IV.—THE NEED OF A SOCIETY FOR EXPERIMENTAL PSYCHOLOGY.¹

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THIS is the age of Societies. Agriculture and ballooning, cart-horses and dentistry, engineering and forestry, all subjects from A to Z, are represented by associations intended to promote the interests of each particular subject. Psychology alone has no society connecting together the workers in the wide field which the science of mind can claim for itself. Yet neither work nor workers are wanting. The science itself has reached what we may term the *monographic* stage. Methods of investigation are sufficiently advanced to allow of the work being allotted to specialists in the various branches of the study. Much too is being done for psychology by workers in other sciences. A quarter of physiology—all that part which deals with nerves and much that deals with muscles—is as much psychology as physiology. Most of the experience gained by mad-doctors is so much material gained for mental science. Social statistics have their lessons for the psychologist. Much of anthropology and almost all folk-lore, almost all sociology and all that the Germans mean by *Völkerpsychologie*—what are these but *data* of the science of mind? So too philology—in as far as it deals with meanings, not roots—has rich instruction in store for the psychological investigator. And all these studies might hope for reciprocal aid from psychology, which may one day assist biology in determining what constitutes the unity of the organism. But all this awaits the progress of the study of the individual mind; and it is the need of a society to develop this study by collective investigation that I wish to point out.

Such a society would fulfil the ordinary functions of similar institutions by affording a *locale* where fellow-students might get to know each other and each other's work. It could collect at its rooms a specialist library; it could provide instruments needed in psychometry and now only accessible to persons with long purses or mechanical ingenuity. It could publish memoirs, *Jahresberichte* of progress in the various branches of the science, and supply a much felt

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want by encouraging the compilation of classified bibliographies on special problems. It might aid in settling the technical terminology of the science, which is at present largely arbitrary. All these functions could be performed by a Psychological Society with advantage to the science and its students.

But a Psychological Society could be made to advance the progress of the science in a manner peculiar to this branch of study. The minds of the members could be utilised so as to form, as it were, a living laboratory; and it is to this mode of investigation that I wish here especially to call attention. Mr. Galton has shown in his varied researches the practicability of getting answers from educated persons as to the contents of their own minds. What he has done *privatim* and accidentally could be done on an organised scale by a society such as that here proposed. Membership of it might be held to imply willingness to answer questions on psychological subjects issued by properly constituted officers of the society. Any member studying a particular problem in which introspection was needed could rely on obtaining a mass of materials from persons who, by being members of the society, might be expected to be specially skilled in examining the contents of their own minds. The process might be somewhat as follows. The investigator would apply to the executive committee, stating his problem and the data he wished to collect. The committee, if they thought the matter promising enough, could then appoint a sub-committee authorised to issue pertinent queries to the members or other persons, as *e.g.*, schoolmasters, qualified to give information. To this sub-committee the inquirer would *ex officio* act as honorary secretary, and it would be his privilege to draw up the report on the subject. Something like this is probably done by all societies or clubs, sporadically and on special occasions; but the peculiar nature of psychological investigation renders it specially fitted for periodical and organised inquiries of this kind. I remember hearing of a number of French physicians who styled themselves a Society for Mutual Autopsy, because each of them, like Bentham, agreed to leave his body to be dissected by the surviving members. What they did with their bodies, I propose should be done with living minds. Whether done by a society or by individual efforts like those of Mr. Galton, it is only by such 'mutual autopsy'—or collective investigation—that the science can be freed from its fundamental and inherent defect of subjectivity. Only by this means can we clear it from the

danger of mistaking individual peculiarities for general laws, and transform it from the study of individual minds into a true and valid science of mind.

