

dered, and he was entirely alone with Wylie, he had been two months and five days, and had come between five and six hundred miles. The distance passed over, without finding one drop of surface water, was seven hundred miles, the distance from London to Vienna. He

returned to Adelaide, and met with the welcome he deserved, and so the great adventure came to an end. That dreadful band of country has never been invaded since, and Baxter's bones still lie out on the desolate down, bleaching in the winds.

THE HUMAN BRAIN.

BY H. CHARLTON BASTIAN, M.B., F.L.S.

THE opinions that have been expressed as to the time at which the brain in man arrives at maturity or attains its maximum size have been very various. The English anatomists have been the most zealous in working out this question. They have weighed the organ in some thousands of cases, including persons of all ages; and the results of their investigations go to prove that, as a rule, the brain continues to increase in weight till about the twentieth year, although more rapidly in the earlier half of this period than in the later; that from about the twentieth to the fortieth year it retains its maximum size, and is subject only to almost imperceptible variations; whilst after this latter period a slow and gradual decrease takes place through the closing decades of life. The average weight of the female brain is about five ounces less than that of the male, that of the latter being about forty-nine ounces, and that of the former about forty-four ounces avoirdupois. This weight of the brain in man is found to be *absolutely* greater than that of the same organ in any of the lower animals, with the exceptions of the elephant and the whale. At one time it was imagined that the *relative* weight of the brain as compared with the total weight of the body was greater in man than in any of the animals; but although this is generally the case, yet there are notable exceptions to the rule. In man, it is true, the proportion varies immensely at different periods of life, and with different states

of obesity, and the proportionate weight of the brain to that of the body is greater at birth than at any subsequent period of life, the ratio at this time being about 1 to 6; whilst that of adult life may be considered as 1 to 36. Comparing the ratio of adult life, however, with that met with in the lower animals, we find that in certain of the smaller birds, a few rodentia, and some of the smaller American monkeys, the proportionate weight of the brain is greater than it is in man.

There has been a much-debated question as to the bearing of the size of the brain in different individuals upon the excellence of the intellectual faculties. One thing, however, seems to be pretty clearly proved from the observations of M. Lelut and others; and that is that, when the brain does not exceed about 32 oz. in weight, it is invariably accompanied either by idiocy or some degree of mental imbecility. The lightest human brains on record have been examined and described by Professor Marshall. The one, that of an idiot boy, weighed only 8½ oz.; whilst of the other, from an idiot woman, the weight scarcely exceeded 10 oz. Many conflicting statements have been made concerning the weight of the brain in different distinguished individuals. Thus the brain of Lord Byron has been said by Wagner and many others to have considerably exceeded the average; but there is reason to believe that the estimation of its weight was not free from errors. Certainly his skull was small, as it is a

notorious fact that few of his friends could succeed in getting their heads into his hat. The brain of Baron Cuvier is about the heaviest yet on record; it is said to have weighed 64 oz. The brain of Schiller was examined by Carus, the celebrated German anatomist, and said not to have exceeded the average weight. Descartes, Raphael, and Voltaire are said to have had small heads, whilst that of Napoleon only slightly exceeded the mean dimensions. Statements concerning the size of the head, however, are of little value unless actual measurements have been made; as, where an ocular examination only has been resorted to, the observer is so liable to be misled by the different proportions between the development of the face and the cranium proper. Thus Montaigne, Leibnitz, Haller, Mirabeau, and other distinguished men have been known to have had both large faces and large brains, whilst in Bossuet and Kant, on the contrary, though the faces were small, the brains were large. When we take into account, however, the fact that in many persons whose intellectual capabilities are far below the mean the brain is frequently found to exceed the average weight by several ounces, we can easily understand that something besides mere weight of brain is necessary to ensure mental superiority. Thus, a short time since, we found the brain to weigh 55 oz. in an imbecile man of about the middle age, whose intellectual defect was congenital. He never conversed with others, spoke with hesitation when giving his monosyllabic answers to the simplest questions, had a very deficient memory, and seemed to have little notion of the lapse of time.

