John Galsworthy Esq
with the Author's
Compliments.
21 April 1916.
G. F. C.

The Riddle of the Sphinx

Sherratt & Hughes
printers
London and Manchester

THE RIDDLE OF THE SPHINX

OR

FUN IN PHILOSOPHY.

AN ESSAY

BY

GEORGE G. CAMPION

Containing
A new Presentation
of the
Representative Theory of Thought.

Q. "What *is* Education?"

STANLEY LEATHES.

A. "The Riddle of the Sphinx!"

MICHAEL E. SADLER.

"If Education is the clue to the future it is also the Riddle of the Sphinx."

Times Educational Supplement, 2 Dec., 1913.

FOR PRIVATE CIRCULATION

CONTENTS.

INTRODUCTION.

For over twenty years the writer has studied, as an amateur, the subject of education and read during this time much of the work of Pestalozzi, Froebel, Spencer, Herbart, Newman, James, and many books, reports and papers of later date. During these years it has been one of his constant aims to search for and learn a real psychological definition of the word—a definition which should be at once brief and comprehensive, and yet sufficiently definite and concrete to be a really practical guide to every teacher. Not succeeding during many years in finding what he wanted he has been driven to try and gradually formulate for himself what he seemed to be in need of. The following pages may bring to the mind of the reader something of his thoughts on the subject—thoughts spread over many years and summarised in a single sentence. This sentence is also the growth of many years, built up slowly and laboriously, little by little, bit by bit, with a hint from here, an idea from there, until it now seems to have assumed something at any rate of the shape that he has been in search of for so long.

Incidentally the work has led to the formation of what at the moment seems to the writer a more or less coherent theory of the way in which the conceptual or cognitive dispositions of the mind become gradually organised as the result of that part of experience which is acquired through the medium of sense-perception.

At a time when the issue of printed matter is so great and when some authors are in the habit of putting two or three volumes into circulation a year,

it may perhaps be considered something of a virtue to have put ten or twelve years into a sentence. Such a sentence and an explanation of what it means to the writer are in the pages which follow. Whether these pages afford any contribution towards a solution of one of the outstanding problems of human personality others must judge; but it may well be said that any outline treatment of a subject of such complexity can only be made clear by making it also at the same time in some ways false.

In looking through the completed essay the writer feels that he has been engaged in little more than putting together a puzzle of which the different pieces have been provided for him by others, and that he can say quite truly in the words of Montaigne, " I have gathered a posie of other men's flowers, and nothing but the string that binds them is mine own." To all those who have contributed these pieces, whether known and acknowledged, or unknown or forgotten and unacknowledged, he tenders his most grateful thanks.

EDUCATION.

Any psychological definition of the word which aims at setting forth the nature of the process in the individual must embrace and account for the best results attained in *e.g.*:

1. The Home.
2. Pestalozzi's school.
3. Froebel's school.
4. Egeria's school in Utopia ("What is and what might be," by E. G. A. Holmes).
5. The Montessori schools.
6. The George Junior Republic, and similar institutions.
7. The Boy Scout Movement.
8. The Girl Guides' Movement.
9. The English Public Schools.
10. The Universities.
11. Other and subsequent Life and Experience.

EDUCATION is

the DEVELOPMENT and DISCIPLINE of

1. the Body { a. towards health :
   b. towards habits (subconscious activities):

2. the Mind[a] with its faculties of { acquiring, differentiating, correlating, and integrating } percepts and concepts:

3. the Spirit with its { desire and power } to use these faculties { efficiently and rightly,[b] }

and apply them in { controlling and directing } the { impulses and actions.[c] }

(a). MIND—Conscious, subconscious and unconscious.

"The individual mind may mean either

"i. the series of feelings or 'Mental phenomena' . . . . or

"ii. the subject of these feelings for whom they are phenomena; or

"iii. the subject of these feelings or phenomena *plus* the series of feelings or "phenomena themselves, the two being in that relation to each other in which "alone the one is subject and the other a series of feelings, phenomena or objects. "It is in the last sense that Mind is used in empirical psychology."

—*Art. Psychology*: *Encyclo. Brittann.*, by Prof. James Ward.

It is in the first of these three senses that Mind is used in the above.

(b). The moral sphere, embracing all systems of Morals and Ethics, and the sanctions of all religions from Totemism to Christianity.

(c). Including speech which is, or should be, voluntary action.

Parts of the above indicate the range, *within their own limited planes*, of Froebel's, Montessori's, Egeria's games and occupations, manual training, organized school games and sports, etc.

The whole or parts of the above combination to the power of G. = Genius.

The whole or parts of the above combination to the power of O. M. W. = Ordinary Man or Woman.

PERCEPT AND CONCEPT.*

Psychology talks to us about "presentations"[1] and "re-presentations," but it is the business or part of the business of education, to prevent the "re-presentations" from becoming "mis-re-presentations."

If we enter a room and see a violin on the table we may take it up and, if we are able, play it. We then have three series of "presentations" of the violin, acquired respectively from the senses of sight, touch and hearing. If we stop playing, replace the instrument on the table and shut our eyes, the "presentations" at once cease, but we can still retain in our minds a notion of the violin with the characteristics with which our three senses have endowed it. This notion of the violin which remains

1. The writer here follows Wm. James in terminology. Prof. Ward uses the same word "presentation" to denote "all the various mental facts spoken of as sensations, movements, percepts, images, intuitions, concepts, notions," *v.* Art. "Psychology," *Encyc. Britan.*, 11th ed. The lack of definiteness which would seem necessarily to result from giving such a wide signification to the term seems to the writer to be inconvenient.

* The writer uses the word "Concept," not in its philosophical sense as an "universal,"—a typical concept—but in the wider sense as applicable both to universals and particulars. Thus he would use the phrase "particular concepts" to indicate "particulars," and the phrase "universal concepts," to indicate "universals." This use of the word is, he believes, unwarranted by traditional usage, and must be justified or otherwise by its convenience, and he is therefore unable to follow James in the statement in his posthumous work, *Some Problems of Philosophy*, that "a concept never varies" (p. 53). To the writer, on the contrary, it seems that to regard the concept as something which is often varying and being moulded by the frequent streams of new percepts is to adopt a view which is more conformable with actual experience, which will prove

after the sensations which have caused it have disappeared, is the "re-presentation" of the violin; or, if we adopt an alternative phraseology, the "presentations" may be called "perceptions" or "percepts," and the "re-presentations" may be called "conceptions" or "concepts." The mind first "perceives" the sensations as they pass in by the senses, and afterwards "conceives" the notion of the violin with its characteristic appearance, touch and sound. The process of "perceiving" gives us "percepts," the process of "conceiving" gives us "concepts." In this procedure the mind has first "acquired" percepts of the violin from the three senses and has correlated these three streams of percepts and combined them into a single concept,

valuable in actual teaching, and will also be found to carry us a long way towards the solution of the problem of the nature of general intelligence.

In *Some Problems of Philosophy* James uses the words "idea" and "concept" as synonyms; but here "idea" is regarded as objective, "concept" as subjective: "ideas" as "things in themselves," "concepts" as the individual's conceptions of those things.

In the concluding chapter of his *Text-Book* James says: "Neither commonsense, nor psychology so far as it has yet been written, has ever doubted that the states of consciousness which that science studies are immediate data of experience. . . . . Yet I must confess that for my part I cannot feel sure of this conclusion" (p. 467). In the chapters on "Percept and concept" in *Some Problems of Philosophy*, James seems to be feeling his way to more immediate data of experience in the reciprocal interaction of percepts and concepts; but it seems to the writer that it is only if we are permitted to assume that concepts are in the perpetual state of being moulded and fitted together in the way described in the text that we can find in them and their interactions with percepts the elements from which the cognitive part of consciousness is organised.

Compare the following from Bergson's *Introduction to Metaphysics*: "Metaphysics . . . . is only true to itself when it goes beyond the concept, or at least when it frees itself from rigid and ready-made concepts in order to create a kind very different from those which we habitually use; I mean supple, mobile and almost fluid representations, always ready to mould themselves on the fleeting forms of intuition"; and, let us add, the fleeting stream of percepts acquired from the various sense organs and their nerves. Bergson's whole essay is, in point of fact, an argument against the view to which James alludes—The view, namely, that concepts are in their very nature fixed and unvarying.

and this concept which remains in the mind with the label "Violin" attached to it can be held in the consciousness for an indefinite time, or it can be immediately replaced by another concept or series of concepts, in which case it is "forgotten" and can afterwards be "recalled" or remembered again as often as we wish.

If we put a child through the above experience and a little time afterwards ask him—What is a violin? we may get some such answer as the following: "A musical instrument something like a small cello, with a thing like a handle about ten inches long at one end, and four or five strings which you play on with a bow!"[1] It is evident here at once that in this case the "re-presentation" is also a *mis*-representation; that the "concept" is an example of *mis*-conception. It is clear that the violin concept which the child's mind has formed or acquired is in some ways erroneous and distinctly lacking in precision. It requires to be made more defined, more accurate, and to be further "differentiated." Send the child to look at the instrument again and as the result of a fresh stream of percepts acquired from the eye, the "four or five" strings become definitely "four." Under the tuition of the master and new pereepts acquired from the eye and the ear the "thing like a handle" becomes a neck. Under further tuition from the master which reaches the mind by percepts acquired from the ear, the eyes

1. An actual reply to the above question.

and the touch, the sound of the instrument is discovered to be due to the movement or vibration of the strings. If the child is learning to play the instrument he gradually learns to differentiate between its various parts. He learns to know by their several names:

The *Head* with its scroll and pegs:

The *Neck* with its nut and finger-board:

The *Body* with its back, its belly, its ribs, its sound holes, its sound post, its bass bar, its tail pin, its purfling:

The *Strings* stretching from the pegs to the tail-piece over the bridge, and differentiated from one another by their make, their size and their tension.

A further acquaintance with the instrument will bring a recognition of the different kinds of wood of which it is made, and of the functions of all the various parts in the production of the music when it is played.

In this illustration we have an example of a concept which has been "differentiated" by "correlating" with it numberless new percepts. It would be a mistake to regard this process of differentiation which has been going on as a mere splitting of the original concept into many new concepts. The violin concept remains but it has undergone profound changes. It has become more accurate and more differentiated; but this differentiation has taken place not at the expense of unity but by the creation

of a more complete and perfect unity—a unity enriched with new features, as a precious stone is enriched by the cutting which changes it from its rough natural form to the many-faceted brilliant, which transmits light and reflects and disperses it from its many faces to disclose its new lustre and beauty.

We have here an illustration of the formation of a concept in the mind; of the gradual shaping of that concept under the influence of countless new streams of percepts; of its ultimate differentiation till it stands clear with all its various component parts defined with precision and many of them named. And the concept thus formed is a mental symbol [1] of the material violin, which consists of wood and glue and varnish and gut and wire.

But this process of differentiating the concept may be carried to an infinitely greater degree of minuteness. If we listen to two violinists discussing some of the minutiæ of their technique we may learn much about the difference in tone of such instruments according to the position occupied by the sound post, the sound holes and the bridge, the nature of the varnish, the size and quality of the strings. They will work for hours, changing the position of the sound post, and trying the effect on the tone; changing the strings and pitting their two instruments one against the other, and after prolonged

1. "Concepts are therefore not images, but symbols. Our logic is the complete set of rules that must be followed in using symbols." Bergson's *Creative Evolution*, p. 169.

trial will perhaps agree that instrument A gives its best tone with strings ranging from .026 in. thick (E) to .046 in. thick (D), and that instrument B gives its best tone with strings somewhat thicker: that when both are working at their best the purest tone on the E string is found in instrument A, and the purest tone on the D string in instrument B: that in instrument A the G string is "woolley," and in instrument B the A string is "harsh": that in volume of sound B is incomparably better than A and therefore in this respect better fitted for use in a concert hall, while A is admirable for chamber music.

But even this is not all; for when these various adjustments have been decided upon and satisfactorily carried out there remain others perhaps even more important still, namely the adjustment of the right relation between the tension of the different strings, and this is one which continually needs making from time to time during the performance of a concert, often indeed during the playing of a single piece, and without which no perfect rendering of the music is possible.

And although we saw above that the process of differentiating the violin concept did not rob it of its unity and sever it into new and isolated concepts, but only endowed it with a more complete and perfect unity, yet it is equally true that just as the material violin can be taken to pieces and resolved into its component parts of neck, and body, and strings, etc., etc., so all the differentiæ of the mental symbol *have*

been separated in the mind into independent concepts and can be so regarded if we please. We can still regard them, with the name labels which we have attached to them, either as integral portions of the completely differentiated violin concept, or we can regard them as separate concepts, in which form they can, with the same labels attached, enter into the composition of other concepts, just as the material bridge or material strings of instrument A can be transferred to and made part of instrument B. So that the differentiation for example, of the violin concept carries us a long way towards, and helps us a great deal in, the process of differentiating the violoncello concept owing to the similarity of the instruments.

The process which has been going on in the mind may be likened in some respects to that which is followed in the making of a material jig-saw puzzle. A picture is pasted on a thin piece of wood, and picture and wood divided by a fret-saw into pieces corresponding somewhat in number to the size of the picture employed; and after the division each part can be isolated and regarded as a separate piece of wood and picture, which can be carried away and even lost (as a portion of the violin concept can be lost by the mind or forgotten), yet none the less the lost piece remains an integral part of the original picture puzzle which must remain incomplete until it is found and fitted into its exact position in relation to the other pieces.

When we first begin doing such a puzzle, we choose a piece with some prominent feature on it, and look out for a piece of the same colour, and after finding one we see whether it forms part of the design on the first piece, and if so whether some portion of its margin fits perfectly against some portion of the first piece : if not we reject it and try another. When we find a piece which does fit exactly against the first we see that the two are related together or co-related in colour, in design and by the curvature of some portions of their margins. Each piece of the puzzle we know to be similarly co-related with other pieces, and when we have found out the several relations of all the pieces and placed them all in those relations, we have made the picture complete : we have formed one complete whole out of the various pieces, or to express it in a word we have *integrated* the pieces.

As it is the part of any one who sets about doing the puzzle to find out the exact relations between the pieces and place them in position in these exact relationships : as it is the part of the violin player to see that the various parts of his instrument are in right relationship to one another, and to be ready to readjust this relationship if needed (as by tuning) : so too it is the part of the educator not merely to aid his pupil to form new concepts, and to differentiate those concepts, but also to relate these all together, to co-relate them or to correlate them, and

> " so subtile is the discernment of man, and so great the power of some men to single out the most fugitive

elements of what passes before them, that these new formations have no limit. Aspect within aspect, quality after quality, relation upon relation, absences and negations as well as present features, end by being noted and in their turn their names added to the store of nouns, verbs, adjectives, conjunctions, and prepositions by which the human mind interprets life. Every new book verbalizes some new concept, which becomes important in proportion to the use that can be made of it. Different universes of thought thus arise, with specific sorts of relation among their ingredients. The world of common-sense "things"; the world of material tasks to be done; the mathematical world of pure forms; the world of logic, of music, etc." [1]

It is then part of the business of education not merely to add new concepts to the mind but also to help the mind, on the one hand to differentiate those concepts into their elements, and on the other hand to co-relate or correlate them with all the other concepts which that mind contains.[2] And it is by the acquiring of concepts and by the differentiating and correlating of all the concepts which the mind contains that its cognitive dispositions[3] and cognitive equipment are very largely formed.

1. *Some Problems of Philosophy,* Wm. James, p. 51.

2. "More precisely, intelligence is, before anything else, the faculty of relating one point of space to another, one material object to another, it applies to all things, but remains outside; and of a deep cause it perceives only the effects spread out side by side." Bergson, *Creative Evolution,* p 185.

"All *a priori* knowledge deals exclusively with the relations of universals." *The Problems of Philosophy,* Hon. Bertrand Russell, p. 162.

3. "Dispositions are the abiding after-effects left behind by prior experiences. They are inherited and acquired." Stout's *Groundwork of Psychology,* p. 7.

"We have to conceive the cognitive dispositions as linked together in minor systems, and these minor systems as linked in larger mental systems, and these again in larger systems; and so on, by many steps of super-ordination, until the whole multitude are linked in the one vast system." *Psychology,* by Wm. McDougall, p. 84.