Such in outline is a working scheme for a Society of Experimental Psychology. Is it workable? That depends on two considerations—the number of workers and the amount of work we could find for them to do. As regards a possible dearth of workers, we cannot know about this till we try. A psychological journal, *MIND*, has reached the tenth year of its existence. London University has for the last quarter of a century required a knowledge of psychology from all its Bachelors. There are two philosophical clubs in London, and most universities have similar institutions attached to them. Cambridge has of late years been turning out trained students of psychology who have had the benefit of Prof. Sidgwick's and Mr. James Ward's teaching. Recently many educationists have had to pass an examination in mental science. Surely among all these a sufficient band of workers could be organised if we but knew how to get at them. And, in addition to these, the recent advance in female education has been preparing many minds as subjects of experiment who have plenty of leisure for introspection. Besides we do not want investigators so much as objects of investigation—*investigatees*, if we may so call them. It would be indeed strange if we could not find a sufficient number of persons interested in introspection in a country like England, which has shown itself pre-eminent in the two arts—fiction and the drama—which have closest connexion with psychology. And the mention of fiction reminds me of a quite unworked field for psychologists which a society might cultivate. For the last fifty years we have had a large number of persons whose life has been passed in examining and exhibiting the processes of other men's minds. From their experience the science of human nature ought to be able to learn something. I need only refer to the stores of acute observation contained in the works of George Eliot and George Meredith.

As regards the number of unsolved problems which could be found suitable for collective investigation, there is less difficulty. There is the whole field of psychophysical inquiry now being worked so zealously by physiologists and by the school of Fechner and Wundt in Germany. We have here begun to measure men's minds by measuring their senses. Observation on children's minds, as attempted by Charles Darwin, has almost grown into a separate study, to which the apt name of Baby-lore has been given.

Mr. Galton's studies in imagination might be followed by similar inquiries on after-images, powers of observation, memory, linguistic capacity, calculation, capacity for following trains of reasoning of various kinds, and the like. If this were systematically effected, it would not be too much to hope that before many years were over, a schoolboy's mental powers could be tested and measured with as much accuracy as his height and weight are now. We want to know more about colour-blindness and note-deafness, about the lip-language of deaf-mutes, the personal equations of astronomers, the mental processes of paralysed persons, of calculating boys, and of the so-called 'thought-readers'. It would be useful to have some actual trains of association jotted down by psychologists who can write shorthand. Details of memory could be tested by accurate observation of the events at the time of occurrence. Can we think in a foreign language? When we read a novel, do we actually have pictures of the scenes before our minds? When novelists write, have they similar pictures and how far do these correspond? Can we, like Cæsar is said to have done, read and listen at the same time, and then reproduce what we have read and heard? How quickly can one read, and how much does retention depend on the pace of reading? How are family traits set? Our sensations of local and temporary death in a limb that is 'asleep' are fit subjects of inquiry. What is the difference in our minds when alone, among friends, in a crowd of fellow-townsmen, in a crowd of foreigners? How many things can we attend to at once? All these and a hundred similar questions will occur to any one accustomed to think about his own thoughts. Not that all of them deserve equal attention: on the plan I am suggesting this would be determined by the executive committee before papers of questions could be issued. But most of them admit of easy tests being applied, and some of them or others that might be suggested may aid us in settling such problems as these: the influence of early impressions, the ingredients of character, the classification of the emotions, varying susceptibility to bodily pain and mental anguish, variation in the intensity of the point, and extent of the field, of attention. Above all we want experiments on will-practice: it is possible that character could be immensely modified if we could begin by training our will on one thing till we got it perfectly under control. Or it may turn out that this is impossible beyond a certain age which would have to be determined. The whole field of heredity would still remain, affording enough work for a society by itself.