It has already been stated that the average weight of the brain in women is less than it is in men, and an examination of the capacity of the skull in the two sexes is also confirmatory of this result. But the German anatomists have gone still further, and Professor Vogt, speaking on this subject, says:—“The type of the female skull approaches, in many respects, that of the infant, and in a still greater degree

“that of the lower races; and with this is connected the remarkable circumstance, that the difference between the sexes as regards the cranial cavity increases with the development of the race, so that the male European excels much more the female than the negro the negress.” The observations bearing upon this do not seem to be sufficiently numerous to enable us to receive it as an accepted fact. Were it so, it would certainly be most interesting evidence as to the effects of civilization as a modifying influence upon the human organism, and the manner in which higher types and races may be evolved out of those of an inferior grade; for, as Professor Vogt says, “the lower the state of culture, the more similar are the occupations of the two sexes. Among the Australians, the Bushmen, and other low races, possessing no fixed habitations, the wife partakes of all her husband’s toils, and has, in addition, the care of the progeny. The sphere of occupation is the same for both sexes; whilst among the civilized nations there is a division both in physical and mental labour. If it be true that every organ is strengthened by exercise, increasing in size and weight, it must equally apply to the brain, which must become more developed by proper mental exercise.” If this be the effect of civilization, then may we not look forward to a time when a later and more perfect type of progress shall again tend to restore the balance, by calling more into play, and giving a wider sphere for the activity and culture of woman’s intellectual nature? This supposition, as to the influence of the habits of individuals, and of the progress of civilization, in increasing the capacity of the skull, and, as a necessary consequence, the size and weight of the brain, seems also to be confirmed by the observations of Broca. He availed himself of the opportunity of examining a number of skulls from certain vaults and cemeteries in Paris. A certain number of skulls were taken from a common pit in which paupers were buried, and

others belonging to the same epoch from private graves, which may fairly be supposed to have been occupied by people of the more educated classes, and a striking difference was observed in the average cranial capacity obtained from an examination of the two series. The measurements, also, of a series of skulls of persons buried in the twelfth century, when compared with those derived from another series of skulls belonging to persons of the nineteenth century, seemed to show that the cranium of the Parisian population has in the course of centuries gained in capacity. The data from which these conclusions were derived were not very numerous, so that, however interesting the facts may be, it would be desirable that they should be confirmed by subsequent investigations before we can look upon them as established truths.

Let us now turn our attention to the convolutions of the cerebrum. The importance of attention to these is very great, since their principal office seems to be to increase in any given brain the amount of surface over which the "grey matter" of the brain can be extended. Now, seeing that this "grey matter" is supposed to be connected intimately with the manifestation of the intellectual faculties, the first impression would be, that the superiority of these might be in direct proportion to the complexity of the convolutions. This view requires some limitations, however, since, in animals belonging to the same group, their intricacy and development appears to increase with the size of the body, though it could scarcely be maintained that the development of the intellectual faculties obeyed the same law. This difficulty has been met by M. Baillarger. He called attention to the fact that, "on comparing two bodies of similar form, but of different size, their respective volumes vary as the cubes of their diameters, whilst the proportion of the surfaces is as the square of the diameters, or, in other words, the volume of a body increases more rapidly than the surface." From this it will

be evident that, of two animals of different sizes belonging to the same order, the brain of the larger, in order to present the same proportionate amount of surface for the distribution of its grey matter, must have its convolutions or surface folds more developed, if the same ratio is to be preserved between the relative amounts of grey and white matter in the brains of the two animals. Thus, in comparing the development of the convolutions, allowance must always be made for any differences in size that may exist between the brains examined.