In a previous page we likened the fully differentiated concept, or mental symbol, of the violin to a precious stone cut into many facets which enriched its value and beauty. Let us now suppose that our minds contain large numbers of such myriad-sided symbols grouped together in various ways and forms; and then that something flashes through this grouped mass darting into and through and between the symbols of which it is made up, like light flashes into and through and between the precious stones of which a jewelled ornament is composed. And further let us imagine that simultaneously with this movement of something through and between these myriad-sided symbols there is also a movement of the symbols themselves: a movement which brings them ever into new relations with one another but again fitting closely together, joining themselves into new combinations, linking themselves into new and ever changing clusters. The apparently impossible combination of these three kinds of movement —the movement of something into and through and between the symbols and the simultaneous splitting, or moulding, and the re-grouping of the symbols themselves, the two latter movements often caused by the former, may serve us for an image of what we call thought:—the miracle or the alchemy of thought. And the symbols which tumble apart and re-form themselves into new and ever-changing combinations and clusters are concepts, and the something which flashes through and between them

and is often the cause of their movement and change of grouping, is the stream of new percepts which the mind is perpetually acquiring from the sense-data furnished by the nerves and sense organs.

As you have been reading these pages the sense-data furnished by your eyes have been perceived by your mind, and the continuous stream of new percepts thus acquired as your eyes have glanced along the print, have been recalling to your consciousness concepts formed long ago and stored up or built into the cognitive dispositions of your mind. These concepts and many of their relationships have been thus recalled by the string of name-labels which represent them in the print. The concepts which your mind has by its previous experience learned to attach to some of these labels may differ from those which the writer has learned to attach to them, just as the child's concept of the violin differed from that of the violinist. But the labels will be all familiar. There will be at any rate few unknown to you though the particular grouping of them will be in some ways new, and thus new groupings and new combinations of the concepts stored in your mind will have been effected by the stream of new percepts acquired as your eyes glance along the page. And this, it will be at once seen, is typical of much of our daily experience : in reading books, in reading the daily paper, in talks with friends, during which the dynamic stream of percepts is acquired from the ear as well as from the eye. Ever thus in our daily life

× V. p. 119.

these streams are at work enabling us to form new concepts, to perceive new relations between old ones, enriching and re-valuing them as happened to the child over the violin, and assigning to each as life goes on, a more important or less important position in our entire intellectual equipment than it originally occupied.

In a previous page in considering the differentiation of a concept we used as an example the concept of a material object—the violin. Let us now take a concept of another kind, of something immaterial, but quite as familiar and which we are all of us using every day. Let us vary slightly a question which we are frequently asking one another and instead of asking "What is the time?" let us omit the article and ask ourselves "What is Time?"

We find if we travel across to Ireland that according to our watch we arrive about half an hour late, and that if we go to Switzerland we arrive an hour too early; and we learn that these are variations of what is called Local Time. If we travel abroad by ship we find that the ship's time annoys us by varying daily, and it hardly compensates us to discover that when we are travelling East, and each day is shorter than 24 hours, the ship's clocks are put forward in the day time so as to shorten the working hours, but that when travelling West, and each day is longer than 24 hours, the clocks are altered in the night time so as to lengthen the sleeping hours.[1] We are

1. This was told the writer by the captain of a liner, but was probably only a *jeu d'esprit.*

all of us aware that the civil day begins in the middle of the night, 12 o'clock midnight, but we may not all know that the astronomical day begins in the middle of the day, 12 o'clock noon. We all of us know Day-time and Night-time, Dinner-time and Bed-time, some of us too are acquainted with "Half-time." We talk of marking Time, of keeping Time and of beating Time, but what *is* Time that we should use it for such different purposes, and treat it in such different ways? If in our embarrassment we enquire of the horological officials at Greenwich they may ask us *which kind* of Time we want to know about. Do we want Greenwich Mean Time or Greenwich Local Time, or would we prefer Solar Time or Sidereal Time or Standard Time? All of these we shall learn are different, and though we may be merely in search of the *proper* and *real* Time we may be puzzled to know which of these *is* the proper and real one. We shall learn too that although the sun has a good deal to say in the arrangements of Solar Time, yet even he is not impeccable, and that the astronomers have to make allowances for him on those days on which he gets up early or late. We shall find too that some of these varieties of Time are settled not by the officials at the observatory but by gentlemen who call themselves "directors of astronomical ephimerides," and after all these unexpected difficulties and disillusionments in our search for Time—after all these various confoundings of sober horology—it may come to us as some-

thing of a relief to learn from M. Bergson that Time himself is merely an illusion, and that what we persistently mistake for him is in reality only "Duration."

Or take yet another concept just as familiar to us all; one which involves the question of ethical "values." Take the concept of that joyous state of feeling to which we attach the label "happiness."

> "What is happiness? It is an infinite thing, so infinite that no man can tell its forms, enumerate or measure its varieties. There is happiness which is mere sensual indulgence, and happiness which is intellectual enjoyment. There is the happiness of the savage, who lies and suns himself, gorged, on the bank; of the serious student, who lives in the study and among his books; of the speculator, who gambles in stocks and shares; of the strenuous athlete, who feels as if his soul were in his muscles or his limbs; of the *nouveau riche*, who feels as if recognition by Society were admission into heaven. Unless we define happiness, how can we speak of it? . . . . . Is it sensuous? Is it intellectual? Is it ethical or social? Is it "Comfort" which seems to so many Englishmen the only real paradise? As we have seen that quality is a needful element in the definition of Happiness, we we find it to be also needful in the differentiation and appraisement of its kinds . . . . . Is the greatest quantity of a lower quality of happiness to be preferred to a smaller quantity of a higher quality? Then what or who is to determine the sort of happiness to which superior and determinative excellence belongs? Is it the man? Is it the fashion of the passing society? Or is it some standard apart from both, and more permanent and universal than either?" [1]

1. *The Philosophy of the Christian Religion*, A. M. Fairbairn, p. 79.

Let us take some further examples.

"The jackdaw sat in the Cardinal's chair." It was at Rheims—but we all know the story—the story of a bird's instinct. A boy of four runs into a strange room, sees something bright on a table, is attracted by the glitter, seizes the bright object and presently puts it into his pocket to play with another time. It is the same instinct as in the bird. The boy lives to be an old man, the instinct has grown with his growth and strengthened with his strength, till it has come to dominate his whole life which he has mostly spent in gathering as much as possible of one form of what glitters and we call him a miser.

> "There is one fable that touches very near the quick of life,—the fable of the monk who passed into the woods, heard a bird break into song, hearkened for a trill or two, and found himself at his return a stranger at his convent gates; for he had been absent fifty years, and of all his comrades there survived but one to recognise him. It is not only in the woods that this enchanter carols, though perhaps he is native there. He sings in the most doleful places. *The miser hears him and chuckles, and his days are moments.*" [1]

But his happiness is the happiness of mere instinct which has mastered the whole man instead of being mastered by him.

Or take the following:—

"In the Neolithic Age savage warfare did I wage
For food and fame and two-toed horses' pelt;
I was singer to my clan in that dim red Dawn of Man,
And I sang of all we fought and feared and felt.

1. R. L. Stevenson, "The Lantern Bearers," from *Across the Plains*.

But a rival of Solutré, told the tribe my style was *outré*—
'Neath a hammer, grooved of dolomite he fell.
And I left my views on Art, barbed and tanged, below the heart
Of a mammothistic etcher at Grenelle.

Then I stripped them, scalp from skull, and my hunting dogs fed full,
And their teeth I threaded neatly on a thong;
And I wiped my mouth and said, "It is well that they are dead,
For I know my work is right and theirs was wrong."[1]

It is again the happiness of a gratified instinct of primitive man.

But when Samuel Johnson said "There is nothing which has yet been contrived by man by which so much happiness is produced as by a good tavern or inn," he was probably thinking less of the food and liquor it supplied than of the mental clash and sparkle of wit that he was accustomed to find there. It was one form of the happiness of intellect. And when Archimedes thought of a manner of computing the proportion of gold in King Hiero's crown by seeing the water flowing over the bathing stool and leaped up as one possessed or inspired crying "I have found it, Eureka!"[2] he was experiencing another form of the happiness of intellect.

These may be considered examples of the positive form of the happiness of intellect. But there is also

1. *The Seven Seas*, R. Kipling, p. 124.
2. Plutarch.

what may perhaps be considered a negative form of the happiness of intellect—"where *ignorance* is bliss," and which is charmingly illustrated by one of R. L. Stevenson's anecdotes of his own boyhood.

> "Although I was never done drawing and painting, and even kept on doing so until I was seventeen or eighteen, I never had any real pictorial vision, and instead of trying to represent what I saw, was merely imitating the general appearance of other people's representations. I never drew a picture of anything that was before me, but always from fancy, a sure sign of the absence of artistic eyesight; and I beautifully illustrated my lack of real feeling for art, by a very early speech, which I have had repeated to me by my mother: 'Mama,' said I, 'I have drawed a man. Shall I draw his soul now?'"[1]

In thus distinguishing between the happiness of gratified instinct and the happiness of intellect we find ourselves somewhere in the region of the old Greek distinction between ἡδονη and ενδαιμονια, but in poetry and religion we often touch a much higher note.

SUNRISE.

Sound needed none,
Nor any voice of joy; his spirit drank
The spectacle: sensation, soul and form,
All melted into him; they swallowed up
His animal being; in them did he live,
And by them did he live; they were his life.
In such access of mind, in such high hour

1. *Life of R. L. Stevenson,* by Graham Balfour.

Of visitation from the living God,
Thought was not; in enjoyment it expired.
No thanks he breathed, he proffered no request;
Rapt into still communion that transcends
The imperfect offices of prayer and praise,
His mind was a thanksgiving to the power
That made him; it was blessedness and love! [1]

Here we have an example of the happiness, not of instinct, not of intellect, but of spirit.

We have now taken three concepts of different kinds and shown how in each case the concept originally formed may be subsequently differentiated in the mind, and how this process takes place as the result of the correlation with the original concept of countless new streams of percepts. This process may take place at any time in the mind's life after the original concept has been formed, but whether it take place early or late the result is the same—a gradual alteration of the original concept, an alteration tending to endow it with greater precision, and to clarify or to correct details which at the first conception were nebulous or erroneous. This process of differentiation may be either quantitative or qualitative, and the illustrations we have taken have furnished examples of both kinds—quantitative as we saw in the strings of the violin and as might be seen in their vibrations, and also in the concept of time, and qualitative as we saw in differentiating the concept of the feeling which we call happiness. Illustrations such as these might be multiplied

1. *Wordsworth's Excursion*, Book i.

endlessly. We might take as a further illustration the concept of a picture of which at the first examination anyone whether a child or adult can only form an incomplete visual image, embracing the main features, such as the nature of the subject, something of the composition, something of the colouring; and the correctness and completeness of this mental image will depend on differing aptitudes and differing cognitive equipment in different individuals. But the mental picture after being formed must be corrected, amplified and supplemented by re-examination of the objective picture, and this is effected by subsequent and repeated streams of fresh visual percepts.[1] Or we might take a piece of music and show how the same process applies in the auditory sphere of cognition. Or we might take some of the Socratic dialogues which afford excellent illustrations of the process of differentiating concepts.

1. "Ruskin kept all his life long the power of looking into things and seeing their smallest details; so that when he says he sees this and that in a picture, which it is impossible to ordinary eyes to detect, we may at least be sure that he had looked longer at what he is describing than we are ever likely to do, and with a patience, as a German critic once wrote, that verges upon frenzy." *Ruskin: A Study,* by A. C. Benson, p. 196.

SENSE-PERCEPTION.[1]

It is to a large extent upon the seemingly meagre basis of sense-perception that mankind has reared its ample monuments of Art, Science, Literature and also its Religions.

We have traced the process by which a concept may be formed in the mind and how it is subsequently moulded, or shaped, or differentiated by subsequent streams of new percepts which the mind acquires from the sense-data, or sense continuum furnished by the nerves and sense organs. It now remains to show how similarly the acquisition and differentiation of percepts, or the differential perception of sense-data or the sense continuum, is a direct means of the formation of new concepts and an essential part of the complete mental processes. We have spoken of streams of percepts being acquired by the mind from the sense-data and used by the mind for moulding, shaping and differentiating concepts, but it would be quite erroneous to suppose that all the sense-data furnished for example by the eye or the ear at any given moment, are taken up by the perceptive faculty of the mind and so used. It is of the essence of the process that it is

1. Sense-Perception. So designated in order to exclude what has been variously called intuitional perception, or super-sensuous perception, or supra-rational intuition, and to exclude also that kind of perception by means of which we become conscious of instinctive and emotional impulses within us.

selective; that the mind selects some of the sense-data presented to it and rejects or disregards others. If at any time we are intently engaged with pen and paper in working out a problem of any kind that interests us we may become so absorbed in it that many of the sense-data presented by our sense organs and nerves pass entirely unheeded. The traffic may roar in the street outside but it passes unnoticed, some one may enter the room without our *perceiving* it, for the mind with its perceptive faculty is engrossed with its task and the sense-data which announce the fact are ignored. It is not to be thought that in such cases the functions of the eye and ear are in abeyance and do not convey the usual sensations, rather it is that the mind has acquired the power so to engage its perceptive powers on the work in hand that extraneous sense-data fail to attract them from their immediate task. And this concentration of the whole powers of the mind—both perceptual and conceptual upon any necessary problem at any necessary time—is a vital necessity in education. An essential for lack of which the mind too frequently lapses from what should be the labour of thought into the mere sport of musing.[1]

The sense-data (or the sense-continuum) have then to be *perceived* by the mind as well as to be formed by and in the sense organ.

1. "I have seen historical scenes acted with much vigour by some of the children in the first class, and applauded with equal vigour by their classmates, while all the time the children in the second class, who were drawing flowers in the same room, never lifted their eyes from their desks." *What Is And What Might Be,* by Edmond Holmes, p. 158.

Let us see in the case of some of the senses what this means. Take for example the eye, in which an optical picture of the view in front of it is projected by the lens upon the retina. This picture is not all perceived by the mind at the same time. The perceptive powers are concentrated as a rule upon different parts in succession, and the lens is focussed for such parts as may be desired by the ever-changing fancy of the individual.

But this is only a beginning, and the perceptive powers of mind have to be trained to differentiate various small details which come at any moment within the field and the focus of view. If a townsman goes for a country walk with one who has lived long in the country, and is well versed in the lore of animal life, his steps may, as they are walking along, be arrested by the remark, "Ah! there is a hare!" "Where?" says the townsman, anxious to catch a sight of the animal. "There! crouching by that withered bracken. Don't you see it?" No," says the townsman. "Now look," replies the countryman. "It raises its head. Now it moves to the left." But still the townsman is unable to see it, and it is not until the hare bounds away that he is able to catch sight of it. In this case it is not the optical properties of the townsman's eye which are at fault. It is that his perceptive powers are not able to differentiate exactly this unwonted sense-continuum, and are unable to perceive minutiæ which are pictured accurately enough on the retina. But

it only needs training on objects of this kind to endow him with similar powers of sight.

"A man who has not trained himself at looking at distant objects is very apt to mistake objects for what they are not. I have known cattle reported as horses, walls as troops, cavalry as a hedge, carts as artillery, cavalry as infantry, and so on. Troops of brood mares running loose; and, in the mirage buck, oxen, or even ostriches were frequently reported as Boers in the South African campaign." [1]

These mistakes also were not primarily due to defective sight but to a want of training of the perceptive power to differentiate accurately between the minutiæ of the sense-continuum, and may be obviated by persistent training.

"I find it useful to get on to some good look-out place with a pair of glasses, or a telescope, and to look at very distant objects, people, or animals, and see what I can make of them, and then correct myself by studying them through the glass. Also it is a most useful practice to find with the glass some such objects in the far distance, and then to gaze at it until you can see it with the naked eye. Afterwards, try and find objects at a similar distance, without the aid of glasses. In this way you will find that you gradually become able to see men and animals at an extreme distance, where they are scarcely visible to untrained eyes." [2]

If in this course of training advocated by Sir Robert Baden Powell something be allowed for the cultivation of the adjustment of the eye as an optical

1. *Aids to Scouting*, p. 28, by Baden Powell.
2. *Ibid.*, p. 38.

instrument, this will not in itself account wholly for the increased skill in observation so acquired. Probably the larger part is due to training of the perceptual powers in extremely minutiæ differentiation of the sense-continuum, or sense-data.

Or take an illustration from another sense—the sense of taste. The following story was told to the writer by the perpetrator of the joke played upon the guest.

> "I was expecting a friend to lunch with me one day, and on the morning of the day, I suddenly realised that I had no port wine which I cared to offer him as he happened to be a connoisseur. It then occurred to me to make a blend, which I did of the wine from two bottles, and placed it ready for lunch in a decanter. After lunch when the port was placed on the table, I helped myself and passed him the bottle, and watched with interest to see the expression on his face at his first taste. After tasting it a mild wonder awoke in his eyes, and putting down his glass he asked me, "What do you call it?" "Well," said I, "suppose I were to call it '68." "Bah! man," said he, "pass a sip of that across your tongue and you will perceive as clearly as possible, that *there are two wines there.*"

This again is an illustration not necessarily of any special sensibility of the taste organs but of the high cultivation of the perceptual powers in differentiating the sense-continuum produced by port wine.

