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Breeding Cognitive Strategies

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Breeding Cognitive Strategies*

I will assume, on Haber's showing, that the phenomenon of eidetic imagery is discontinuous from normal visual memory and afterimages, and a perfectly robust phenomenon in its own right. In any event, it will be empirical studies and not worries about the "metaphysical" status of eidetic images that will settle that issue. Philosophers can be counted on to find a suitable ontological home, and a licensed description, for any phenomenon that survives the surveyed and projected empirical scrutiny. Curious it may be, and some proffered descriptions of it may warrant the retort, "Impossible!," but that should not forestall investigation.

Haber presents us, then, with a phenomenon in need of a theory, a circumstance that invites speculation, not premature argument. Haber's description of the phenomenon encourages the following speculations from me about how to think about the options for theory. Suppose that the developing cognitive systems of young children are opportunistic generators and adopters of cognitive strategies, relying in some measure on ransom or merely fortuitous generation of candidate strategies, but also, of course, subject to a variety of constraints: initial system architecture, history of early experience (or "stimulation"), history of cognitive "demands." Consider these factors to determine a sort of environmental niche, in which various strategies, should they happen to occur, will be candidates for short- or long-term survival. Then suppose that the strategy of developing eidetic imagery is in most individual cases a fence sitter - likely to occur in a sizable percentage of cases, and not so clearly benign (useful, efficient) so clearly detrimental, so unstable or ineradicable (whatever its value) as to permit any high-probability predictions of its fate when and if it appears. That is, suppose that for this strategy, the constraints underdetermine its fate, so that the random or fortuitous factor plays a magnified role in the statistics, relative to other, more predictable features of the developing cognitive system.

If this were the case, then we would expect the search for correlates to be in vain, unless we were lucky enough to discover, "from the outside" as it were, correlates very directly tied to the actual mechanism of strategy implementation (the actual footprints or skeletons of the embodied strategy). We might find that there were no salient preconditions for eidetic imagery, since almost everyone met them; in many subjects who meet all the identifiable preconditions the strategy simply never happens to occur as a candidate for adoption. In many others it might occur briefly and inconsequentially. And we might find no subsequent symptoms of adoption of the strategy (beyond the evidence that the strategy has in fact been adopted - that the child is an eidetiker) because it does not interfere (drastically or even noticeably) with the development of other needed cognitive apparatus; it can share the niche with them for some time before eventual abandonment. Apparently something does favor its extinction before adulthood; something else needs and gets the resources required for eidetic imagery, or the cognitive demands on the system change in such a way as to lower the relative utility of eidetic imagery,... or something. The regularity of the loss of eidetic capacity is apparently one of the few fixed points, and asking why there should be this upper limit on the strategy's lifespan might be a fruitful avenue for future investigation.

Certainly what is known of the phenomenon does not require that it be viewed in this light, but so far as I can see, what is known is temptingly consonant with this view. So far, eidetic imagery has the earmarks of such a fence sitter. There is no strong reason (of utility,

say) why we should all be eidetikers - so we needn't expect an answer to the question. "What's wrong with the rest of us?" and, no strong reason (of disutility, say) why no one should be an eidetiker, so we needn't expect an answer to the question, "So what's wrong with them?" Although no concomitant cognitive deficits have been found, some deficits (due to old age or brain damage) may provide a slightly better niche for the strategy to develop in, and hence favor its adoption and maintenance in those to whom it happens to occur. There are independent reasons for supposing that while it may not be a detrimental strategy, it is clearly suboptimal. It is no more accurate or voluminous an information store than ordinary visual memory because whatever form the storage takes, what is stored is clearly postinterpretation and hence subject to the information losses (including discards) and distortions of the interpretation process. As Haber importantly notes, it is not "photographic memory" except perhaps in the remarkable case reported by Stromeyer and Pstka (1970). It probably makes relatively inefficient use of the storage machinery by requiring the reintroduction of inaccurate or at least unreliable specific-image-maintaining information after this information has been discarded by the interpretation process of perception. (Consider the extra information-transmission costs of generating a police artist's sketch from nothing but a witness's verbal description and sending both the picture and the words to all patrol cars). It is certainly somewhat inefficient in requiring control loops that go through so much of the subject's visual system (requiring an eyeblink for "erasure," for instance), and hence being only indirectly controllable by the subject's will (as one might just as well say). Given this mediocre scoring on a speculative cost-benefit analysis it is somewhat surprising that the strategy ever survives, as apparently it does, but perhaps it has as yet unnoticed advantages when exploited in the solution of cognitive problems peculiar to childhood, or perhaps it survives through a loophole in the brain's no doubt imperfect implementation of cost-benefit analysis - the principles, whatever they are, of strategy selection. In any event, it is entirely possible, and not at all abhorrent to science, as Haber seems to think, that some children are eidetikers simply because it occurred to them to be (not consciously, of course), and that others aren't simply because it never occurred to them.

Haber suggests that a more aggressive and interactive exploration of the phenomenology of eidetic imagery could be fruitful, and I certainly agree. An elaboration of that approach would be the attempt to train children or adults to have, or improve, their eidetic capacities, for this might clarify the conditions under which the capacity appears and survives. But here a caveat is in order. We might well find that nothing we could devise would induce the eidetic strategy in noneidetikers or prolong it in maturing edetikers, but in that case our disappointment should be mixed with relief, for we might succeed, and we don't yet know that there are no steep prices being paid by those who are lured into this curious cognitive mode, and even if we became very confident that the strategy as it occurs in nature is benign, we would have no guarantee that artificially induced or enhanced mutations of the natural strategy might not prove more persistent or more imperialistic in their demands on the available cognitive machinery. So on prelude to any further experimentation that might uncover techniques for inculcating the strategy should be still more exhaustive and systematic canvasses for deficits in longitudinal studies, whose continued barrenness we could view as encouraging, not discouraging, since it is a prerequisite for conducting the sorts of experiments that might unlock the phenomenon and yield a good theory. Another necessary prelude would be self-experimentation and experimentation with other informed adults, however dim the prospects of positive results.