SCIENCE.—SUPPLEMENT.

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SOME MISCALLED CASES OF THOUGHT-TRANSFERRENCE.

SUCH is the title of an article in *The national review* (January, 1887), by Ada Heather-Bigg and Marian L. Hatchard. This article deserves to be read by every one interested in the subject, and especially by the members of the English society for psychic research. This society takes the position, that, having ruled out fraud and collusion, and still finding a larger ratio of successes than chance would allow, the only thing left is telepathy; and this is forthwith raised to the dignity of a new and omnipotent power explaining all the mysterious occurrences in hypnotism, in 'phantasms of the living,' in deathbed and other presentiments, and the like. The true logical conclusion is, that, such a thing as telepathy being so utterly opposed to the accumulated scientific knowledge of centuries, the probability of finding other sufficient modes of explaining the phenomena in question is extremely great: in other words, the inference is, not that telepathy is a fact, but that the modes of explanation thus far considered do not form a set of exhaustive alternatives.

This is the rational position taken by the writers of this article; and one might say of this, as they do of a similar point, that "it is a striking proof of the blinding effect of preconceived opinion on even careful investigators, that such cautious and candid inquirers as Messrs. Barrett, Gurney, and Myers should have failed to perceive this."

The notion of thought-transferrence was doubtless suggested by the commonplace and yet very impressive incident of two persons simultaneously expressing the same thought.[1] But knowing, as we do, how closely alike are our modern education and interests, the wonder is, rather, that these coincidences are not more frequent and startling. This process is termed 'similar brain-functioning' in the above article; and the reason why its importance is apt to be overlooked is because "so much of our mental activity goes on sub-consciously. Thus the resembling *results* are forced upon our notice, while the resembling *processes* get overlooked."

[1] Children are very much impressed by such coincidences, and the writer remembers distinctly how in such cases the two children concerned would observe the strictest silence, and, locking their little fingers together, would make a wish which was believed sure to come true.

G. H. Lewes tells a story in point. Walking in the country with a friend, he heard the sound of horses' hoofs behind them, and, when the riders passed by, at once remarked that he was convinced that the riders were two women and a man, which they really were. His companion declared he had formed the same conjecture (evidently thought-transferrence, says the Psychic research society). Mr. Lewes puzzled over the matter, but could not think of a characteristic distinguishing the sound of a horsewoman from that of a horseman. As, however, it is a fact that men trot and women canter, the two different sounds had unconsciously registered themselves in the brains of himself and his friend.

This shows that (as must occur daily) "two persons may tend to function similarly in response to certain stimuli, yet neither of them be aware of the tendency;" and it is just such phenomena that get utilized by the telepathists.

Guessing a number is a very popular mode of studying thought-transferrence; and, when the correct guesses are more frequent than the action of chance would predict, the hypothesis of telepathy is thought to be favored. "From this conclusion we emphatically dissent, on the ground that an appreciable percentage of the successes must be put down to the credit of similar but independent brain-functioning. For it is a fact, admitting of easy verification, that the ordinary human mind (provided, always, that it be subjected to no other biassing influence beyond that involved in the verbal framing of the necessary questions) tends to select particular numbers in preference to others:" in other words, these writers have independently discovered the 'number-habit' which Dr. C. S. Minot has so ably discussed in the Proceedings of the American society for psychic research. This discovery was brought about by noticing that quite constantly an undue number of successes occurred at the *beginning* of many sets of number-guessings. The explanation is, that at first the sceptic regards the whole process as nonsensical, thinks of the first number that pops into his head, that is, he follows his number-habit; but later, wondering at the successes, he suspects something, and adopts a more arbitrary mode of selection; whereupon the successes are less frequent.