In all these cases with the different sense organs, the result of this increased power of differentiating the sense-data or sense-continuum is to bring new concepts into the consciousness of the moment. At

the beginning of these pages we saw how new streams of percepts were acquired by the mind in order to differentiate fully the violin concept and make it more exact, and that this process involved the continual formation of new concepts, so now we see that the cultivated power of differentiating percepts is also a new and immediate method of forming new concepts. In the case of the two friends on their country walk, the perceptive powers of one of them brought the hare concept at once into the field of view; in the case of the port wine the cultivated perceptive powers resolved what to many would have been one wine quite clearly into two.

Or the same thing may be noticed in the sense of hearing, as in the following.

> "Twigg snapping is the great index to all that passes in the wilderness. Curiously enough no two animals can break even a twig under their feet and give the same warning. The *crack* under a bear's foot, except when he is stalking his game, is heavy and heedless. The hoof of a moose crushes a twig, and chokes the sound of it before it can tell its message fairly. When a twig speaks under a deer in his passage through the woods, the sound is sharp, dainty, alert. It suggests the *plop* of a raindrop into the lake." [1]

It takes no doubt a considerable time to learn to differentiate exactly between these different sounds, yet the sense-data present them alike both in ears which are and ears which are not accustomed to them, and the training necessary is a training of the

1. *School of the Woods,* by William J. Long.

perceptive powers in the art of reading what the sense-data record in the internal ear.

This same training of the perceptive powers in the sphere of auditory cognition lies at the base of all teaching of music. The differential perception of intervals in a chord, of the different instruments in an orchestra, of all the elements in melody, harmony and rhythm which are of the very essence of musical understanding and intelligent appreciation—all this depends upon the differential perception of the sense continuum in the internal ear. This is often called aural culture, but it is in reality not a training directed towards making the ear more efficient as an instrument, but only a training of the perceptive powers in their work of differentiating and interpreting the auditory sense-data.

This cultivated power of differential perception, which we have seen to be a necessary part of mental training, is not a general " perceptive faculty " which can be cultivated *per se* and switched on and off from one sense to another. It has to be cultivated for each sense by itself, and its increase in perfection in the case of any one or more senses goes *pari passu* with a corresponding increase in conceptual knowledge of the same order—*pari passu* with a large increase in the number of concepts in that particular sphere of cognition. A tea taster, for example, upon tasting a sample of tea is often able to state that it was grown in such a year at such a place, that the weather was unfavourable for the crop a month

before it was gathered, that it was sold in such a year at such a price in the London market. Information such as this can often be given by an expert taster as the result of a single taste, but it is a specialized not a general perceptive power, and by no means extends to other substances in the same degree of perfection. On the contrary it is usually necessary for the expert taster to refrain from tasting many substances lest they should vitiate his special taste for tea.

As the writer sits writing these words there is on the wall opposite his chair a bookcase containing twenty-four compartments of books. At the distance at which he is writing it is impossible for him to read any of the titles, and yet he can recognize many of the volumes and identify them with ease. At the end of one of the compartments is Balfour's " Foundations of Belief," next to it Fyffe's " History of Modern Europe," then Kingsley's " Roman and Teuton," then "A Century of Parody," then " Great Battles of the British Navy." In the compartment below are, A. C. Benson's " Ruskin," then Bacon's Essays, then a volume which the writer fails to identify, then Belcher's "Essentials of Architecture," then Lord Courtney's " Working Constitution of the United Kingdom." But while he is severally and in succession identifying these volumes all the other books in the case are clearly seen and also articles on the walls beyond the bookcase as well as chairs and other articles of furniture in the room. All

these as well as the identified volumes form part of the sense-continuum or the sense-data depicted on his retina, and his ability to differentiate the above-named volumes from the many others depicted round them, and to do this in a position from which he is unable to read the titles depends on the conceptual knowledge previously in his mind, such as the knowledge that he possesses these books, that they are on the shelves, their probable positions on the shelves and some conception also of the different ways in which they are bound and lettered. If, however, the writer were to see these same volumes in a strange room, on strange shelves, and interspersed with others with which he was unfamiliar, he would probably be as unable to recognize most of them as the townsman was to recognize the hare during the walk alluded to on a previous page.

The interaction which has been here taking place between the perceptual and conceptual elements [1] has been a process in which certain groups of concepts have been "recalled" from the subconscious mind to the consciousness of the moment by new streams of percepts, and have also been re-endowed for the moment with details which had been lost owing to lapse of what we call "memory"; and simultaneously and conversely the conceptual content of the mind has been utilized to aid the differential

1. "Percepts and concepts interpenetrate and melt together, impregnate and fertilize each other. Neither, taken alone, knows 'reality' in its completeness. We need them both as we need both our legs to walk with." *Prob. of Philos.*, by Wm. James, pp. 52, 53.

perception of the sense-continuum, or to differentiate the percepts.

And the nature of this interaction of percepts and concepts, both here and in the process of differentiating the violin concept, may be summarised—with as much approximate accuracy as is usually possible in a brief phrase—as a process of "differentiating and correlating percepts and concepts." In the case of the violin the flow of percepts was the means by which the violin concept was gradually differentiated, in the case of the books the conceptual contents of the mind were utilized to aid in differentiating the percepts acquired from the sense-continuum on the retina.

There is great truth, but not the whole truth, in the old saying that a man sees in any view or picture or other work of art what his mind brings to the examination of it.[1] A sculptor in the galleries of the British Museum will see in the Elgin Marbles the beauty of form and line which mark them as precious fragments of the creative genius of one of the great art periods in human history. A child among the same statues may see only at the same moment "a glorious place to play hide and seek." And the complementary truth is that the growth from one condition to the other is brought about by

1. "Whilst halting on a certain occasion in front of one of the most beautiful views obtainable of Grasmere and its hills, a lover of the Lake Country was accosted by a Manchester tripper, and had to find an answer to the query, 'Is there *anything* to see in this place?'" "The Nature and Development of Attention," by G. Dawes Hicks, *Brit. Journ. of Psychology*, June 1913.

the gradual refinement of the power of differential perception of the retinal sense-data with the aid of the ever-extending and more highly differentiated conceptual contents of the mind.

We have now seen that there are at least three different ways in which sense-perception leads to the growth of knowledge by the formation of new concepts.

(1) By the direct act of perception through one sense, or by the correlation of percepts acquired from different sense organs as we saw in the case of the concept of the violin.

(2) By the differentiation of concepts achieved by correlating with them new percepts, as we saw in the case of the violin, time and happiness.

(3) By the differentiation of percepts, or the differential perception of the sense-data or sense-continuum furnished by the different sense organs.

And if we now return for a moment to the two violinists experimenting with their instruments and go once more through the procedure there sketched, a little consideration will show us that apart from the actions or motor activities involved, and the feelings of satisfaction or otherwise which have been experienced during the work, the mental operations have consisted of nothing more than the acquiring, differentiating and correlating of percepts and concepts: in other words *the power of acquiring*

differentiating and correlating percepts and concepts is the essence of the power of comparison and judgment.

But human effort can rest content with nothing less than the discovery of the relations which exist between *all* concepts: the relations, that is, between the concepts over the whole range and in all the branches of human knowledge, the integration of all our concepts, the unification of all our knowledge. This is the function and constant aim of philosophy; and the essentials of the mental processes by which its work is effected and of which mankind is so proud are perhaps only four in number—*acquiring, differentiating, correlating and integrating*[1] *percepts and concepts.*

It has been said that if you take all the physics and physiology out of psychology there is nothing left except mathematics! Well! there do seem to remain just these few ways of dealing with percepts and concepts, and fortunately they seem enough to account for those ripples on the surface of existence which are the result of what we designate human thought.

But the world of perception is immeasurably wider than that of mere sense-perception as that term is usually understood. It includes also what has been called intuitional or supersensuous perception, and also the perception of the emotional and æsthetic

1. "I agree that the laws of thought are only the integration of relations between facts." *Creative Evolution,* p. 389.

elements which enter into consciousness: the perception of the passing moods, and the feelings of joy, of sorrow, of hope, of love, and so through the whole gamut of human emotions and passions. It would seem that we must recognize emotional percepts[1] as well as, and in some ways as distinct from, sense-percepts; and it is perhaps owing to the mingling of these two kinds of percepts through accidental association, as distinguished from selective and purposive correlation, that there are formed the "complexes" or "psychoses" of conceptual and emotional elements whose nature and workings it is the business of psychology to study.

It now remains to see how the manipulation, grouping and re-grouping of these elements of thought are made to constitute some of the more important of the various mental processes with which we are acquainted.

1. "We have distinguished three parts in the system of an emotion: (1) that part which is in consciousness and is alone the felt emotion; (2) that part which is organised in the body; (3) and that part which is present in our behaviour and accessible to external observation." *The Foundations of Character,* by A. F. Shand, p. 185.

OBSERVATION.

Observation is the disciplined exercise of the faculties of acquiring, differentiating and correlating percepts and concepts.

"Now, the first, and certainly in student-life the only safe, means for becoming scientific in our profession is the training of the mind in the power and habit of accurately observing facts. Medicine and surgery are eminently a science of observation; deductions from facts are always unsafe; I believe that they have done far more harm than good; and, for the most part, when sufficient facts have been collected and arranged, the general conclusions that may justly be drawn from them are nearly manifest. The main thing for progress and for self-improvement is accurate observation. Some seem to think it easy to observe accurately—they cannot doubt, as they say, the evidence of their senses. There are few greater fallacies. In scientific studies the evidence of the senses needs as much cross-examination as any evidence given in a criminal trial. Self cross-examination it may be, but it must be steady and severe. For by accurate observation we must mean not the mere exercise of the senses, not the mere seeing, or hearing, or touching of the thing, with some levity of thinking about it—we must not mean even the keenest use of the eye cultivated in microscopic work, or of the ear hearing sounds that to the uneducated sense would be inaudible, or the use of the finger with the most refined detective touch. All these higher powers of the senses you must acquire by careful study and practice, and you must learn to exercise them with all the attention with which a strong will can direct

and watch them; but even all this, difficult as it is, is only a part of scientific observation. This must include, besides, an habitual constant watchfulness, the taking notice of all the conditions in which objects or events are found; their concurrence, their sequences, their seeming mutual relations, all their variations. To do this, and to do it again and again, and with constant care, whether it be in things occurring naturally or in experiments—to do this accurately and always is really very difficult. A few seem to have the power naturally; there are some born naturalists, some born physicists; you have had some here; but in nearly all men, and, you may safely believe, in yourselves, the power to observe accurately needs careful self-training, self-suspicion, and self-discipline." [1]

"Good observation consists not in multiplicity of detail, but in co-ordination of detail according to a true perspective of relative importance, so that a finally just general impression may be reached in the shortest possible time. The skilled observer is he who does not have to change his mind." [2]

"He watched the phenomena of disease with unremitting vigilance, fully convinced of the truth of Faraday's famous dictum that new knowledge is constantly passing under our eyes but escaping our observation; and in this sense often quoted Browning's line, 'I tell you men won't notice, when they do they'll understand.'" [3]

"Some years ago, at Göttingen, a meeting of men of science was taking place during a time of carnival, when a wild scene was forced upon their notice in order to test their accuracy of observation. A clown dashed

1. Sir James Paget. Address at opening of Medical Session, 1887-8, the Owens College.
2. Arnold Bennett on "Seeing Life," *English Review*, April 1913.
3. Jonathan Hutchinson, Obituary Notice, *Times*, June 1913.

suddenly into the meeting with a negro holding a revolver in pursuit. They exchanged violent phrases. One fell and the other leapt upon him. Then there was a shot, and both rushed out of the room. No one but the President (who had arranged it) knew that it was a rehearsed and deliberate scene. When it was over—and it lasted less than twenty seconds—he gravely asked those present each to write down an exact report of what had occurred, as the matter was likely, he said, to come before the courts. Forty reports were submitted, but, Professor Münsterberg tells us, there was only one of the forty which omitted less than twenty per cent. of the leading incidents that had occurred. Fourteen omitted between twenty and forty per cent., twelve between forty and fifty per cent., and thirteen more than fifty per cent. Nor were most of them content with mere sins of omission. There were only six of the forty who did not add pure inventions of their own. Four of them noticed correctly that the negro had nothing on his head. Others gave him a 'Derby,' a tall hat, or something else on his head. His costume was variously described as a red suit, a brown suit, a striped suit, a coffee-coloured jacket, shirt sleeves, and so forth, though he had actually worn a black jacket, white trousers, and a red necktie. 'The scientific commission who reported the details of the enquiry,' adds Professor Münsterberg, 'came to the general statement that the majority of the observers omitted or falsified about half of the processes which occurred completely in their field of vision.'" [1]

1. "On Telling the Truth," *The New Statesman*, 24 January, 1914.

INFERENCE.

If we return once more by way of illustration to our jig-saw puzzle we may find on taking it out of its box and putting it together that one or more of the pieces are missing. After placing in position all the pieces we can find, there may be one or two, or more lacunæ indicating the positions of the missing pieces, and according to the size and shape of the lacunæ we *infer* the number and shape of the pieces required to fill each. In the case of a small one of the approximate size of the generality of the other pieces of the puzzle we *infer* that one piece is needed to fill it, and we can further infer the precise size and shape of the missing piece, and also a great deal about the portion of the picture which is on its surface. We can tell a good deal about the design on the piece since it will obviously have on it the missing portion of that part of the whole picture. We can tell also from the immediately surrounding pieces a good deal about the colour which will be on its surface, and all these particulars we can correctly *infer* without having ever seen the missing piece before. We cannot indeed infer *all* the missing particulars of the complete picture, and if half a dozen people were each to draw separately and colour the design on the missing piece, there would certainly be six different reconstructions of

the absent portion. In some particulars they would all be alike, in others they would all be different. By placing a sheet of paper beneath the puzzle and tracing with a pencil round the lacuna all would obtain an outline of the absent piece, correct in size and in shape. All too could correctly infer the positions on the outline of the various contour lines of the general design, where these ended abruptly at the margins of the missing piece, and also the general direction of these lines. All could also correctly colour the immediate margins of the reconstructed piece between these various contour lines, but here or hereabouts the resemblance of the six pieces would cease, and in filling up the greater part the individual feelings, conceptions and artistic capacities of the six people would severally determine the completion of the six designs. Each would complete his portion according to his artistic preferences and tastes, his expectations and his guesses as to the part of the picture on the missing piece.

In these various attempts at filling the lacuna we have illustrations of the two great types of inference. In those particulars which could be correctly inferred from the surrounding pieces, viz., the size, the shape, the positions of the continuing lines of the design, and the positions and tints of the colouring at the margins, we have illustrations of rational or logical inference. In those particulars which depended on the artistic preferences and taste, on the expectations and guesses of the six people, we have illustrations of

psychological or non-rational inference. But both types have this in common that they "involve a jump, a leap, a going beyond what is surely known to something else accepted on its warrant." [1]

Let us take as further illustrations of logical inference the familiar one, of Harvey's discovery of the circulation of the blood, and one from Baden Powell's "Aids to Scouting."

After Harvey had completed his anatomical investigations, human and comparative, and proved that it was the contraction and not the dilatation of the heart which coincides with the pulse: that the ventricles act as true muscular sacs which squeeze their fluid contents into the aorta and pulmonary arteries: that there are no pores in the septum of the heart and therefore that the whole of the blood in the right ventricle is sent to the lungs, and the whole of the blood in the left ventricle into the aorta and great arteries: that the valves in the veins necessitated a constant stream of blood to the heart from distant parts and prevented harmful undulation in the veins:—at the completion of his long chain of induction there was still a lacuna which he was able to fill only by *inference*; he *inferred* that the smallest of the arteries became continuous with the veins by still smaller vessels which he was unable to demons-

1. "The exercise of thought is in the literal sense of the word *inference*; by it one thing *carries us over* to the idea of, and belief in another thing. It involves a jump, a leap, a going beyond what is surely known to something else accepted on its warrant." *How We Think*, by John Dewey, p. 26. See also *Problems of Philosophy*, by Hon. Bertrand Russell, and *Human Nature in Politics*, by Graham Wallas.

trate. This lacuna was filled three or four years after his death by Malpighi with the aid of the newly invented microscope, which enabled him to show in the lungs of the frog how the blood passes from one set of vessels to the other.