Throughout the classes of fishes, reptiles, and birds, the comparatively small cerebral hemispheres are smooth and devoid of convolutions, and only a trace of one principal fissure even is to be met with amongst some of the smaller mammalia, such as the bat and the mole. Their complexity varies much in the different families of mammalia, though it has been shown by M. Leuret that each family has more or less its own distinctive type. Hence arises a most interesting question: Can the physical constitution of man, so far as his brain is concerned, be at all assimilated to the type of the lower animals, or is he immeasurably separated from them in this respect by a gulf as broad as that which sunders his intellectual and moral nature from theirs? In reply, let us see what Professor Huxley says upon the subject, since his opinions on this point coincide with those of almost all the distinguished naturalists who have studied the question. He remarks:—
"As to the convolutions, the brains of the apes exhibit every stage of progress, from the almost smooth brain of the Marmoset to the Orang and the Chimpanzee, which fall but little below Man. And it is most remarkable that, as soon as all the principal sulci appear, the pattern according to which they are arranged is identical with that of the corresponding sulci of man. The surface of the brain of a monkey exhibits a sort of a skeleton map of man's, and in the man-like apes the details become more and more filled in, until it is only in minor

“characters, such as the greater excavation of the anterior lobes, the constant presence of fissures usually absent in man, and the different disposition and proportions of some convolutions, that the Chimpanzee’s or the Orang’s brain can be structurally distinguished from Man’s.” In connexion with this identity in the type of the convolutions in man and the higher apes, it is well to bear in mind the great difference existing in the size of their brains. For notwithstanding the considerably greater bulk and weight of the Gorilla, the largest brain of this animal yet weighed has not exceeded 20 oz., whilst, as we have before stated, the European human brain cannot possibly perform its normal functions if its weight be less than about 32 oz. ; below this we meet only with idiotcy and mental imbecility.

A very great difference exists even amongst Europeans as to the degree of the complexity of the convolutions in different individuals, and what is now wanted is an accurate examination of their arrangement in the different tribes constituting the human family. An examination of this kind was made by Gratiolet of the brain of the celebrated Hottentot Venus, and quite recently, in a most valuable memoir, Professor Marshall has given us the results of his examination of the brain of a Bushwoman, accurately comparing the various points in its anatomy with that of the average European brain, and with the brain of the Chimpanzee. After a detailed examination of the convolutions he says : “Compared with the same parts in the ordinary European brain, they are smaller, and in all cases so much less complicated as to be far more easily recognised and distinguished amongst each other. This comparative simplicity of the Bushwoman’s brain is of course an indication of structural inferiority, and indeed renders it a useful aid in the study of the more complex European form.” Compared with the brain of the Hottentot Venus as represented by Gratiolet, that of the Bushwoman presented a remarkable similarity, which is all the more interest-

ing from the fact that the former was believed by G. Cuvier to have been a Bushwoman of small stature, so that, as Professor Marshall says, “their common inferiority to the European brain may justify the expectation that future inquiries will show characteristic peculiarities *in degree* of convolutional development in the different leading races of mankind.” Although, as regards size—its weight being about 31·5 oz. or slightly less than the lowest healthy European female brain—and the low development of its convolutions, there is an evident leaning with this brain of the Bushwoman, as well as with that of the Hottentot Venus, towards the higher quadrumanous forms; yet still the sum of their convolutional characters indicates a greater difference between them and the highest ape’s brain yet described, than between them and the European brain. It is, however, a matter of absolute certainty that there is less difference in convolutional development between their brains and that of the “highest ape, than between the latter and the lowest quadrumanous animal.” Much has been said concerning the actual differences existing between the convolutions in man and the higher apes, and attempts have been made to find well-marked lines of demarcation between them. Such attempts have, however, not been crowned by any very definite results, since the differences met with are variations in degree, and not of kind. The type in both being identical, in addition to the less complex development of the convolutions in the higher apes, certain fissures are more apparent in them, separating some of the lobes, whilst in man the most notable divergence is to be seen in the specially increased complexity of the frontal convolutions, the size of the so-called “supramarginal lobule,” formed by the extreme development on each side of a convolution of the median or parietal lobe ; and the greatly increased development of certain connecting convolutions of the posterior lobes which serve to unite these with those of the parietal region. These connecting convolutions, or “*plis de*