They verified this supposition by simple experiments; and, to avoid the telepathist's objection that perhaps the tendency to choose particular

numbers was 'transferred,' twenty or thirty friends were asked to put prescribed questions and tabulate the results. The results obtained were entirely confirmatory of the so-called number-habit, and "it is clear that this varying predilection for different numbers materially vitiates all reasoning based on the assumption that we shall indifferently choose *any* number." Not only are particular numbers favored, but there are decided tendencies to select numbers on certain principles: here, again, the results first reached by Dr. Minot are corroborated. For example: in 1,120 trials in which multiples of ten would have been selected 109 times by the action of chance, they were actually selected 307 times. When persons were asked to choose a number (no limits being set), it was found, that, in 172 trials, 84 chose numbers under 20; and 59 of these, numbers under 10. Yet, if you set 1,000 as the limit unconsciously implied by each person, numbers under 20 would occur only 3.26, and under 10 only 1.54 times. Again: when limits were set to the numbers to be thought of, there was a strong disposition to avoid early numbers, and select those near the farthest limits. The table recording the result of the numbers persons are most likely to choose is very suggestive, and should be compared with the tables given in Dr. Minot's report.

In short, as was recognized long ago by some psychologists and writers on probabilities, the human mind is not calculated to act like a die-box or a raffling-wheel, and to have numbers *chosen* is a different thing from having them *drawn*. In fact, it is possible to suggest a certain kind of number-preference by the framing of the question. When the question read, 'Choose a number containing *three* figures,' the digit 3 occurred more than twice as often as it should have done by the action of chance. Of course, this phenomenon is not confined to numbers: guessing letters of the alphabet, names of people and towns, and the like, would be very apt to be unusually successful by reason of independent similar brain-functioning. In choosing letters, three tendencies are observed: 1°, to choose A, B, and C (of 172 people, 37 chose A, 31 B, and 14 C); 2°, to choose one's own initial (this was done 27 times in 172 cases); 3°, to choose Z (12 times in 172 cases).

The arguments in favor of supersensory thought-transferrence would apply as well to the common simultaneous discovery of new points in science by widely separated observers, or even to the similarity in customs of unrelated savage tribes (which Mr. Tylor so interestingly describes and so rationally explains), as to the number-coincidences of the usual 'telepathic' experiments. The same causes that led to the development of the decimal system, or to the selection of certain numbers as sacred or ill-omened, are still active in creating the preference for certain numbers which is so easily overlooked. Experiments taking this factor into account can be devised, and, when the results still leave a residue of unexplained phenomena, it is time enough to begin to consider the remote possibility of real telepathy. J. J.

IS BOTANY A SUITABLE STUDY FOR YOUNG MEN?[1]

AN idea seems to exist in the minds of some young men that botany is not a manly study; that it is merely one of the ornamental branches, suitable enough for young ladies and effeminate youths, but not adapted for able-bodied and vigorous-brained young men who wish to make the best use of their powers. I wish to show that this idea is wholly unfounded, but that, on the contrary, botany ought to be ranked as one of the most useful and most manly of studies, and an important, if not an indispensable, part of a well-rounded education. In support of this view, these four good and cogent reasons can be adduced: —

1. *The study of botany is an admirable mental discipline.* Any education is defective which includes no training in the scientific method of study; that is, in developing the powers of careful, minute observation and comparison in some department of nature. By this means is acquired the habit of investigation, or the seeking-out of nature's mysteries by the use of one's own senses, instead of trusting wholly to the observations of others. This method of study may be learned through any branch of science; but botany presents this advantage, that it can be pursued with less inconvenience and less expense than any other. The mental training which botany affords is very thorough. The details of plant-structure are infinite, and essential peculiarities are often so hidden as to be recognized only by the most minute investigation. This involves the use of the microscope, which every educated man ought to understand, since it reveals to the eye a newly discovered and wonderful world, — a world of which our grandfathers had but the faintest glimpses, but which is scarcely inferior in interest to that larger world which the unaided eye can see. After this training of the powers of perception and comparison, comes the process of generalization, whereby the laws of vegetable life are determined from the study of plant forms and modes of growth. Thus is acquired the habit of

[1] From the first number of *The Swiss Cross.*