And take the following :—

"I was riding one day across an open grass plain in Matabeleland, with one native, scouting. Suddenly we noticed the grass had been recently trodden down; following up the track for a short distance, it got on to a patch of sandy ground, and we then saw that it was the spoor of several women and boys walking towards some hills about five miles distant, where we believed the enemy to be hiding. Then we saw a leaf lying about ten yards off the track—there were no trees for miles, but there were, we knew, trees of this kind at a village 15 miles distant, in the direction from which the tracks led. Probably, then, these women had come from that village, bringing the leaf with them, and had gone to the hills. On picking up the leaf, it was damp and smelled of native beer. So we guessed that according to the custom of these people (remember, as I said before, to study the habits and customs of your enemy) they had been carrying pots of native beer on their heads, the mouths of the pots being stopped with leaves. One of these leaves had fallen out; but we found it ten yards off the track, which showed that at the time it fell the wind had been blowing. There was no wind now, but there had been at about five a.m., and it was now nearly seven. So we read from these signs that a party of women had brought beer during the night from the village 15 miles distant, and had taken it to the enemy on the hills, arriving there about six o'clock. The men would probably start to drink the beer at once (as it

goes sour if kept for long), and would, by the time we could get there, be getting sleepy from it, so we should have a favourable chance of reconnoitring their position. We accordingly followed the women's tracks, found the enemy, made our observations, and got away with our information without any difficulty."[1]

Of psychological inference the jig-saw puzzle and the Göttingen experiment have already given us illustrations, and it may be said that where a logical inference runs counter to a man's predominant passions, it has little chance against a psychological one. "Let ever so much probability hang on one side of a covetous man's reasoning, and money on the other, it is easy to see which will outweigh." [2]

Portia: Therefore for fear of the worst, I pray thee, set a deep glass of Rhenish wine on the contrary casket; for, if the devil be within, and that temptation without, I know he will choose it.—*Merchant of Venice.*

1. *Aids to Scouting*, pp. 65, 66.
2. Locke on Human Understanding, quoted by Dewey, *How We Think.*

IMAGINATION.

Imagination is the formation of images by the "correlation" and "integration" of percepts and concepts. These images may be expressed by means of:

1. Words—by the speaker, writer and poet:
2. Colour—by the painter:
3. Form—by the sculptor and handicraftsman:
4. Sound—by the musician.

Take as an example the exquisite and well-known passage in the speech of Theseus in "A Midsummer Night's Dream":

> The poet's eye, in a fine frenzy rolling,
> Doth glance from heaven to earth, from earth to heaven;
> And, as imagination bodies forth
> The forms of things unknown, the poet's pen
> Turns them to shapes, and gives to airy nothing
> A local habitation and a name.

Or take the passage on the music of the spheres which Hallam considered to be "perhaps the most sublime" in Shakespeare:

> Look how the floor of heaven
> Is thick inlaid with patines of bright gold:
> There's not the smallest orb which thou behold'st
> But in his motion like an angel sings,

Still quiring to the young-eyed cherubins;
Such harmony is in immortal souls;
But whilst this muddy vesture of decay
Doth grossly close it in, we cannot hear it.

Or take the great image of Milton:

No light but only darkness visible.

Or take this from Shelley's "Adonais":

The One remains, the many change and pass,
Heaven's light for ever shines, earth's shadows fly;
Life like a dome of many-coloured glass,
Stains the white radiance of Eternity,
Until death tramples it to fragments.

Or take the stanza in "Locksley Hall" which Tennyson regarded as one of those which to the end of his life gave him the most enduring pleasure:

Love took up the harp of life and smote on all the chords with might;
Smote the chord of Self, that, trembling, passed in music out of sight.

What are all these but illustrations of the formation of mental images by means of concepts and the integration of these separate images into harmonious pictures, much as the artist who expresses his thoughts by means of painting makes studies of objects, figures and groups, and finally blends them all into the larger composition.

And when language has done its best and told as much as it can of the yearnings and emotions of man's restless nature, music may carry on the theme

into regions where words halt and fail, but where melody, harmony and rhythm, speaking together in yet finer accents, may convey, by means of their wedded graces, still more penetrating shades of emotional meaning.

"Hae ye ever heard the pipes?"

"Why, yes, but long ago."

"Then," said Donal', "ye shall juist hear 'em again."

So saying, he wiped his mouth, took up his instrument, and began slowly inflating it.

Then, all at once, from drones and chanter there rushed forth such a flood of melody as seemed to sweep me away upon its tide.

First I seemed to hear a roar of wind through desolate glens, a moan of trees, and a rush of sounding waters; yet softly, softly there rises above the flood of sound a little rippling melody which comes, and goes, and comes again, growing ever sweeter with repetition. And now the roar of the wind is changed to the swing of marching feet, the tread of a mighty host whose step is strong and free; and lo! they are singing, as they march, and the song is bold and wild, wild, wild. Again and again, beneath the song, beneath the rhythm of marching feet, the melody rises, very sweet but infinitely sad, like a silver pipe or an angel's voice tremulous with tears. Once again the theme changes, and it is battle and death, sudden and sharp; there is the rush and shock of charging ranks, and the surge and tumult of conflict, above whose thunder, loud and clear and shrill, like some battle-cry, the melody swells, one moment triumphant, and the next is lost again.

But now the thunder rolls away, distant and more distant—the day is lost and won; but sudden and clear, the melody rings out once more, fuller now, richer and complete, the silver pipe has become a golden trumpet.

> And yet, what sorrow, what anguish unspeakable rings through it, the weeping and wailing of a nation! So the melody sinks slowly, to die away in one long-drawn, minor note, and Donal' is looking across at me with his grave smile, and I will admit both his face and figure are sadly blurred." [1]

But the reading of this does not dim the eyes although the music did!

What is called the "Scientific Imagination" is concerned with the "correlation" and "integration" of percepts and concepts in that universe of thought which we designate Science.

1. In abstract or theoretic science as seen in the generalizations and laws of Aristotle, Galileo, Newton, Darwin, Kelvin, Mendel, Karl Pearson, Mendeléeff, etc., etc.

2. In applied science as seen in

The Steam Engine .....Watt.
The Locomotive .....Stephenson.
The Telegraph .....Wheatstone.
Wireless Telegraphy .....Marconi.
etc., etc.

Into scientific laws and generalizations of facts only the conceptual elements of thought enter, but the perceptual elements must necessarily enter largely into the living mental processes by which those laws and generalizations were reached and by which Stephenson, *e.g.*, laboriously won his way to success through the problems which confronted him

1. *The Broad Highway*, by Jeffery Farnol, p. 170.

in designing and constructing the " Rocket," and by which all applications of knowledge in whatever sphere of thought are brought to fruition. In the mental processes which go to the formation of any work of imagination whether in the sphere of literature, or painting, or sculpture, or music, or in abstract or applied science, the perceptual powers must in the nature of things be entering continually although the work when finished will have become entirely conceptual. For " the intellectual life of man consists almost wholly in his substitution of a conceptual order for the perceptual order in which his experience originally comes." [1]

1. Quoted by James, *Some Problems of Philosophy,* p. 51, from *The Philosophy of Reflection,* by S. H. Hodgson.

REASON.

Reason is regarded by Professor Hobhouse as the impulse of consciousness to weave its experiences into an inter-connected whole;[1] and the mental processes by means of which this impulse seeks to achieve its aim are the processes of *acquiring, differentiating, correlating, and integrating percepts and concepts.*

One of Professor Hobhouse's contentions is that "in the development of Mind, the elaboration of the conceptual order" (Conceptual Reconstruction), "appears not as an end in itself, but as preparatory to a higher effort"[2] which it reaches in "Experiential Reconstruction" which "involves what we may call briefly a correlation of Mind products with their conditions."[3]

But most important amongst the conditions in which the mind products are formed is the stream of *percepts* which may be said to furnish the raw material for the conceptual products. "Fixed concepts may be extracted by our thoughts from mobile reality, but there are no means of recon-

1. "Rational thought is no longer limited to the apprehension of a fully and finally established system. It becomes rather an impulse working towards an ideal, organising the acquired results of experience into a coherent whole and extending them by persistent investigation. Thus Reason in general may be briefly defined as the impulse towards interconnection." *Development and Purpose*, p. 276.
2. *Ibid.*, p. 150.
3. *Ibid.*, p. 166.

structing the mobility of the real with fixed concepts";[1] nor even perhaps with the supple, mobile concepts which Bergson desiderates, but only by combining with the concepts a presentation of the perceptual flow in which the experience actually comes.

Here is an example of "Experiential Reconstruction." The presentation of the perceptual element will be seen to pervade it from end to end, and is that which gives it life, and endows it with the verisimilitude of experience itself.

TEACHING II.B.[2]

"It was the last lesson of a hot, sultry afternoon, and I had to face the task of persuading II.B to believe that "a noun is the name of something." In response to an appeal that I should tell them a tale "because it's so hot and stuffy," I replied that I would tell them about something called a noun. Their faces fell instantly, for they were not ignorant of the fact that nouns come under the head of grammar. To the accompaniment of long-drawn-out sighs I wrote on the blackboard, "Rabbits eat clover." Instantly several hands shot up—the scholars are not allowed to call out—and I saw with satisfaction that I had secured their interest. "Well, Cooper?" I said to a boy who will be a living encyclopædia when he grows up, if he remembers the answers to all the questions he asks.

"Please, sir," he replied, standing on one leg and leaning over the desk in his excitement, "I have a rabbit."

1. *Introduction to Metaphysics*, by H. Bergson, p. 58. Trans. by T. E. Hulme; Macmillan, 1913.
2. *Manchester Guardian*, 29 May, 1913.

Another boy immediately volunteered the information that he had two. This led to an animated discussion, in which scant respect was paid to the chairman, as to the number of rabbits possessed by various claimants. Sutcliffe headed the list with seven, much to the indignation of Jones, who owned five, and who said that six of Sutcliffe's were only three weeks old, and therefore ought not to count for as much. I cut short the argument by pointing to little Shannon, who seemed desirous of imparting some information. "Shure, sir-r," he said, "it's not rabbits I keep, but white rats, and one got its tail under the door yesterday." Thirty pairs of eyes instantly turned in his direction; he was the hero of the moment. "It squeaked like anything," he added. This remark was greeted with a loud outburst of laughter. II.B's sense of humour may be primitive, but there is no cant about it.

Shannon was quite prepared to give a full account of his rat's chequered career, and he would have been assured of an attentive audience, but I broke the spell by calling on a boy to read out the sentence on the blackboard. "Rabbits eat clover," he began, and then added with more earnestness, "But please, sir, if they eat too much they get stomach-ache." After hearing the sentence read a second time without comments, I asked, "Now, what have we been talking about?"

"Rabbits and rats," said a quiet boy on the front row.

"Yes, and what else?"

"Clover," he added.

"Quite right," I said, delighted to bring them to the point at last. I was about to continue, when I noticed a boy at the back waving his hand frantically to attract my attention.

"Well?" I asked, looking at him severely.

"And stomach-ache," he shrieked in delight.

As soon as the roar of appreciative laughter which greeted this remark had subsided, I said, to their surprise, "Quite right. Now the names of all these things about which we have been talking—rabbit, rat, clover, and stomach-ache—are nouns." I had thrust it in at last, and felt proud of the fact. But as several of the boys seemed anything but satisfied, I turned to another young searcher for truth. "Are little rabbits nouns as well as big ones?" he asked.

"Rabbits are not nouns at all," I said angrily.

"Please, sir," said Sutcliffe in his most respectful tones, "you said they were a bit since, and rats, and stomach-ache."

"Yes, sir," said another, "I heard you," and quite a dozen nodded assent.

"I said the name of a thing was a noun, and not the thing itself," I explained. But it was evident that the distinction was considered superfluous.

At this stage I asked them to write in their books the definition of a noun. As the bell rang out the welcome news that the afternoon was at an end, I picked up the first book, and read:

"If a rabbit has a name it is a noun. So is a rat and stomach-ache."

WILLIAMS LEIGH.

Some may perhaps demur to seeing "experiential reconstruction," as exemplified by the above, classified as a higher effort of Reason, but since "the different modes of thinking blend insensibly into one another,'[1] and since what we call "Imagination" and what we call "Reason" are to a large extent the exercise of the same psychic processes

1. *How we Think*, Dewey, p. 6.

working with the same materials (percepts and concepts), the meeting point between them may fitly happen round such an experience, and if so the objection would seem to have no logical validity. And should it indeed be that Reason consists merely of these few mental processes by means of which mankind is enabled to play its games of intellectual jugglery with percepts and concepts, it becomes clear how feeble an instrument intellectualism must ever be for moralizing society: how impotent a barrier against the insistent claims of instinct. Well might Newman write: "Quarry the granite rocks with razors, or moor the vessel with a thread of silk; then you may hope with such keen and delicate instruments as human knowledge and human reason to contend against those giants, the passion and pride of man."[1]

1. *The Idea of a University*, J. H. Newman, p. 121.

X V. p. 119.

WILL OR CONATION.

Will is desire and thought united in action or inhibition,[1] and in the same individual it may show itself at one moment in action at another moment in inhibition.

We saw in a previous page, in differentiating the concept of the feeling which we call happiness, that there was a happiness of instinct, a happiness of intellect and a happiness of spirit: so it is also with the *desire* which is the animating force of what we call "will." It may be a desire of mere natural or animal instinct, or a desire of intellect, or a desire of spirit, and according to the nature and force of this animating desire so, *ceteris paribus*, will be the nature and extent of the results effected by it, when by combination with the necessary thought and action or inhibition, it eventuates in what we call

1. "Will can be identified with neither *reason* nor *desire*, nor is it a third thing co-ordinate with both (Plato) nor a fusion of the two (Aristotle), yet it includes both. It includes:

"(*a*) The instinctive craving for a good, an ideal to be realised—in Aristotelian language, βούλησις. which though a part of ὄρεξις, is already, as being βουλησιη αγαθου, λογιστικον τι.

"(*b*) A representation to ourselves of some good to be realised (φαντασία)

"(*c*) The rational deliberation as to how it shall be realised (βουλευσις)

"(*d*) The identification of self with the best means for the end." (προαίρεσις).

Some Questions about the Will, from *Essays Scientific and Philosophical*, by Aubrey L. Moore, p. 137.

"The Science of Character will deal with the Intellect as with the Will. It will regard the one no more than the other as an independent existence; but as organised in and subserving the system of some impulse, emotion, or sentiment." *The Foundations of Character*, by A. F. Shand, p. 67.

"Will." And the "will" of which this desire constitutes a part may be the "will" of an Ivan the Terrible, a Borgia, a Napoleon, a Shakespeare, a Dante, a Newton, a Darwin, an Alfred, a Gladstone, a Francis D'Assisi, a Vincent de Paul.

Take as an example—Napoleon,[1] whose dominant desire was the personal ambition first of creating an empire for himself out of the chaos following the revolution, and secondly of founding a dynasty of his own, to rule this empire in succeeding times. If we analyse what we ordinarily call the "judgment" which he showed in such a matter as the choice of his officers and ministers, this may be said to have consisted of a highly developed faculty of rapidly "acquiring" a knowledge of men, of "differentiating" accurately between their individual aptitudes and capacities, of successfully "correlating" their capacities with the requirements of the various positions in which he placed them; and all these conceptions and actions when regarded as a whole, constitute a process of "integration," by which he formed an entity, an integral whole, his complete executive to aid him in carrying out his desire. But however brilliant his genius in the wide and complex sphere of action in which he moved and worked it is difficult to see that the desire of self-assertive

1. "We think of Napoleon Bonaparte as a colossal monster of will-power, and truly enough he was so. But from the point of view of the psychological machinery it would be hard to say whether he or Gladstone was the larger volitional quantity; for Napoleon disregarded all the usual inhibitions, and Gladstone, passionate as he was, scrupulously considered them in his statesmanship." Wm. James, *Talks to Teachers*, p. 181.

domination[1] which animated his whole career differed essentially from that of the primitive savage in Kipling's verses (v. *ante* p. 27). He was the creature of his instincts as surely as is the miser, the sensualist or the thief, and his great powers of mind were employed primarily and unceasingly in gratifying them; whereas in Alfred the Great or Gladstone, for example, the power of inhibiting the natural instincts had been so cultivated that altruism and high motive took the place of egoistic desire, and purely selfish action. The one is an example of the non-moral genius of action in whom the intellect is directed by the desire of gratifying the natural instincts. The others are examples of the moral genius of action in whom the intellect is directed by a desire of an immeasurably different order, by something which has been called and which we may still call "spirit."[2]

1. "The finite self aims at dominion: it sees the world in concentric circles round the *here* and *now*, and itself as the God of that wished for heaven." "The Essence of Religion," by the Hon. Bertrand Russell, *Hibbert Journal*, Oct. 1912.