passage" of Gratiolet, have attracted much attention, and their vastly increased development is certainly a most characteristic point in the anatomy of the European human brain. The interesting fact has been revealed by Marshall that in the brain of the Bushwoman these "connecting convolutions are, in comparison with those of the European brain, still more remarkably defective than the primary convolutions." In man it is the development of the connecting convolutions that obliterates the fissure bounding the occipital lobe, which we have already alluded to as being more easily seen in the higher apes. But besides size there is a still further difference with regard to these interesting convolutions. In man they are quite superficial, whilst in nearly all the apes they are more or less covered by a sort of operculum or projection forwards of a development from each of the posterior lobes. For a time this absolutely superficial position of the "plis de passage" was maintained by Gratiolet to be the peculiarity distinguishing the brain of man from those of the higher apes. According to Marshall, however, one of the most essentially human characters in the brain of man is the want of symmetry in the arrangement of its primary fissures and convolutions on the two hemispheres. This asymmetrical condition was well marked in the brains of the Bushwoman and the Hottentot Venus, though even in the brains of the highest apes the departure from absolute symmetry of these parts on the two sides is so slight as to be almost imperceptible.

Other considerations to which I will now allude make this asymmetrical arrangement of the convolutions on the two hemispheres of the human brain a matter of extreme interest. Some years ago it was first pointed out by Dr. Boyd, as a result of his most extensive investigation into the weight of the brain and its component parts, that he almost invariably found the left cerebral hemisphere heavier by nearly one-eighth of an ounce than that of the right side.

We have ourselves also recently been investigating the specific gravity of the different parts of the human brain, and have obtained some curious and interesting results from an examination of the convolutional grey matter of the cerebrum. For, in addition to the fact that different specific gravities are met with in the same brain of grey matter from the frontal, parietal, and occipital convolutions respectively (the nature of these variations being pretty constant when different brains are examined) we have very frequently found differences on the two sides of the brain, and moreover that the *average* specific gravity for grey matter from each of these three regions is about two degrees higher on the left than it is on the corresponding part of the right hemisphere. Although the average numbers are higher, however, on the left than on the right side, it is by no means always so in every brain, or, when it does occur, in all three regions of the same brain. This difference seems to be met with more frequently in the grey matter from the parietal convolutions than in that from the frontal or occipital regions. Very rarely indeed has an excess of density been met with on the right side. At all events it is an interesting fact that the specific gravity of the grey matter is not the same over the whole surface of the cerebrum, and that, just as it is specialized by its localization in certain convolutions, so do we find a further specialization of structure as indicated by differences in its specific gravity. For may not these changes be in some way indicative of different functions appertaining to the several convolutions? The average increase of specific gravity of the grey matter of the left hemisphere may perhaps partly afford an explanation of the absolutely greater weight of this half of the cerebrum as ascertained by Dr. Boyd, though perhaps it may also be in part accounted for by the fact that, of the two asymmetrical hemispheres, a very slight excess of convolutional complexity is most frequently met on that of the left side. May not the greater use also of the right side of the body have something to do

with the increased weight of the left hemisphere?

In connexion with this structural difference of the two hemispheres, it may be interesting to allude to certain theories which have been advocated concerning the functions of the cerebrum. Some years ago the theory was advanced by M. Paul Broca, that the portion of brain concerned with the faculty of language was the anterior lobe of the left hemisphere; and he even went farther, since he attempted to localize it more specially in the third left frontal convolution. Dr. Hughlings Jackson, in this country, was also led independently to believe that impairment, not of the powers of articulation only, but of the command of language of any kind as a mechanism for the communication of ideas, was especially connected with lesions of the left anterior lobe, and paralysis of the right side of the body. He was led to this conclusion by observing that almost invariably, when paralysis of the body was associated with this impairment of the faculty of language, the injury to the brain was found to be in the left hemisphere, whilst, on the other hand, lesions of the right hemisphere and left paralysis were not usually associated with any such impairment. Exceptions have, however, been met with to this rule; but, even should it prove that future observations will confirm the fact that in the majority of cases these different effects result from injuries to one or other side of the brain, we should still have an enigma of a most puzzling nature to resolve. But we may well hesitate to accept the belief that any such faculty as that of language could be restricted to a portion of one hemisphere only, unless it were proved by the accumulation of evidence of the most indisputable character. For is it possible to look upon the operation of the mind when engaged in referring known objects or ideas to certain special and conventional attributes, such as names really are, as anything different from an ordinary process of reasoning? But, if this be the correct view to take of the nature

