted inroad upon the sanctity of the Sabbath. Your readers may not be aware that in this Province we have two Sunday newspapers published in Victoria; and a few weeks ago a similar sheet was started here; but to-day its death is announced and there will be very little mourning.

Public sentiment regarding Sabbath observance is by no means as sensitive in the West as in the East. We have no clearly-defined "Lord's Day Act," and, consequently, the day is desecrated with impunity. Men may be seen almost any Sabbath, clearing land, hunting, fishing, buying and selling liquor, and even dry goods and groceries.

All that could be secured from our City Council, a few weeks ago, was a by-law to close all bar-rooms from nine o'clock a.m. to one p.m., and from six p.m. to nine p.m. on Sabbath. Just think of opening a place to sell liquor at nine p.m. on Sunday evening.

We have had one Sunday excursion already this year under the auspices of the Licensed Victuallers and there is a prospect of others. The respectable class of our citizens, I am glad to say, have no sympathy with such things.