2. "What we find to be possible is the subservience of natural desires to a nobler set of thoughts and aims, till they are not destroyed, but caught and lifted up into a higher atmosphere, where for the first time their meaning becomes plain." *The Corner-Stone of Education*, by Ed. Lyttelton, p. 139.

SPIRIT.

What then is spirit? Who shall say? "From generation to generation men have been the sport of words," and the word is only a name label which men attach to profoundly different concepts or images. We talk of good spirits, of evil spirits, of animal spirits, of ghostly spirits, of rectified spirits, of spirits of salts, of spirits of wine, of the spirit of the law, of the spirit of the age, of the spirit of the constitution, of the spirit of mischief, of the spirit of truth, of the spirit of love, of the spirit of life. But what meaning are we to attach to the label when we use it to indicate that part of man's nature which we call spiritual? Are we right in speaking of a man's "Spirit" as something different from what we call his "Mind"? or are they terms which we may use synonymously? and if not, what relationship do they bear, the one to the other? We know that what we call man's "Body" is a complex of many parts and functions, we have seen that what we call man's "Mind" is a complex of a few mental processes working with percepts and concepts; we have seen that what we call man's "Will" is also a complex of which the functions and content of mind form a part; that what we call "Imagination," and what we call "Reason," are not special "faculties," but only complex groupings of percepts and concepts

into mental images and forms. So too with what we call man's "Spirit." It also is likely to share this complex nature,[1] and may perhaps be regarded as an intimately blended complex of truth and ethical as distinguished from instinctive[2] love. But since human knowledge is merely conceptual and relative and never attains to absolute truth, and human love is mostly instinctive and rarely becomes consistently ethical, it follows that the complex of these two elements in man must participate in these limitations and will ever remain but a dim reflex of the transcendent and absolute Truth and Love which mankind has for ages embraced among the attributes which it has enshrined under the ancient name of God. It is only when men's impulses, thoughts and actions[3] are controlled and directed by such a complex that man comes nearest to the godlike. And the control

1. "The spiritual life is not a product of a single psychical function, such as thought or feeling; it would form a whole transcending the psychical functions, and from this whole determine the form of each function distinctively. The chief impulse of the spiritual life is that it wills to liberate us from the merely human. Seen from within, the history of humanity is primarily an increasing deliverance of life from bondage to the narrowly human, an emergence of something more than human, and an attempt to shape our life from the point of view of others: it is an increasing conflict of man with himself." *Life's Basis and Life's Ideal,* by Rudolph Eucken, p. 135.

2. *vide* Note 1.

3. Morality must take up a definite attitude towards the sense nature of man; that nature must be subordinated to the aims of the spirit." *Life's Basis and Life's Ideal,* by Rudolph Eucken, p. 341.

"Knowledge is one of the forms and a necessary portion of morality, and just as without an enlightened understanding there can be no real and perfect morality, so a true and comprehensive knowledge can subsist only in a mind disciplined by morality. It is true that this love of wisdom, often as it is proclaimed and paraded, is as rare as it is precious, for he alone can claim to possess it who is able and willing to dedicate himself to truth with an absolute and unreserved devotion and to make even the most painful sacrifice on its behalf." *Lecture on Error, Doubt and Truth,* by J. J. I. von Döllinger.

"Ignorance is not innocence but sin." *Browning.*

and direction of life by such a complex, to which we may attach the name of " spirit," becomes at once a high and perpetual warfare, a warfare of the higher self with the lower self, of the universal self with the particular self, of spirit in man with instinct in man; a warfare in which the interests of the higher self become ultimately merged with the interests of others, in which the highest individualism becomes to a large extent social service.[1]

> "Conceive for a moment what an infinitely better and happier world it would be if every action in it were directed by a reasonable desire for the agent's happiness! Excess of all kinds, drunkenness and its attendant ills, would vanish, disease would be enormously mitigated; nine-tenths of the petty vexations which embitter domestic life would be smoothed away; the competition for wealth would be lessened, for wealth would be rated at no more than the quantity of pleasure which it is capable of purchasing for its possessor; the sympathetic emotions would be sedulously cultivated as those least subject to weariness and satiety; whilst self-sacrifice itself would be practised as the last refinement of a judicious luxury."[2]

And action directed by the rare combination of complete knowledge and ethical love is justice.[3]

1. " The development of the spiritual life within the human order involves a complete transformation of values. The course of historical development shows us sense-immediacy constantly yielding more and more of its supremacy to a spiritual immediacy; the outward life is lived and viewed from the standpoint of the inward and not *vice versa*." *The Meaning and Value of Life*, by R. Eucken, p. 102.

2. " The Religion of Humanity," by A. J. Balfour, *Essays and Addresses*, p. 294.

3. " Sown into the womb of Nature (man) was sown a spiritual seed. And history, on the one side the record of man's entanglement in matter, on the other side is the epic of his self-deliverance." *Justice and Liberty*, by J. Lowes Dickinson, p. 202.

IMPULSES.

Impulses are instinctive and emotional, intimately blended.

Instinct.

"We must remember that as things now are, no two writers use the term in quite the same sense." [1]

Definitions.

"The faculty of acting in such a way as to produce certain ends, without foresight of the ends, and without previous education in the performance."—*James.*[2]

"Those complex groups of co-ordinated acts which, though they contribute to experience, are on their first occurrence, not determined by individual experience; which are adaptive and tend to the well-being of the individual and the preservation of the race; which are due to the co-operation of external and internal stimuli; which are similarly performed by all members of the same more or less restricted group of animals; but which are subject to variation, and to subsequent modification under the guidance of 'individual experience.'"—*C. Lloyd Morgan.*[3]

"An inherited reaction of the sensori-motor type, relatively complex and markedly adaptive in character, and common to a group of individuals."—*Baldwin.*[4]

"An inherited psycho-physical disposition which determines its possessor to perceive, and pay attention to, objects of a certain class, to experience an emotional excitement of a peculiar quality upon perceiving such an object, and to act in regard to it in a particular

1. *Instinct and Experience,* by C. Lloyd Morgan, p. 239.
2. *Principles of Psychology,* vol. ii, ch. xxiv.
3. C. Lloyd Morgan, *Encycl. Britann.*
4. Baldwin's *Dictionary of Philosophy and Psychology.*

manner, or, at least, to experience an impulse to such action."—*McDougall.*[1]

Marshall in "Instinct and Reason" uses the word in a wider sense, distinguishing throughout between Instinct-action and Instinct-feeling, and including also the so-called moral and religious instincts.

In view of the evident difficulty experienced by experts in framing a definition of "Instinct" which shall be applicable alike to insect, animal and human life, it may perhaps be permissible for the man in the street to strike a mean between those presented to him and use the term in a sense which seems suitable to the immediate purpose in hand. It is doubtless to some extent a question of words and, to that extent, like all questions of words a question of convenience. In reference to the writer's immediate subject—the education of man—it seems inconvenient to use the same word to denote both these impulses which man has in common with insects and the lower animals, and those higher "intuitions,"[2] which Kant conceptualises as "the categorical imperative," Butler as "conscience," and others as "the inner

1. *Social Psychology,* sect. i, ch. ii.

2. The writer here refers to what he understands to be Intuition according to Kant rather than Intuition according to Bergson. The latter's *Introduction to Metaphysics* concludes: "Metaphysical intuition although it can only be obtained through material knowledge, is quite other than the mere summary or synthesis of that knowledge. It is distinct from these, we repeat, as the motor impulse is distinct from the path traversed by the moving body, as the tension of the spring is distinct from the visible movements of the pendulum. In this sense metaphysics has nothing in common with a generalisation of facts; and nevertheless it might be defined as *integral experience.*" This seems to indicate that Bergson includes under Intuition what the writer has tried to show in the preceding pages to be the part of the perceptual as distinguished from the conceptual functions of Mind.

check," [1] or " the moral sense." These seem to him better accounted for by intuitional or super-sensuous perception. He accordingly uses the word "Instinct" in a more restricted sense than Marshall, a sense which, unlike Lloyd Morgan's definition, includes an emotional as well as a motor content, but an emotion centring in the individual and extending, at any rate for a time, as in the higher animals to other members of the family. In view of Long's observations, which are referred to subsequently, it seems to the writer open to question how much of the communal behaviour of gregarious animals is due to instinct and how much to education.

Instincts involve and imply certain arrangements of nerve cells in functional relation with one another and adequate in combination to provide the regulating nervous mechanism necessary for the instinctive act. These groups of functionally related cells are, according to Lloyd Morgan, situated in the lower parts of the cerebro-spinal nervous system (sub-cortical) and form the physiological correlates of what are known psychologically as " dispositions." Instincts may be regarded as due to hereditary dispositions in the sub-cortical layers of the cerebro-spinal nervous system. [2]

1. P. E. More in *The Drift of Romanticism.*

2. " I restrict the term instinctive *in its biological acceptation* to congenital modes of behaviour dependent upon inherited dispositions *within the lower brain centres.*" *Instinct and Experience,* C. Lloyd Morgan, p. 32.

" The outcome of physiological analysis of the kind we have been considering is that complex behaviour of the instinctive type is determined by the hereditary dispositions of the sub-cortical centres." *Instinct and Experience,* C. Lloyd Morgan, p. 81.

TWO HOURS' PLAY OF A FOUR YEARS' OLD BOY.

By J. J. Webber, B.A.[1]

"At 10.40 my four-year-old came to me and said, "Shall we dig?" I assented, and we went forth. Prepared to abandon initiative and remain as neutral as possible, I had no sooner been armed with a trowel than he rushed off to a corner of the garden. "Look at those pretty flowers" was his cry as he pointed to a sage-bush. As he returned he pointed out some short sticks forming "a little fence," then "a pansy," and mentioned casually that the pea-sticks did not poke into his eye as he passed (a reference to an accident of three weeks ago). Digging then commenced, the earth being loaded into the toy cart, while I gave a minimum of help. Soon he shouted with a discoverer's glee, "fir-cone," picked up the cone, and apparently being reminded of "comb," tried to part his hair with it, and then threw it into his "house" (a large wooden packing-case, stood on one end) saying, "We'll keep that." By 10.58 he had filled and tipped the cart twice.

He now took a deep pan and a small garden fork, and in answer to enquiry, said, "I am going to make pepper, salt and mustard, and this is my mixing fork." In order to avoid any jarring note, I also began the manufacture of pepper, etc., but was reminded that I must not attempt it until I had done cart-loading. Hastily I filled and tipped the cart once, and was hurrying on with the pepper, etc., when the boy whose attention was, I thought, fully occupied with his task, remarked that two loads ought to be tipped first.

By 11.11, "pepper, salt and mustard" had been meta-

1. *Child-Study*, Oct. 1913.

morphosed into "dinner," and this was soon considered as cooked, but suddenly he started to get "potatoes," picking up rounded stones and placing them in the cart. The intermittent nature of this work, and the different objects which he noticed as he searched the ground set his tongue going. He had been forbidden some days before to break off the small twigs on the pea-sticks, but as he was busily occupied I unconsciously snapped off a twig. He immediately glanced up from his "potato" gathering and said, "Why do you break off those twigs?"

He chattered about the cool breeze, and the leaves on the tree; noticed a piece of glass, which he threw away, and a shell which he picked up and exhibited before placing in the "house," then having gathered 43 "potatoes" he became a buyer, and negotiated with an imaginary greengrocer. The "potatoes" were placed in a box in imitation of the household custom, and then it appeared that we kept "birds in cages," and this food was for the "dickies." I may mention that vegetables chopped small, in water, was his idea of birds' food; and a cupful of this "soup" placed in a disused bird-cage, which is hung outside the house, is his method of "trying to catch birds."

At 11.22 more potatoes were collected, and having noticed me counting the previous number, he invited me to count again. A pudding was now to be made, but the unsatisfactory nature of pebbles seemed to strike him, as they rattled into his small pail, and he threw them all out and began to pick up lumps of earth. In a moment he brought me a small brown withered bulb and said, "Look—a buttercup root!" It was sure enough *Ranunculus acris*, but before I had time to enquire about this alarming botanical erudition he ran into the house to show the find to his mother. He planted them it seems, and the flowers and leaves disappeared some weeks ago.

Continuing his search for "potatoes" he found little pears and placed them to cook on the "dinner." "There's a honey-bee," he says, as it flies past, and then enters into an explanation, with practical illustrations, of why as a rule he comes in from the garden with dirty knees.

The lumps of earth are placed on the bottom of a box, and he goes to get an old knife "to cut up seeds for the dicky." 11.40: The material being cut up is soon called "parsley," and then "suet"—the latter being sprinkled on the overdone "dinner," while the unused lumps of earth are put into the pail, which is carefully hung up in the "house."

His attention was now roving. Catching sight of his mother, he asked for an apple or an orange, but hardly waiting for an answer, assured me that tail-boards of carts had to be made "strong," that somebody had to make "Tommy" (his wooden horse), and that Tommy had to eat his food "like this"—falling on his hands and knees and champing. The shell in the "house" now attracted his eye—"Could we find one without a hole in it?"

At 11.45 he said, "Shall we dig now?" and emptied the "dinner" on to the ground, but he made no attempt to dig, and soon suggested that we should "live in the little house and eat potatoes." The pail containing the latter was upset, as he was admiring a lady-bird in the "house" at 11.51, so he set to work with the knife, flattening the small heap of split earth, and calling it "cement."

Looking at some nails he recalled the pictures tacked up in his "house" a couple of months ago, and then invited me to play, the game to be "going down the path with the horse and cart, as our mother allows us to do this." At 12.8 after a turn at the aforesaid game, he talked of digging, but hearing the voice of the little boy in the next garden he did nothing. At

12.10 he asked for his wooden engine, on which he sat and shouted to the little boy. He filled the engine tender with earth at 12.14, but stopped to watch and talk to the other boy till 12.30, when he again suggested digging, but did nothing.

A shower then came on, and he covered the horse and cart with sacking, but stood the pail containing some earth out in the rain "to make mud," and when the rain stopped, made an unsuccessful appeal for tap-water. 12.34: We walked the path again with Tommy and the engine, but this was soon abandoned, and at 12.45 he began picking leaves and passing them through the chinks of his "house" from the inside to the outside. While doing this he says gravely, without turning his head "Skylark," and then I noticed one singing in the distance."

This excellent piece of "experiential reconstruction" shows the play and imitative instincts at work in various directions—"digging," making a "house," preparing "dinner," cooking "potatoes," negotiating with a greengrocer, "trying to catch birds," imitating "Tommy" eating—making "suet," "mud," etc. It also shows the child applying to the work in hand the conceptual contents of his mind as these have been formed by his previous experience. The impulse to action and speech must vent itself in the terms already stored and ready to hand in the cognitive dispositions of his mind, however inappropriate they may be, and further we see throughout how the trains of speech and action are being continually interrupted and diverted by streams of new percepts which his mind is unceasingly acquiring from the sense-data furnished by his eyes, his ears,

and his touch. The dynamic stream of percepts is constantly at work adding to his experience and recalling to the consciousness of the moment concepts previously formed and stored in the mind, recalling also past incidents, and past actions. The boy is reacting to his environment in response to this perceptual flow, and the mingling and interaction of inner impulse and outer impression is forming new experience which in its turn is creating new desires which are immediately craving for satisfaction and expression. But the talk and action throughout are seemingly chaotic and purposeless, and it is the business of education to reduce this chaos to order, to gradually form *in the child* the power to control and direct these and similar impulses, and ultimately the power if necessary to inhibit them altogether.[1] And this is of the very essence of discipline—self-discipline it may be and in later life must be,[2] but none the less discipline for

1. " . . . . the modern authorities in physiology and psychology now believe that there are in the brain masses of cells whose duty it is to inhibit or control the action of other parts of the brain. The question is a most important one in Mental Hygiene. Can those inhibitory centres be so developed in youth and so cultivated in mature life that they can act as antagonists to what is morbid? Can they in fact be used as directly curative agencies against tendencies towards foolish and hurtful impulses? *If this is so, and we could cultivate this power it would be an educational discovery the most valuable yet made by humanity.*" *Hygiene of Mind*, by Sir Thomas Clouston, p. 81.

" The peculiar problem of the early grades is, of course, to get hold of the child's natural impulses and instincts, and to utilise them so that the child is carried on to a higher plain of perception and judgment, and equipped with more efficient habits: so that he has an enlarged and deepened consciousness, and increased control of powers of action. Whenever this result is not reached play results in mere amusement and not in educative growth." *The School and the Child*, by John Dewey, p. 58.