of naming and language considered as intellectual operations, it seems to us that, in order to retain the theory of Broca, it would be necessary to prove that either our general power of reasoning, or else the faculty of memory, was essentially connected with the anterior lobe of the left hemisphere! What evidence we possess bearing upon the subject seems rather to show that, notwithstanding the double nature and somewhat asymmetrical condition of the two hemispheres of the cerebrum, there must be a pretty close correspondence in function between similar parts on the two sides. It is true, indeed, that as regards the lower functions of sensation and power over locomotory acts, the brain is essentially a double organ, each hemisphere in these respects ministering to the sensations and powers of movement of the opposite half of the body; and from this analogy it has also been attempted by many to show that this duplex condition of the brain as an organ is associated with a certain duality of mind or consciousness. Such a theory of the "Duality of Mind," has been most fully expounded by Dr. Wigan, who believed that a separate train of reasoning could be conducted by each hemisphere separately. This is, however, a matter of pure theory, and the facts cited are almost equally explicable from a consideration of the extreme rapidity of all mental operations, and the supposition that in cases of apparent duality a rapid alternation of consciousness takes place. However this may be, it is, indeed, a remarkable fact that pretty well authenticated cases have been recorded, in which, with extreme disease and destruction of tissue, confined to one-half of the cerebrum, all the mental faculties have appeared intact. A general diminution of the mental power has been observed, but no aberration of special faculties. This would, of course, point to the belief that the functions of the corresponding parts of the two halves of the cerebrum are identical.

But let us turn from these speculations as to the functional relation existing between the two halves of the

cerebrum, to the equally interesting inquiry concerning the functions of their component lobes. Are we to admit the broad phrenological doctrine, that the anterior lobes are connected with the operation of the more strictly intellectual faculties, whilst the posterior are principally concerned with the propensities? Can we in fact say which lobes may be considered to be chiefly concerned with the highest faculties, and which are therefore most characteristic of man?

It is a fact well known to comparative anatomists that the brain in many fishes is made up of three pairs of ganglia in longitudinal series, followed by a single median portion representing the cerebellum, which lies on the medulla oblongata, or continuation of the spinal cord. Of these three pairs of ganglia the most anterior, or olfactory, are almost invariably the smallest, whilst the posterior, answering to certain portions of the so-called *central ganglia* in man, are usually notably larger than the median pair. This median pair is, however, the one to which we wish particularly to call attention, since, in addition to the most anterior of the central ganglia in man, of which its two halves are partly composed, these are the only representatives of those cerebral hemispheres which in him attain such an enormous development. It can be shown, moreover, that these rudiments of the cerebrum must not be considered as the foreshadowings of the entire organ, but that they must, on the contrary, be regarded as answering to the *anterior lobes* of the cerebral hemispheres only. The increasing complexity of brain met with in ascending through the series of vertebrated animals, speaking generally, may be said to be especially due, partly to a diminution in the size of the olfactory lobes, though more particularly to the progressively increasing size of the cerebral hemispheres, and the degree of their backward extension, at first over the posterior pair of ganglia, and lastly over the cerebellum itself. Throughout the classes of fishes, amphibia, reptiles, and birds, though the cerebral ganglia go on increasing in size, still they are the repre-