I may illustrate what I have been saying by taking some particular point on which collective investigation would throw light. A German psychologist, Dr. Ebbinghaus, recently published the results of an elaborate examination of his powers of verbal memory. [See MIND XXXIX. 454-7.] Among other points he studied how far the power of remembering sounds apart from sense depended on the number of syllables to be learnt. He arrived at no very definite result, but from his materials I fancy I have discovered the following curious law. There is, I submit, a certain number of syllables up to which each person can repeat a nonsense word like *borg-nap-fil-trip* after only once hearing; and it is probable, though we cannot know for certain, that this number varies with different persons, giving a sort of test of their linguistic capacity. This limit one may term 'the threshold of verbal memory'. Now from Ebbinghaus's results I suspect that for every syllable over the threshold the word has to be repeated three times before we can exactly repeat it. Thus taking a nonsense word of nine syllables, *pal-eng-mon-lif-tra-mig-pro-fu-jil*, a person whose threshold was six syllables could repeat it after nine repetitions; if seven were the threshold, in six repetitions; while a Mezzofanti with eight as a threshold could learn it in three. But this law, if it is a law, has at present only been deduced from observation of one man's mind, and is therefore obviously not a law of mind in general, but at best a law of Dr. Ebbinghaus's mind. It is possible and I think probable that besides the variation of threshold with different persons there may likewise be a variation in the constant multiplier, so that a person with threshold six might require not three, but four times the number of surplus-syllables to obtain perfect reproduction. All this could be settled with ease if a Psychological Society existed whose members would be willing to amuse themselves and instruct others by trying after how many repetitions they could repeat perfectly—though not necessarily remember afterwards—each of the following nonsense words:—

- (4) *Bor-nas-tri-flip.*
- (5) *Crat-forg-mul-tal-nop.*
- (6) *Ab-nar-chif-vul-zil-tuf.*
- (7) *Dak-mil-tug-bin-roz-nil-gug.*
- (8) *Gom-lar-gol-foo-nop-rit-lu-chat.*
- (9) *Pal-rug-mon-lif-tra-mif-gro-pu-jil.*
- (10) *Fud-wij-ta-ning-por-lo-trig-num-gri-foo.*
- (11) *Jus-lot-ling-grif-wuz-kom-ril-gru-far-drom-lif.*
- (12) *Morg-lap-tril-gog-maf-timp-ru-lop-fo-grif-tu-pol.*
- (13) *For-eli-nip-tral-mor-gif-ti-glip-pra-mu-nag-lop-ti.*
- (14) *San-tor-ti-con-gram-jin-go-lol-gan-su-fim-tok-wil-fo.*
- (15) *Min-dal-tul-fuj-sul-mor-lu-fon-tif-gim-zik-tat-mi-ju-lon.*

Care has to be taken in forming such test-words that the syllables do not fall into any marked rhythm which considerably lessens the trouble of repetition. Hence the ease with which one can retain the comic query—

Chrononhotonthologos,
Where left you Aldiborontephoscophornio?

So too the test-words should be learnt as wholes and not bit by bit, or else the suspected law cannot apply. Thus by dividing we can conquer Shakespeare's longest word *Honorificabilitudinitatibus* (*Love's Labour's Lost*, v. i.). Any one can say *honor* and *ific* and so *honorific*. Similarly *bilitu* and *dinita* easily combine into *bilitudinita*, whence the road is direct to *Honorificabilitudinita*—to which we add *ibus* at our leisure. But add a few consonants to divert the rhythm, e.g., *Hol-nop-rig-firn-can-bif-lim-tug-dril-ning-taf-til-bus*, and it will take a man of seven-threshold eighteen repetitions to be able to repeat it without mistake. All this may seem trivial and worthy only of the *Boys' Own Book*. But when it is remembered that upon a boy's verbal memory depends his possible success with a classical education, the determination of his threshold of memory and, if there is such a thing, his constant of repetition will immediately appear as eminently practical tests for determining such a point as whether he shall join the modern or the classical side of a school.

And this leads me to conclude with a few words on the importance and need of psychological inquiry, especially when as in the last simple instance it leads to results bearing the true stamp of science in its capacity for measurement. Education can never be much more than a rule-of-thumb affair till it can apply psychological principles with a firm conviction of their validity. A boy's progress can only be guessed at nowadays: if such tests as the above could be applied systematically, it could be measured. So too the dread question which is being asked more and more frequently, "Canst thou minister to a mind diseased?" must wait for its answer on the progress of psychological science. And if the Art of Conduct is ever to be more than rough inductions of social convenience it must find a basis in a properly constituted Science of Mind. The final end of all the sciences represented this year in Aberdeen is to make the characters of men good. Yet we do not know at present what constitutes the ingredients of a man's character, still less what makes that character good.