2. This internal or self-discipline may, under suitable conditions, be established when the discipline of external pressure has entirely failed. Its cultivation is the keynote of the George Junior Republic and similar institutions. *Vide* Note II, " The Little Commonwealth."

that—self-expression it must be too, but a self-expression which involves self-transcendence, the transcendence of a higher and more ordered self over the lower self of instinct. This power of control and inhibition needs to be cultivated at an early stage of growth, for an impulse once controlled becomes easier to control a second time, but if successively left uncontrolled may ultimately become uncontrollable; and this same control of the instinctive and emotional impulses is the physiological part of the raw material of all ethical conduct and an essential for the full fruition of religion itself. In the childhood of the individual, as in the childhood of the race, the instinctive impulse generated by a blow finds its reaction in another blow. In the child of a larger growth the answering blow may be given with the walking stick or the hunting-crop. "In more sedate circles the same instinct may find expression in a lawsuit, while among the saints of the earth it may take the negative form of heaping coals of fire on the enemy's head."[1] If the instincts furnish the initial impulse in the development of human beings it is none the less the part of cultivated manhood and womanhood to control and direct them instead of being controlled and directed by them.[2]

"Man who man would be
Must rule the Empire of himself!"

—*Shelley.*

1. *The Psychology of Education,* by J. Welton, p. 73.
2. "Social existence depends on certain abstensions. Society holds together by virtue of the inhibition, or control, or self-denial, that its members impose upon themselves, with respect to acts that are prompted by their self-preservation and reproductive instincts." *Crime and Insanity,* by C. A. Mercier, p. 20.

THE SIGNIFICANCE OF THE INCREASED SIZE OF THE CEREBRUM IN RECENT AS COMPARED WITH EXTINCT MAMMALIA.[1]

"It is well established that the extinct mammalia of the middle and lower tertiaries had—as compared with their nearest living congeners—an extremely small cerebrum. The exact figures are not important, but *Titanotherium*—a true rhinoceros—had certainly not more than one-fifth of the cerebral nervous substance which is possessed by living rhinoceros. *Dinoceras*, representing a distinct group of Ungulata, had even a smaller brain. Yet in bulk these animals were as large as, or larger than, the largest living rhinoceros. Further, it appears from the examination of the cranial cavities of extinct and recent reptiles, that the increase in the size of cerebrum is not peculiar to mammalia, but that we may assert as a general proposition that recent forms have a greatly increased bulk of cerebrum as compared with their early tertiary or mesozoic forebears.

It appears also that the relative size of the cerebrum in man and the anthropoid apes may be cited here as a similar phenomenon; the more recent genus *Homo* having an immensely increased mass of cerebral nerve-tissue as compared with the more ancient pithecoid genera.

The significance of this striking fact—viz., that recent forms have a cerebral mass greatly larger than that of extinct forms (probably in every class of the animal kingdom) has not been discussed or considered as it deserves . . . . . In what does the advantage of a larger cerebral mass consist? What is it that the more recent mammalia have gained by their larger brains? Why has there been this selection in all lines of animal descent of increased cerebral tissue?

I think we gain a key to the answer to this question by a consideration of the differences of cerebral quality

1. By Sir E. Ray Lankester, F.R.S., *Nature*, 26 April, 1900.

between man and apes. Man is born with fewer ready-made tricks of the nerve centres—those performances of an inherited nervous mechanism so often called by the ill-defined term "instincts"—than are the monkeys or any other animal. Correlated with this absence of inherited ready-made mechanism, man has a greater capacity for developing *in the course of his individual growth* similar nervous mechanisms (similar to but not identical with those of "instinct") than any other animal. He has a greater capacity for "learning" and storing his *individual* experience, so as to take the place of the more *general* inherited brain-mechanisms of lower animals. Obviously such brain-mechanisms as the individual thus develops (habits, judgments, &c.) are of greater value in the struggle for existence than are the less specially-fitted instinctive inborn mechanisms of a race, species or genus. The power of being educated—"educability" as we may term it—is what man possesses in excess as compared with the apes. I think we are justified in forming the hypothesis that it is this "educability" which is the correlative of the increased size of the cerebrum. If this hypothesis be correct—then we may conclude that in all classes of vertebrata and even in many invertebrata—there is and has been a continual tendency to substitute "educability" for mere inherited brain-mechanisms or instincts, and that this requires increased volume of cerebral substance. A mere spoonful of cerebral tissue is sufficient to carry abundant and highly efficient *instinctive* mechanisms from generation to generation; but for the more valuable capacity of elaborating *new* brain-mechanisms in the individual as the result of the individual's experience of surrounding conditions, a very much larger volume of cerebral tissue is needed.

Thus it seems probable that "educability" has increased in those mammalia which have survived.

The ancient forms with small brains though excellent "automata" had to give place, by natural selection in the struggle for existence, to the gradually increased brains with their greater power of mental adaptation to the changing and varied conditions of life : until in man an organism has been developed which, though differing but little in bodily structure from the monkey, has an amount of cerebral tissue and a capacity for education which indicates an enormous period of gradual development during which, not the general structure, but the organ of "educability," the cerebrum, was almost solely the objective of selection.

. . . . .

To a large extent the two series of brain-mechanisms, the "instinctive" and the "individually acquired," are in opposition to one another . . . . . The loss of instinct is what permits and necessitates the education of the receptive brain.

. . . . .

The fact is that there is no community between the mechanisms of instinct and the mechanisms of intelligence, and that the latter are later in the history of the development of the brain than the former, and can only develop in proportion as the former become feeble and defective."

When Sir E. Ray Lancaster wrote these words the studies had been made of how this increased "educability,"—the result of a larger cerebrum—is utilised by the higher animals, and three years later —in 1902—Long published his fascinating book giving detailed accounts of the animal Kindergartens.[1]

1. *School of the Woods,* by William J. Long.

"That animal education is like our own, and so depends chiefly upon teaching, may possibly be a new suggestion in the field of natural history. Most people think that the life of a wild animal is governed wholly by instinct. They are of the same class who hold that the character of a child is largely predetermined by heredity.[1]

Personally, after many years of watching animals in their native haunts, I am convinced that instinct plays a much smaller part than we have supposed; that an animal's success or failure in the ceaseless struggle for life depends, not upon instinct, but upon the kind of training which the animal receives from its mother. . .

Those young birds and animals that are left by sad accident, or sadder wilfulness, without their mothers' training profit little by their instincts. They are always first to fall in the battle with the strong. Those alone that follow their natural leaders till they learn wisdom live to grow up in the big woods. Sometime, in the course of a long summer, birds and animals that see their offspring well trained produce a second brood or litter. The latter are generally abandoned, at the approach of winter, before their simple education is half completed. Left with their instincts and their imperfect training, they go to feed nature's hungry prowlers; while the better trained broods live and thrive in the same woods, amid the same dangers. . . .

Again, you find a little fawn hidden in the woods, as described in the next chapter, and are much surprised that, instead of running away, he comes to you fearlessly, licks your hand and follows you, calling wistfully as you go away. You have yet to learn that fear is not instinctive; the most wild creatures, if found early,

1. "There is abundant evidence that a child of normal capacity may be trained to a degree of stupidity resembling innate feeble-mindedness, or to a degree of wrong-headedness resembling insanity, or, on the other hand, to a degree of intelligence which, relatively speaking, resembles genius." *The Laws of Heredity*, by Archdall Reid, p. 477.

before they have been taught, have no fear, but only bright curiosity for one who approaches them gently.

A few weeks later, while prowling through the woods, you hear a sudden blast, and see the same fawn bounding away as if for his life. You have not changed; your gentleness is the same, your heart is kind to every creature. What then has come over the son of Kish? Simply this; that one day, while the fawn was following his mother, a scent that was not of the woods stole in through the underbrush. At the first sniff the doe threw up her head, thrust her nose into the wind, snorted, and bounded away with a sharp call for the fawn to follow. Such a lesson rarely needs to be repeated. From that moment a certain scent means danger to the fawn, and when the friendly wind brings it to his nostrils again he will bound away, as he was taught to do. And of all deer that flee at our approach in the wilderness, not one in ten has ever seen a man or suffered any harm; they are simply obeying one of their early lessons. . .. .

The summer wilderness is just one vast schoolhouse, of many rooms, in which a multitude of wise, patient mothers are teaching their little ones, and of which our kindergartens are crude and second-rate imitations. Here are practical schools, technical schools. No superficial polish of French or literature will do here. Obedience is life; that is the first great lesson. Pity we men have not learned it better! Every wild mother knows it, lives by it, hammers it into her little ones. And then come other secondary lessons,—when to hide and when to run; how to swoop and how to strike; how to sift and remember the many sights and sounds and smells of the world, and to suit action always and instantaneous to knowledge,—all of which, I repeat, are not so much matters of instinct as of careful training and imitation.

Life itself is the issue at stake in this forest education

therefore is the discipline stern as death. One who watches long over any of the wood-folk broods must catch his breath in times at the savage earnestness underlying even the simplest lesson."

And if in the cosmic struggle for existence among the higher animals instinct proves so ineffective a guide for life and has to be overcome and brought under control by conscious and laborious teaching, how much more true is this of man himself—man, regarded not as an individual subsisting by himself, but as a unit in a large and complex social organisation.

To the writer it has long seemed that in Huxley's Romanes Lecture, delivered only two years before his death, there is a strange blending of triumph and pathos. Of triumph in his strenuous assertion of the supremacy of moral law as against any conclusions to be derived from Darwin's theory; of pathos in his confession that in the view of evolution which he had so long championed he finds:

"No school of virtue but the headquarters of the enemy of ethical nature." [1]

"That the cosmos works through the lower nature of man, not for righteousness, but against it." [2]

"Social progress means a checking of the cosmic process at every step and the substitution for it of another, which may be called the ethical process; the end of which is not the survival of those who may happen to be the fittest, in respect of the whole of the

1. *Evolution and Ethics*, T. H. Huxley, Romanes Lecture, 1893, p. 27.
2. *Ibid.*, p. 28.

conditions which exist, but of those who are ethically the best."

"As I have already urged, the practice of that which is ethically best—what we call goodness or virtue—involves a course of conduct which, in all respects, is opposed to that which leads to success in the cosmic struggle for existence. In place of ruthless self-assertion it demands self-restraint; in place of thrusting aside, or treading down, all competitors, it requires that the individual shall not merely respect, but shall help his fellows; its influence is directed, not so much to the survival of the fittest, as to the fitting of as many as possible to survive. It repudiates the gladiatorial theory of existence. It demands that each man who enters into the enjoyment of the advantages of a polity shall be mindful of his debt to those who have laboriously constructed it; and shall take heed that no act of his weakens the fabric in which he has been permitted to live. Laws and moral precepts are directed to the end of curbing the cosmic process and reminding the individual of his duty to the community, to the protection and influence of which he owes, if not existence itself, at least the life of something better than a brutal savage." [1]

"Let us understand once for all, that the ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it. It may seem an audacious proposal thus to pit the microcosm against the macrocosm and to set man to subdue nature to his higher ends; but, I venture to think that the great intellectual difference between the ancient times with which we have been occupied and our day, lies in the solid foundation we have acquired for the hope that such an enterprise may meet with a certain measure of success." [2]

1. *Evolution and Ethics*, T. H. Huxley, Romanes Lecture, 1893, p. 33.
2. *Ibid.*, p. 34.

"I see no limit to the extent to which intelligence and will, guided by sound principles of investigation, and organized in common effort, may modify the conditions of existence, for a period longer than that now covered by history. *And much may be done to change the nature of man himself.* The intelligence which has converted the brother of the wolf into the faithful guardian of the flock ought to be able to do something towards curbing the instincts of savagery in civilized men." [1]

" We are grown men, and must play the man strong
in will
To strive, to seek, to find, and not to yield,

cherishing the good that falls in our way and bearing the evil, in and around us, with stout hearts set on diminishing it. So far, we all may strive in one faith towards one hope:

It may be that the gulfs will wash us down,
It may be that we shall touch the happy Isles,
. . . . . but something ere the end,
Some work of noble note may yet be done." [2]

1. *Evolution and Ethics,* T. H. Huxley, Romanes Lecture, 1893, p. 36.
2. *Ibid.,* p. 37.

GENIUS.

Genius is perhaps the whole or parts of the combination contained in the definition raised to the power of G. But is to be found only where the potentialities are innate.

Just as the co-ordinated activities involved in *instinctive* acts may be explained by the hypothesis of inherited dispositions of functionally correlated nerve cells in the *sub-cortical* layers of the cerebro-spinal nervous system, so the innate precocities of genius may be explained by the hypothesis of inherited dispositions of more or less functionally correlated nerve cells in the *cortical* layers of the brain.[1]

Such an hypothesis seems adequate to explain, *e.g.*, the calculating aptitude of G. P. Bidder the engineer, whose father, a stonemason, used to add to his week's wages by taking his son round the country as "the calculating boy." Of Pascal, who

> "completed before he was sixteen years of age a work on the conic sections, in which he had laid down a series of propositions, discovered by himself, of such importance that they may be said to form the foundations of the modern treatment of that subject."[2]

1. "Why do I thus distinguish so sharply innate tendency from instinct? Because I regard it as due to congenital dispositions of the cortex. And this brings me back to the physiological side of my doctrine of instinct. My thesis is that, in its strictly biological aspect, instinctive behaviour is as such, wholly due to congenital dispositions in the subcortical centres." *Instinct and Experience,* C. Lloyd Morgan, p. 104.

2. George Chrystal, *Encycl. Britann.*: Art. "Pascal."

Of Mozart, who at the age of fourteen conducted the largest orchestra in Europe in La Scala theatre at Milan, during the performance of an opera of his own composition.

Frederick Myers ("Human Personality") considered that the essence of genius is the occurrence of sudden and periodic uprushes of the subliminal to the conscious mind. But it has yet to be shown that the subconscious mind *takes the lead* and is not supplementary to the conscious mind. If, however, we take the mental processes afforded by the definition; if we also consider the subconscious mind as using the same psychic processes to supplement the working of the conscious mind and apply this view to individuals characterised by the different types of imagery found in the psychological text-books the result is at least interesting.

Thus we have individuals who habitually and most easily form—

1. *Visual* images.

   (*a*) These may be dominated by and expressed for the most part in *colour*, and we have Raphael, Tintoretto, Titian, Turner, etc., etc.

   (*b*) Or may be dominated by and expressed in *form;* and we have Pheidias, Michelangelo, Rodin, etc., etc., and the great handicraftsmen.

2. *Auditory* or audito-motor images; which find expression in *sound;* and we have Bach, Handel, Mozart, Beethoven, etc., etc.

3. Images of *motion* and muscular sensation; and we have Genee, Pavlova, etc., etc.

4. Abstract images expressed in *words.*
   (*a*) In the domain of *Literature;* and we have Homer, Dante, Shakespeare, etc., etc.
   (*b*) In the domain of *Philosophy;* and we have Plato, Aristotle, Descartes, Kant, etc., etc.
   (*c*) In the domain of *Science* (theories, laws); and we have Galileo, Newton, Darwin, etc., etc.

5. The genius in affairs.
   (*a*) The non-moral genius of action, *e.g.*, Napoleon.
   (*b*) The moral genius of action, *e.g.*, Alfred the Great, Charlemagne, Gladstone, etc., etc.

We may set aside Lombroso's conception of genius as a morbid degenerative condition, and in place of it we may say with Baldwin: "Given a philosophy that brings the great into touch with the commonplace, that delineates the forces which arise to their highest grandeur only in a man here and there, that enables us to contrast the best in us with the poverty of him, and then we may do intelligent

homage. To know that the greatest men of earth are men who think as I do, but deeper, and see as I do, but clearer, who work to the goal that I do, but faster, and serve humanity as I do, but better—that may be an incitement to my humility, but it is also an inspiration to my life." [1]

1. *The Story of the Mind,* by J. M. Baldwin, pp. 259-260.

THE WORK OF MONTESSORI, CHASSEVANT AND OTHERS,

AS ILLUSTRATING THE FOREGOING.