sentatives only of the anterior lobes. In the lower mammalia the middle lobes first make their appearance, and then gradually increase in size, till at last, in the higher forms, the first rudiments of the posterior lobes appear. If we inquire as to the method of development of the brain in the human embryo, we find that here also the same order is observed. The first traces of the cerebral hemispheres are evidently rudiments only of the anterior lobes, enclosing the anterior pair of central ganglia, as in fishes: at progressively later periods these increase in size and extend backwards, covering successively the posterior ganglia and the cerebellum, by the development and growth from the original portions, first of the middle and then of the posterior lobes. The backward development of the hemispheres, and the extent to which they cover the cerebellum, have, indeed, by some anatomists been considered as a rough guide to the degree of development of the intellectual faculties of the animal. The possession, indeed, of posterior lobes overlapping the cerebellum, with structures contained in them, has been considered a matter of so much importance, that one celebrated anatomist in this country sought to make it the fundamental distinction differentiating man from the higher apes; and on this account to place him in the zoological scale alone, in a distinct subclass of the mammalia. These statements, in the face of such abundant evidence to the contrary, naturally met with the most strenuous opposition from other anatomists. We will not recapitulate points of a controversy, which it would be better rather to bury in oblivion, but will quote from Professor Huxley statements concerning the cerebral lobes in the quadrumana, which have received the acceptance of fellow-workers in the same subject. He says:—"It is a remarkable circumstance, that though, so far as our present knowledge extends, there is one true structural break in the series of forms of simian brains, this hiatus does not lie between man and the man-like apes, but between the lower and the lowest

“ Simians ; or, in other words, between
 “ the old and new-world apes and
 “ monkeys, and the lemurs. Every
 “ lemur which has yet been examined,
 “ in fact, has its cerebellum partially
 “ visible from above, and its posterior
 “ lobe, with the contained posterior
 “ cornu and hippocampus minor, more
 “ or less rudimentary. Every marmoset,
 “ American monkey, baboon, or man-
 “ like ape, on the contrary, has its cere-
 “ bellum entirely hidden, posteriorly, by
 “ the cerebral lobes, and possesses a large
 “ posterior cornu, with a well developed
 “ hippocampus minor.”

In connexion with these facts concerning the development of the cerebrum in the vertebrate series, and in the human embryo, let us call to our recollection the convolitional differences stated to obtain between man and the apes, and the greatly-increased development in him of the transition convolutions of the posterior lobes and the “supra-marginal lobule” adjacent to them. These facts surely are sufficient to make us direct our inquiries with increased interest towards all details bearing upon the growth and anatomy of the *posterior* parts of the brain ; since in them do we find most of those cerebral differences which serve to distinguish man from the lower animals. Of especial interest, therefore, are Professor Marshall’s observations upon the occipital convolutions of a brain belonging to an individual of so low a race as that of the Bushwoman, when he states as follows :—
 “ The three rows of *occipital convolutions*,
 “ which in quadrumanous brains of
 “ moderate complexity are simple and
 “ easily distinguishable, but which in
 “ the anthropoid apes assume a puzzling
 “ complexity, become, as is well known,
 “ in the human brain so highly compli-
 “ cated and involved with the external
 “ connecting convolutions that a detailed
 “ description of them is almost impos-
 “ sible. Considered generally, they are
 “ remarkably defective in total depth
 “ and in individual complexity in the
 “ Bushwoman’s brain. The vertical
 “ depth of the three rows and of their
 “ connecting convolutions in the Euro-

“ pean brain is 2·75 inches ; in the
 “ Hottentot Venus brain 2·25 inches ;
 “ in the Bushwoman only 2 inches.
 “ This deficiency affects all three rows
 “ of occipital convolutions, but is espe-
 “ cially noticeable in the inferior row,
 “ along the lower border and extreme
 “ point of the occipital lobe. This is, per-
 “ haps, the most defective region of the
 “ Bushwoman’s cerebrum.” It has also
 been mentioned before that in this brain
 the highly-important external connecting
 folds or “*plis de passage*” were, “in
 comparison with those of the European
 brain, still more remarkably defective
 than the primary convolutions.”

Can we maintain, after evidence such as we have just detailed, that the anterior lobes of the cerebrum in man are the parts most likely to be concerned in those higher intellectual operations by the excellence of which he is so very far removed from the highest quadrumana ? Does not the developmental history of the cerebrum point rather to the inference that, so far as *any* localization of faculties is possible, we should be led to expect that the anterior lobes, in harmony with their early appearance in the vertebrate series, would be more intimately concerned with the intellectual faculties or feelings of a lower type, such as we might expect to find in every vertebrate animals, be it fish, reptile, bird, or mammal ; that the middle lobes, appearing for the first time in the lower mammalia, would deal with intellectual operations of a more complex kind ; whilst, finally, the posterior lobes appearing only in the highest mammals, and whose development culminates so significantly in man, should rather be looked upon as the organs destined to take the most active part in those highest and most subtle intellectual operations which are his proud prerogatives ? Of course, we can quite imagine that the increased development of the cerebrum in the vertebrate series would produce continual specializations of function, and that, as a consequence, there would be an increased necessity for maintaining a thorough interdependence and connexion between these faculties, tending to blend

them more closely and inextricably together into that meshwork of relations of which our psychical nature is known to consist. Such being the case, it would seem almost as impossible to have any minute localization of independent faculties as it would be difficult to portion out our psychical nature into any great number of operations radically

different from one another. Still, broad groups of functions may be more intimately connected with particular lobes; and, if such be the case, then we believe the evidence in our possession points to the posterior rather than the anterior lobes of the cerebrum as those concerned more especially with the highest intellectual operations.

ESSAYS AT ODD TIMES.

X. OF THE IDEA OF MODERN ART.

SOUTHEY, in one of his letters, I think, tells us that, when on a journey, he was in the habit of carrying with him some small book that would go into his pocket, such for instance as Erasmus's Colloquies—a book at any rate that was packed as full as the traveller's carpet-bag with thoughts which might serve as texts for his mind to dwell upon, and, it may be, built up into independent discourses. And I suppose that, with the exception of fiction, which has its use in cheating men of their petty griefs, every book is only useful in so far forth as it ministers to thought and reflection in the reader, as it supplies him with texts for sermons of his own.

And assuredly the mere act of travelling stimulates the thinking faculty in a wonderful manner. I suppose physiologists account for it by saying that there is an increased determination of blood to the brain. However this may be, only let us place our thinker in an express train, to traverse a country with which he is unacquainted, so that there may be a few surprises, or gentle stimulants to the mind *in transitu*, and we may depend upon it that more and grander thoughts will pass through the coiled chambers of his brain than we shall ever get from him, I fear, on paper. Dr. Johnson's ideal of earthly felicity was, I believe, to be travelling at a rapid rate in a postchaise, with a pretty woman for a companion. Personally I would rather dispense with the pretty woman

(except, of course, it be one's wife); but the rapid travelling through a country one does not know by heart is undoubtedly most pleasurable and stimulating; giving one glimpses of bits of country scenery and country life, which, in the momentary glance, *frame themselves* into most perfect pictures; quickening the brain to think or dream, as it will; giving it every moment fresh food for thought, or fresh material out of which to build the fabric of the pleasantest day-dreams.

Following Southey's advice, then, I took with me as travelling companion on a journey the other day a book of Essays lately published. In this book I chanced upon the following passage, which will supply me, I think, with sufficient material for an Essay of my own. The writer is arguing that special faculties which have been cultivated in this world will probably find no scope for their employment in another. What employment, he says, will the orator, for instance, find in a world where there is no wrong to be attacked, and no right has to be defended? And he adds, "Do the followers of Art arrogate better right of perpetuated exercise to their special talents; or may we not rather doubt if an immortal being, removed from the sphere of academies and galleries, exhibitions and patrons, would even desire to go on through eternity sculpturing and painting?"

Now this remark trenches upon a subject which has often puzzled the present writer; and which, as an Essay