When the generalization set forth in the previous pages had been brought nearly to its final form a friend of the writer[1] made him acquainted with the article in Maclure's Magazine in which appeared the first account in English of the work of Dra. Montessori, and a careful perusal of this article showed that the Dottoressa had not only forestalled most of the present writer's conclusions, probably by many years, but had also accomplished the infinitely greater task of translating them into action of the most fruitful kind. Here in the most brilliant fashion had been carried out laborious experiments in " differentiating " the " percepts " acquired from the different senses—a perceptual differentiation based upon an exact and ever-extending conceptual knowledge of the same order. Here was to be seen how these experiments had resulted in the development of a technique applied to most of the senses. Here can be seen actually at work the process of " differentiating concepts " by correlating them with new percepts and new concepts, and here too in the most perfect adaptation to the impulses and feelings

1. The Rev. Cecil Grant, Headmaster of S. George's, Harpenden.

of the youngest and most gentle were effectively systematized methods of developing and training the power of mental inhibition or self-control, of which Sir Thomas Clouston says: "If . . . . . we could cultivate this power, it would be an educational discovery the most valuable yet made by humanity." [1]

It is one of the misfortunes of Science that she often contrives to enshrine her discoveries in portentous and polysyllabic phraseology, which acts on the ordinary mortal much as trespass notices on lands adjoining a highway are supposed to act on the ordinary passers by. No better example of this can perhaps be found than the phrase "psycho-neural parallelism," [2] in which she has embodied her expansion of the old nursery dictum that it is unwise to try and run before you can walk. Let us call this theory or doctrine for short P.N.P., and having thus done our best to rob it of one of its terrors let us see in brief what it means.

P.N.P. represents one of the fundamental scientific generalizations on which all successful education must be based. It represents the parallelism between mind and brain. It "means that every mental fact, and faculty, and every potentiality of acquiring knowledge necessarily imply certain phy-

1. *The Hygiene of Mind*, p. 81.

2. Psycho-neural-parallelism—Professor Ward's term, used by him in preference to psycho-physical-parallelism since the latter connotes a negation of *interaction* between the psychical and physical elements, *v.* Art. "Psychology," *Enclyc. Britann.*; *v.* also Mr. W. McDougall's *Body and Mind* for accounts of different theories of psycho-physical-parallelism as contrasted with psycho-physical-interaction.

sical and physiological facts and potentialities in the human brain." (Sir Thomas Clouston.) It brings Mind and Brain into the closest relationship and asserts that the development of the one can only go more or less step by step with the development of the other. It is necessary to emphasize the limitation implied by the words "more or less." That there is a parallelism is clear. But its exact nature and whether it is strictly equivalent are both disputable and disputed. Now it is obvious that a fact such as this must in the long run profoundly modify educational methods. It is a merit of "Dottoressa" Maria Montessori that she has been perhaps the first to apply systematically the new knowledge of the development of the nerve centres to educational technique, by supplying such environment and contriving such exercises for the earliest periods of child life as shall employ most prominently, both in games and studies, just those nerve centres which are first developed and matured. Some of the results of her methods are sufficiently striking to have earned her indiscriminately the titles both of genius and quack. "Child study" we know with its patient, laborious, and often perhaps profitless investigations, searching after facts and generalizations from facts on all aspects of child life. Montessori too is a child student, but one of another kind—of the kind which aims not so much at the acquisition of more knowledge, but at applying in practice the knowledge already acquired.

As it was of the essence of Stephenson's work that he applied steam to locomotion; of Wheatston's work that he applied electricity to transmitting words; of Marconi's work that he applied the Hertsian Waves in "Wireless"; so it is of the essence of Montessori's work that she is applying the facts of P.N.P. in education.[1] Take an example. Helmholtz found out years ago that it needs two years steady practice for an adult to acquire the power of keeping the eye fixed immovably on a single point. If this be so with the adult, how much more with the ever-restless eye of the child. P.N.P. tells us[2] that the nerve centres for the sense of touch and the muscular sense reach maturity earlier than those of the sense of sight, and can, therefore, be used earlier without risk of over-work—Montessori applies these facts to educational technique by contriving for example to teach the alphabet by touch instead of by sight. She cuts cursive letters of sandpaper and pastes them on smooth pieces of card, so that they can be learned when the child is blindfold; for the letters are large in size so that the curvature of each has to be followed by the finger, and in doing so the child is acquiring many of the complex nervous and muscular co-ordinations neces-

1. "I have already learned, from my work with deficient children, that amongst the various forms of sense memory that of the muscular sense is the most precocious, indeed many children who have not arrived at the point of recognising a figure by looking at it, could recognise it by touching it, that is, by computing the movements necessary to the following of its contour." *The Montessori Method*, p. 198.

2. Perhaps it doesn't really! But then even the dictionaries have told us wrong before now, and they may again.

sary for reproducing the letter in writing. They learn to write without knowing it. "Pot-hooks" and "hangers" are gone in the Montessori schools, gone with all their accompanying tears into the limbo of the chequered past, and the children believe, like Topsy, that they can write merely because they have "growed" to the proper age. We in these days are all of us on the look out for labour-saving devices. Here is one in educational technique, which is based on the soundest science. Yet though one of the most striking to the ordinary man or woman, this apparent miracle is in reality merely incidental. It is the outcome of steady work in devising exercises to suit the ascertained sequence of development of the various nerve centres.

But Montessori is no mere technician. She is emphatically an educationist. Saturated as our atmosphere is at present with the idea of "self-expression" as a wholesome factor in education, some of us have failed to realize that some portions of man's nature need not "self-expression" but self-control, and that it is at least as great a function of education to impart this control over both the instinctive and emotional impulses—"Those very mobile but not very trusty parts of man,"—as it is to afford opportunity and means for the expression of the better part of man's nature. And here too, Montessori is applying to the early stages of life the dicta of science, of society, of religion. "Looking," says Sir Thomas Clouston, "over the list of

brain faculties that are of most essential importance to life, no physiological psychologist can have any hesitation in selecting, not the power of reasoning, nor that of feeling, nor even that of memory, but the power of inhibition, that is, of control." Darwin found that the child first exhibits mental inhibition at about the age of 13 months. This power of inhibition or self-control may at an early age be so developed "that control, altruism, and high motive take the place of hurtful egoistic desire, purely selfish action, and anti-social practice." The early cultivation of this power is a dominant note of the Montessori scale; and in the games and exercises for mental inhibition she has introduced to teachers just that necessary correlative to what goes by the name of "self-expression," which is essential for the full growth and fruition of the spiritual part of man's nature. In substance this training is no new thing. It has been practised for ages on individuals through countless families in our country. It was practised on children in masses in the heroic days of Greece. It is new only in the methods employed, but it has come to some of us with all the force of a long forgotten tale, and let us hope that it has come to stay.

Games for Cultivating Inhibitory Power.

As a preliminary towards tests for acuteness of hearing it became necessary to teach the children the real meaning of *silence*.[1]

1. *The Montessori Method*, pp. 209 and *seq.*

" Toward this end I have several *games of silence,* which help in a surprising way to strengthen the remarkable discipline of our children.

I call the children's attention to myself, telling them to see how silent I can be. I assume different positions; standing, sitting, and maintain each pose *silently, without movement.* A finger moving can produce a noise, even though it be imperceptible. We may breathe so that we may be heard. But I maintain *absolute* silence, which is not an easy thing to do. I call a child, and ask him to do as I am doing. He adjusts his feet to a better position and this makes a noise! He moves an arm, stretching it out upon the arm of his chair; it is a noise. His breathing is not altogether silent, it is not tranquil, absolutely unheard as mine is.

During these manoeuvres on the part of the child, and while my brief comments are followed by intervals of immobility and silence, the other children are watching and listening. Many of them are interested in the fact, which they have never noticed before; namely, that we make so many noises of which we are not conscious, and that there are *degrees* of *silence.* There is an absolute silence where nothing, *absolutely nothing,* moves. They watch me in amazement when I stand in the middle of the room, so quietly that it is really as if " I were not." Then they strive to imitate me, and to do even better. I call attention here and there to a foot that moves, almost inadvertently. The attention of the child is called to every part of his body in an anxious eagerness to attain immobility.

When the children are trying in this way, there is established a silence very different from that which we carelessly call by that name.

It seems as if life gradually vanishes, and that the room becomes, little by little, empty, as if there were no longer anyone in it. Then we begin to hear the

tick-tock of the clock, and this sound seems to grow in intensity as the silence becomes absolute. From without, from the court which before seemed silent, there come varied noises, a bird chirps, a child passes. The children sit fascinated by that silence as if by some conquest of their own.

* * * * *

Having arrived at that point, we darken the windows and tell the children to close their eyes resting their heads upon their hands. They assume this position, and in the darkness the absolute silence returns . . . . . They are called out one by one and each one as he is called, lifts his head, opens his eyes as if altogether happy, then rises, silently seeking not to move the chair, and walks on the tips of his toes, so quietly that he is scarcely heard. Nevertheless his step resounds in silence, and amid the immobility which persists . . . . .

The one who is called feels that he is privileged, that he has received a gift, a prize. And yet they know that all will be called, " beginning with the most silent one in all the room." So each one tries to merit by his perfect silence the certain call. I once saw a little one of *three years* try to suffocate a sneeze, and succeed ! She held her breath in her little breast, and resisted, coming out victorious. A most surprising effort !

This game delights the little ones beyond measure. Their intent faces, their patient immobility, reveal the enjoyment of a great pleasure . . . . .
I saw, with surprise, that the game became constantly more perfect, until even children of three years of age remained immovable in the silence throughout the time required to call the entire forty children out of the room ! "

Exercises in Numbers.[1]

"When the children recognise the written figure, and when this figure signifies to them the numerical value, I give them the following exercise :—

I cut the figures from old calendars and mount them upon slips of paper which are then folded and dropped into a box. The children draw out the slips, carry them still folded to their seats, where they look at them and refold them, *conserving the secret.* Then, one by one, or in groups, these children go to the large table of the directress where groups of various small objects have been placed. Each one selects *the quantity* of objects corresponding to the number he has drawn. The number, meanwhile, has been left *at the child's place,* a slip of paper mysteriously folded. The child, therefore, must *remember* his number not only during the movements which he makes in coming and going, but while he collects his pieces counting them one by one . . . . .

Having arranged his objects, the child awaits the verification. The directress comes, opens the slip, the number and counts the pieces.

When we first played this game it often happened that the children took *more objects* than were called for upon the card, and this was not always because they did not remember the number, but arose from a mania for having the greatest number of objects. *A little of that instinctive greediness which is common to primitive and uncultured man.* The directress seeks to explain to the children that it is useless to have all those things upon the desk, and that the point of the game lies in taking the exact number of objects called for.

Little by little they enter into this idea, but not so easily as one might suppose. It is a real effort of self-denial which holds the child within the set limit,

1. *The Montessori Method,* pp. 330 and *seq.*

and makes him take, for example, only two of the objects placed at his disposal, while he sees others taking more. *I therefore consider this game more an exercise of will power than of numeration.* The child who has the *zero* should not move from his place when he sees all his companions rising and taking freely of the objects which are inaccessible to him. Many times zero falls to the lot of a child who knows how to count perfectly, and who would experience great pleasure in accumulating and arranging a fine group of objects in the proper order upon his table, and in awaiting with security the teacher's verification.

It is most interesting to study the expressions upon the faces of those who possess zero. The individual differences which result are almost a revelation of the "character" of each one. Some remain impassive, assuming a bold front in order to hide the pain of the disappointment; others show this disappointment by involuntary gestures. Still others cannot hide the smile which is called forth by the singular situation in which they find themselves, and which will make their friends curious. There are little ones who follow every movement of their companions with a look of desire, almost of envy, while others show instant acceptance of the situation. No less interesting are the expressions with which they confess to the holding of the zero, when asked during the verification, "and you, you haven't taken anything?" "I have zero." "It is zero." These are the usual words, but the expressive face, the tone of the voice, show widely varying sentiments. Rare, indeed, are those who seem to give with pleasure the explanation of an extraordinary fact. The greater number either look unhappy or merely resigned.

We therefore give lessons upon the meaning of the game, saying, "It is hard to keep the zero secret. Fold the paper tightly and don't let it slip away. It

is the most difficult of all." Indeed, after a while, the very difficulty of remaining quiet appeals to the children, and when they open the slip marked zero it can be seen that they are content to keep the secret."

In his report on the Montessori Schools, published by the Board of Education (Educational Pamphlets No. 24), Mr. E. G. A. Holmes writes:

"The truth is that the discipline of a Montessori school is of so high an order that its apparent defects are found, when carefully studied, to be transcendent merits. It is the discipline of self-control—a type of discipline which cannot be evolved except in an atmosphere of freedom, and which is of lasting value for the reason that the children *instinctively* impose it on themselves."

And in the form of an explanatory footnote he appends to the same page the following:

"It sometimes happens that a newly-admitted child disturbs the other children, and pays no heed to what the teacher says. But such cases easily yield to Dottoressa Montessori's judicious treatment. She tells us in her book how she treats them." "We have many times come in contact with children who disturbed the others without paying any attention to our corrections. Such children were at once examined by the physician. When the case proved to be that of a normal child, we placed one of the little tables in a corner of the room, and in this way isolated the child; having him sit in a comfortable little armchair, so placed that he might see his companions at work, and giving him those games and toys to which he was most attracted. This isolation almost always suc-

ceeded in calming the child; from his position he could see the entire assembly of his companions, and the way in which they carried on their work was an *object lesson* much more efficacious than any words of the teacher could possibly have been. Little by little, he would come to see the advantages of being one of the company working so busily before his eyes, and he would really wish to go back and do as the others did. We have in this way led back again to discipline all the children who at first seemed to rebel against it. The isolated child was always made the object of special care, almost as if he were ill. I myself, when I entered the room, went first of all directly to him, caressing him, as if he were a very little child. Then I turned my attention to the others, interesting myself in their work, asking questions about it as if they had been little men. I do not know what happened in the soul of these children whom we found it necessary to discipline, but certainly the conversion was always very complete and lasting. They showed great pride in learning how to work and how to conduct themselves, and always showed a very tender affection for the teacher and for me." (*Op. cit.*, pp. 103 and 104.)

In the instance quoted above from the text of Mr. Holmes' report, the word "instinctively" ("the children instinctively impose it on themselves") is used in a sense which would not be permissible to the present writer. For him the "instinct" would be the impulse prompting and causing the child to be unruly and disobedient, and to him the rationale of the procedure detailed by the Dottoressa is that the gradual pressure of the social environment induces and helps the child to inhibit the instinct for its own advantage and that of the other children. The

procedure is exactly parallel to that adopted by Froebel as explained in Superintendent Zech's report on Froebel's Institution (v. translator's preface, in Froebel's "Education of Man," edited by W. T. Harris), and—to express what is happening in physiological terms and according to the views of Professor Lloyd Morgan—the nerve cells of the cerebral cortex are engaged in controlling the instinctive behaviour due to nerve cells in lower parts of the cerebro-spinal nervous system.

It is no part of the writer's wish to take part in the detailed discussion which is now going on over the Montessori methods. This discussion is in the hands of others who are far more qualified for the task. He is content to emphasize one feature which seems to him to have received less notice than it merits, and yet which he takes to be a very essential element in her technique. Criticism has, no doubt rightly, found its mark in the insufficient range of subject-matter[1] in this technique, but within its range it seems to embrace in approximate philosophic union :

1. The facts of psycho-neural parallelism (James Ward).
2. The studied differentiation of percepts as a means of forming, differentiating and correlating concepts.

1. V. *From Locke to Montessori,* by Wm. Boyd, Chapter 12, on "The Omission of the Humanistic Subjects," and compare with "The Dramatic Method of Teaching," by H. Finlay-Johnson.

3. The heuristic method. (Auto-education.)
4. The studied development of mental inhibition or self-control.
5. The studied employment of the play and imitative instincts as means towards educational ends.

CHASSEVANT.

It has been noted as one of the deficiencies of Montessori's methods that she has found little place in her system for music as means of education, and that the sense of hearing is not cultivated with nearly the same thoroughness as is *e.g.*, the sense of touch. But long before Dottoressa Montessori was at work applying to mental defectives methods suggested by prolonged study of the work of Seguin, Itard and her own experience, Mlle. Chassevant at the Geneva conservatoire and Mrs. Curwen in this country were engaged in working out methods of teaching music which are based on precisely the same principle ; the principle namely of a cultivated power of differential perception of sense-data, based upon an exact and gradually extending conceptual knowledge in the same sphere of cognition. And in Mlle. Chassevant's method of applying this principle in the teaching of music she makes use of the added power of appeal to children which comes from the elements of romance and story with which her teaching is interwoven.

> "It is a fundamental principle of the method that ear training should be begun before any instrumental music is attempted." [1]
>
> " In the earliest stage, the study of time, which is taken up apart from pitch, is invested with a picturesque

1. *Guide to the Chassevant Method,* by Marion R. Gibb, p. 4.

aspect which fascinates the child mind. The notes, or time values, are supposed to be birds, which fly from pavilions to trees and *vice versa*, each bird leaving a special mark to reserve its place. This, of course, being the appropriate rest. Each bird has its own rate of speed in flying, indicated by taps on the table, and the children soon gain an exact idea of the relative value of the notes and their corresponding rests." [1]

Her first writing on the subject was published in 1872, and in the succeeding years the essentials of the method have been largely adopted by musical teachers as may be seen in "Aural Culture based on Musical Appreciation," by S. Macpherson and E. Read. Of the details of her fully developed technique with its successful teaching of absolute pitch, of relative pitch (as in the musical "intervals"), of time and rhythm, melody and harmony, a full account may be seen in "A Guide to the Chassevant method of musical Education," by Miss Gibb, and some idea obtained of the results achieved by its aid in an article in the "World's Work" for January 1914, entitled "A Musical Montessori," by Josephine Tozier.

"The chief objects are to enable the children to distinguish accurately pitch, rhythm, expression and beauty of tone; to give them facility in reading at sight; to cultivate their memory, and to train their fingers by a series of simple gymnastic exercises. The musical faculties are developed separately, and their combination left until a certain facility is acquired in each; and the results so obtained, in children between

1. *Guide to the Chassevant Method,* by Marion R. Gibb, p. 5.

five and ten, appear to the educated musician little short of miraculous." [1]

"The habit thus acquired will be of inestimable value not only in their school life, but through all their future years. Mothers tell extraordinary tales of the benefits in this particular received by children whom Miss Gibb has trained. Not only do they listen attentively to the sounds (never before noticed) of the wind in the chimney, the music of rippling water, the songs of birds, and the tones of bells, but their ears are also sharpened to the fine gradations in the speech of their mother-tongue." [2]

1. "A Musical Montessori," by Josephine Tozier, *The World's Work*, January 1914, p. 161.
2. *Ibid.*, p. 165.

MEMORY DRAWING.

Memory drawing has proved itself a valuable method in educational technique, and this value is perhaps due to the fact that it is pre-eminently an exercise in acquiring and differentiating both percepts and concepts.

A child is shown for a short period of time a certain object which he is required to draw. The object is then withdrawn and the child has to draw it without the object being in view. In practice it is found desirable to distribute the periods of examining and drawing in some such fashion as the following:

One minute to look and four to draw.
A second minute to look and four to draw.
A third minute to look and four to draw.

In all three minutes of the fifteen are devoted to looking fixedly at the object and twelve in drawing. In the three intervals of one minute each the child is engaged in differential perception of two different kinds, first in differentiating its percept of the particular object which it has to draw from all the other objects depicted among the retinal sense-data, and secondly in differentiating the percepts of different parts of the object from one another. And this concentration of the perceptual powers on this particular part of the sense-continuum is forming

gradually a differentiated concept of the object which is in turn being transferred to paper in the three periods of four minutes each which are allowed in the entire fifteen for this purpose.

"Actual experiment has shown that the most astonishing results can be obtained by the mere effort of the will to memorise, quite apart from all tricks and memory systems . . . . It has often been noticed that things may be read or repeated an indefinite number of times without being committed to memory, if only the attention is directed at each repetition to some other end than that of learning. One experimenter on memory, for instance, had occasion, in the course of his work, to make those persons, on whom he was experimenting, learn series of words and meaningless syllables by reading these aloud from his note-book, till they could repeat them by heart. Even after accomplishing this with a number of persons, he found that he himself was unable to repeat any of the series by heart, although he had read them aloud so often. His attention had, of course, been directed towards careful, even, and correct reading, and not towards memorising." [1]

1. *Economy and Training of Memory*, by H. J. Watt, pp. 75, 76.

MANUAL TRAINING.[1]

Among the special merits of manual training are that:

1. It develops the faculties of differentiating, correlating, integrating percepts and concepts.

2. It helps to develop the will to *act* as distinguished from the will to *know* and the will to *talk*, by satisfying the creative instinct and producing the creative joy.

3. Its concreteness involving as it does co-ordinated precision of thought and action makes it *disciplinary* all through, in as much as a lapse in the involved thought or action makes itself at once apparent and gives opportunity for immediate correction. Blurred concepts may be made to at once disclose themselves.

1. See Woodward, *Manual Training*. J. G. Legge, "Practical Education in Elementary Schools," Imperial Education Conference, 1911, etc.

CONCLUSION.

The real philosophy of education has yet to be constructed. The materials for it do not at present seem to exist. Nor is it likely that much progress will be made with such a work until psychology shall have resolved the "states" and "complexes" of consciousness, with which it professes to deal, into more elementary data of experience—until it shall have differentiated our concept of consciousness [1] more exactly into its various elements, as Cavendish differentiated our concept of water into the two concepts of hydrogen and oxygen, and as physicists are engaged to-day in differentiating our concept of the atom. But when the time comes at which mankind shall have attained to some coherent method of testing the value of the various new methods of educational technique which are from time to time introduced, the writer hazards the guess that if such methods aspire to deal with the whole of man's complex nature, they will at any rate for young children, and after due provision for physique,[2] be

1. This is true even if the theory here put forward should prove adequate to explain how our cognitive dispositions become organised, for the emotional (including æsthetic) content of consciousness would still remain to be resolved.

Since the above was written Prof. E. Holt's book entitled *The Concept of Consciousness* has been published, and Mr. Shand's treatise on the emotions, *The Foundations of Character.*

2. The writer is of course fully conscious that physique comes first in importance and that the relations between body and mind are inseparable and interdependent. But an ommision to treat this point which would be inexcusable in a systematic treatise may, he hopes, be condoned in an essay which only attempts to touch in outline a few of the elements of an immense subject.

largely based on the differentiation of percepts and concepts, and the cultivation of the power of mental inhibition and its application in the control of the natural instincts. "It is the fate and the glory of human life to be a restless search for rest."[1] It is one of the paradoxes of infant education that we must use some of the child's natural or animal instincts in order to start the process which aims at ultimately endowing him with the power to control them all, and it is only when this aim is achieved that spiritual man can be free from the trammels of, and find a true delight in the glories of his animal encasement.

1. J. W. Scott, "The Pessimism of Bergson," *Hibbert Journal,* Oct. 1912.

L'ENVOI.[1]

When Earth's last picture is painted, and the tubes are twisted and dried,
When the oldest colours have faded, and the youngest critic has died,
We shall rest, and, faith, we shall need it—lie down for an aeon or two
Till the Master of all good workmen shall put us to work anew!

And those that were good shall be happy: they shall sit in a golden chair.
They shall splash at a ten-league canvas with brushes of comet's hair;
They shall find real saints to draw from—Magdalene, Peter, and Paul;
They shall work for an age at a sitting and never be tired at all!

And only the Master shall praise us, and only the Master shall blame;
And no one shall work for money, and no one shall work for fame;
But each for the joy of the working, and each, in his separate star,
Shall draw the Thing as he sees it for the God of Things as They Are!

The writer has tried in these pages to "draw the thing as he sees it." May those who see deeper and clearer draw it better.

1. *The Seven Seas*, by Rudyard Kipling.

NOTE I.

"The soul of man is a strange mixture of God and brute, a battle-ground of two natures, the one particular, finite, self-centred, the other universal, infinite, and impartial. The finite life, which man shares with the brutes, is tied to the body, and views the world from the standpoint of the here and now. All those loves and hatreds which are based upon some service to the self belong to the finite life. The love of man and woman, and the love of parents and children, when they do not go beyond the promptings of instinct, are still part of the animal nature: they do not pass into the infinite life until they overcome instinct and cease to be subservient only to the purposes of the finite self. The hatred of enemies and the love of allies in battle are part of what man shares with other gregarious animals: they view the universe as grouped about one point, the single struggling self. Thus the finite part of our life contains all that makes the individual man essentially separate from other men and from the rest of the universe, all those thoughts and desires that cannot, in their nature, be shared by the inhabitant of a different body, all the distortions that make error, and all the insistent claims that lead to strife.

The infinite part of our life does not see the world from one point of view: it shines impartially, like the diffused light on a cloudy sea. Distant ages and remote regions of space are as real to it as what is present and near. In thought, it rises above the life of the senses, seeking always what is general and open to all men. In desire and will, it aims simply at the good, without regarding the good as mine or yours. In feeling, it gives love to all, not only to those who further the purposes of self. Unlike the finite life, it is impartial:

its impartiality leads to truth in thought, justice in action and universal love in feeling. Unlike the nature which man shares with the brutes, it has a life without barriers, embracing in its survey the whole universe of existence and essence; nothing in it is essentially private, but its thoughts and desires are such as all may share, since none depend upon the exclusiveness of here and now and me. . . . . .

The finite self, impelled by the desire for self-preservation, builds prison-walls round the infinite part of our nature, and endeavours to restrain it from that free life in the whole which constitutes its being. The finite self aims at dominion : it sees the world in concentric circles round the here and now, and itself as the God of that wished-for heaven. The universal soul mocks at this vision, but the finite self hopes always to make it true, and thus to quiet its troublesome critic. In many men, the finite self remains always the gaoler of the universal soul; in others, there is a rare and momentary escape; in a few, the prison-walls are demolished wholly, and the universal soul remains free through life." [1]

NOTE II.

"The Little Commonwealth." [2]

"In a pleasant valley near the village of Batcombe, in Dorsetshire, on a 200-acre farm which lies happily remote from the riot and rush of modern urban life, a newly-formed fellowship of human beings is engaged in carrying out an experiment in self-government which shows a quite remarkable understanding of psychology and the science of education. At present the community, which calls itself "The Little Commonwealth," is little in fact as well as in name. The bulk of its citizens, a baker's

1. "The Essence of Religion," by the Hon. Bertrand Russell, *The Hibbert Journal*, Oct. 1912.
2. *The Times*, 6 January, 1914.

dozen in number, are boys and girls between the ages of 14 and 17. They come from various parts of the country, including the slums of London, and belong to the class officially labelled (and branded) as juvenile delinquents. Some of them have known the insides of prisons and reformatories; all of them have made the acquaintance of Mr. Bumble and the police, and, to speak generally, they have the kind of fingers that would have ensured them ready admission to the school of Fagin the Jew. Left to their own devices, in their familiar home surroundings of discomfort, squalor, and drink, they would have had an excellent chance of acquiring the prison habit and of developing by the regulation stages first into "hardened young ruffians" and then into accomplished and unabashed criminals. Now, with the help of Mr. Lane, the American architect and teacher, whose marked personality, despite his principles of equality and self-effacement, make him the chief citizen and head of the community, they are being reformed and made ready to take their places some day as happy and useful citizens of the larger world outside. Or rather, they are reforming themselves. For that is the whole secret. They are not visibly controlled by their elders and betters. They are their own law-makers, their own judges, their own police, and the chief influence in their lives is the force of public opinion which they themselves create.

The Principle of Liberty.

The central idea of the Little Commonwealth is not new. In America, the land of its birth, it has long been practised in the Junior Republic founded by Mr. George, and other places run on similar lines. Its English variant—for the Little Commonwealth is distinctly English and even Anglo-Saxon, in spite of Mr. Lane's nationality—differs, however, from the prototype in one important respect. It goes much farther in carrying out

the fundamental principle of liberty. There is, for instance, no prison in the Commonwealth, and, except on the upper floor of the cottages in which the children sleep, no sort of line is drawn between the sexes. Their freedom is as nearly as possible absolute. That, with the doubts which it inevitably suggests to some minds of the danger of liberty degenerating into licence, is the first consideration which occurs to the visitor from the outside. The next is that the community is an illustration in being of the evolution of society. Step by step the Commonwealth is finding and making itself as it goes along. It started, like the human race, with no laws (except the law of freedom), and consequently with no one to see that the law was kept and the law-breaker punished. Like the race, it had its equivalent of original sin—for those who believe in the doctrine—in the shape of the shady past of most of its citizens; and, again like the race, it had the primitive need for food, clothing and shelter, and in order to satisfy those needs was obliged, in spite of its freedom or free-will, to work. For though these needs were provided for by others in the first instance, the continuance of the supply depends, as in the larger world, either on the labour of the individual or the charity of his fellows.

Life and the Community.

We start then—"we" being Mr. Lane, his wife and family, two or three adult helpers, and our little flock of black sheep—with food to eat, clothes to wear, and rooms to live in, in an old two-storeyed farmhouse; at the back of this there is an open quadrangle enclosed by the sheds and other farm buildings, which in due time will form our workshops and laundry, and theatre and class-rooms. We are free to do anything which does not offend the convenience or the conscience of the community. We may even, if we like, run away. One or two of us have already availed ourselves of this privilege, though so

far we have always come back again. We are free to work or to loaf as we choose. Our work is paid for, in a currency of our own, equal in value to the coin of the realm, at the rate of threepence an hour. The diligent citizen earns something over 10s. a week; this pays for his board, food lodging, and clothing, and leaves him a little sum over, which he either spends on luxuries or banks against his return to the outer world. At present the work consists chiefly of cooking, housework, digging, building, carpentering, carting, and other primitive employments. If the free citizen slacks or refuses to work at all he gets no wages, and so cannot pay his way. But, as he is still supplied with the necessaries of life, somebody has to pay, and somebody in this case is everybody. He is supported, like the unemployed without, by the rates and taxes. But not for long. The rest of the community, who are mulcted of their spare earnings to pay his weekly bill, soon let him know that he is not behaving as a citizen should, and in the short history of the Commonwealth the pressure of public opinion has never yet failed to produce the desired effect.

Once a week the whole community meet together to hold a legislative court, at which anyone may propose a new law and equally anyone may vote against it. But only those enactments which are carried unanimously have the force of law, and it is not necessary to write them down. Every one has had a hand in framing them, as the need for each addition to the Code was realized, and therefore everyone knows what they are. They become part of the general consciousness of the community.

But it is one thing to make laws and another to keep them and get them kept. How then are they enforced? In this way. Twice a week the citizens meet in a judicial court, presided over by a Judge, a boy or a girl, elected by the whole body of his fellows. At these courts written complaints, tendered by any citizen against any

other, are handed to the judge, who reads them out, calls upon accuser and accused for an explanation, and acquits or passes sentence entirely on his own initiation and with surprising rapidity and justice. The accused may appeal to the whole court against the sentence, which is confirmed or annulled by the majority on a show of hands. The punishments are chiefly small fines, early bed-time or early rising, and confinement to the open-air quadrangle, except during working hours, for a limited number of days. They are enforced simply and solely by public opinion.

In this brief sketch of the Commonwealth it is only possible to give a bare outline of the principal details of the scheme, without any illustrative comment. But this much may be said with confidence. The results are amazing. Under the perfect law of liberty and happiness these young transgressors of the law of the land are becoming different creatures. Boys and girls (without any boy and girl nonsense between them), they are learning the lesson of true citizenship, and developing a progressive conscience, both as individuals and as a community. They do the work of men and of women, and they do it with a will and a growing regard for each other's feelings and convenience, though of course it would be absurd to say that there are no lapses. The girls also find an outlet for their mothering instincts in helping to care for a separate little family of fatherless and motherless babies who are being brought up on the Montessori system in one of the farm cottages. Whatever difficulties and failures the future may have in store, the Commonwealth as it stands to-day is a wonderful success."

" Sense-data " or " sense-continuum," v. p. 23.

If it be one of the functions of what we call our " Minds " to bring us in touch with what we call " Matter " the point of contact must embrace on the one side physical and on the other side meta-physical elements. The physical or sense elements are in these pages referred to as *" sense-data "* or the *" sense-continuum "*; the meta-physical elements as *" percepts "* and *" concepts."*

The writer seems to recall from student days a legend, said to have originated with a physiologist, which whether true or not may serve usefully as an illustration. It was to the effect that if a butcher led a cow into a dark room with one small window, made the cow gaze fixedly at the window, and then executed the functions of his deadly office, the cow's eye if immediately cut out and opened would disclose on the retina an image of the window at which it had been looking at the moment of its unhappy decease. This image, entirely physical, would constitute the *sense-data* which it would be the business of the cow's mind to *perceive*. Similarly the vibrations of the fibres of Corti in the internal ear, also entirely physical, would constitute the *sense-data* in the sense of hearing.

" Games of intellectual jugglery," v. p. 62.

The paradoxes of Zeno are excellent examples of these games. They have interested and even at times perplexed philosophers for 2,500 years, but from the standpoint of this essay they are merely illustrations of the inadequacy of words for expressing thought and their entire adequacy for confusing it.

" Instinct," v. p. 70.

If the writer be challenged for his own definition of instinct he fears that in order to be in keeping with the general tenour of the essay it would have to run somewhat as follows:—Instinct—A word frequently masquerading as an idea and ingeniously contrived by the middle ages to induce us moderns to make ourselves look foolish by attaching it indiscriminately to a number of quite different groups of concepts.