

ON DREAMS AND THEORIES.

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IN previous communications made to this Journal I have pointed out that the cerebral excitation processes mediating an idea, or judgment, are produced by the interaction of two factors which I term *H* and *L* respectively, and that, in the case of judgment, the factor *L* constitutes the material to be judged and the factor *H* judging capacity. When the judge has interacted with the material brought for judging, there results a judgment (1, 2, 3, 4, 5). So long also as we avoid some form of fit (2) or spasm (4), the sum of the two factors *H* and *L* must fall within the limits of another factor, *T*, the capacity of the responding organ (1).

These conceptions may now be applied to the neural mechanisms of theories and dreams. The application is made through two premises, *viz.*

- (1) The data for a scientific theory are supplied by the facts which it co-ordinates.
- (2) The factor *L* constitutes the neural datum of the theory considered as a judgment.

I deduce therefrom that the factor *L* in the neural excitation processes mediating the theory-thought is formed by an integration of parts derived from the factor *L* of each individual fact-thought. The relation of a theory to its facts thus seems to be somewhat similar to the relation between the individual muscle-fibre and the muscle. Each fact, or muscle-fibre, can act as an independent unit, and in the theory, or co-ordinated contractile result, each unit contributes its little bit towards the common end.

In the mechanism just outlined, next, there are only two factors determining that nerve-cells should join, or integrate, their forces, or *L*, to provide the data, or *L*, for the new idea. Those factors are—

- (1) That they should possess enough *L* to be able to give some away.
- (2) That the amount given away should be adequate to provide the data, or *L*, for the new idea.

If such be the case we could anticipate that cells overcharged

with the factor *L* would automatically give some away; also that cells with abundance of *L* would more easily yield some *L* for integration than would cells with little *L*. These anticipations seem verified. For overcharged cells belong to the ultra-cognoscible mind (5), which Freud finds a fertile source of new ideas. And old age and youth furnish examples of a differing content of cells in the factor *L* being associated with a differing capacity to generate new ideas (1).

When, however, a group of facts is integrated by, or into, a scientific theory, the factor *H*, or judging capacity is, or should be, adequately applied throughout. The result of such adequate application of the factor *H* throughout is a reasonable theory which we believe corresponds with reality; in other words, *H*, the judge, mediates reality.

But there are people who frame theories, or ideas of conduct, which they themselves know not to be reasonable, in that the facts at their disposal do not warrant the conclusion which they reach. And although they realize that the facts do not warrant the conclusion, they yet must reach that conclusion. Such theories the psychoanalyst classifies as neuroses, and he traces their origin to the ultra-cognoscible mind. He also traces over-enthusiasm in respect of otherwise reasonable theories to the same source.

It would appear, therefore, that one essential difference between a reasonable, or a scientific, theory and a fantastic theory, or complex, is that in the former all the sources of the integrated data are open to introspection, whereas in the latter some of the sources of the integrated data, or theory *L*, are not so open to introspection because of their high content in *L*, this high *L* content making impossible adequate application of *H* or consciousness.

But suppose next that a man has been carefully observing a particular disease, say, over many years. We know that as a result he can give a fairly accurate opinion concerning any new case of that disease. We know also that though his opinion or theory is based on long experience, it is most unlikely that he remembers accurately every case of it he ever met. Indeed, nothing is on the whole more certain than that he has been keeping careful written records throughout because he himself does forget. Moreover, he would probably be regarded as a curious person if, before expressing an opinion on any new case, he regularly searched his stock of written data. He would be expected rather to be able to give from his mental records an opinion on the spot. But although he cannot remember the details of many of his cases, yet at the time he met those cases they were cognoscible data for his

ideas of the disease, and as such were linked as cognoscible facts to his theory. If, then, that linkage persisted in spite of the diminution of the *L* content of these "facts" to the infra-cognoscible level, such forgotten "facts" could still furnish some data, or *L*, for an opinion of value. It thus seems possible that one individual, A, through forgetting ten times as much as B ever knew, could, through that forgetting, acquire the data for framing a better judgment than B.

I suggest, then, that two kinds of "complex" should be recognised—the emotional and intellectual respectively. Their possessors can frame a judgment on visible evidence insufficient for others without the same complex. To the one judgment, however, the intellectual, these others will probably pay respect and think of the "ripe experience" behind it, or the "clinical acumen" which enables such a "shrewd guess" to be made, whereas the other judgment, the emotional, may well appear fantastic. Yet that emotional judgment is not necessarily wrong. The vast majority probably are wrong, but, just as anyone firing a gun enough times at random among birds must occasionally hit one, so also among these emotional judgments one must occasionally be correct, and so also, further, the material provided for speculations on "inspiration."

But though I have borrowed the term "complex" from Freud, it should be noted that in his philosophy the ultra- and infra-cognoscible extensions of the "spectrum" of mind are confounded together by him under the term "unconscious" (5). My use of the term "complex" is also, I think, actually in accord with his use in that for me a complex is a "theory" with some of its data beyond the introspection of its possessor. Freud, however, presumes only one source of "data" beyond introspection, the unconscious, whereas in the ultra- and infra-cognoscible, respectively, I find two (5).

The basis of ideas and theories according to the above is an integration of the *L* factor from different sources. And, on the whole, the prime cause of this integration appears to be that groups of cells can afford to, or else are directed to, give away some of their *L* to others. The poet waiting for inspiration can, I think, be taken as an example of waiting for overflow, and the combination of "love" (3) and "a little alcohol" (6) as one that would readily yield the extra *L* required to permit overflow. The scientist, on the other hand, critically examining each fact, or applying adequate *H* to its data *L*, exemplifies a directed integration of *L*.

The statement may next be made that the "manifest content" of a theory is the theory itself, and its "latent content" the facts on which it is based. It may also be stated that the "manifest content" of an idea is its own proper content in L , and its "latent content" the sources whence that L is derived. This brings us, of course, to dreams.

Now dreams are fleeting things requiring for anything like recollection conscious attention immediately after awakening. Their memory traces are, thus, essentially unstable, and this instability may be due either to a very small content in L , or it may be that the L tends to revert to its sources unless held and fixed by attention (1, 5). This phrase, "held and fixed by attention," must next be interpreted biochemically as well as psychologically because, in the psycho-physical system outlined by me, the giving of attention implies an interaction of Ca with the colloids whose aggregation change is mediating the data of the idea (1). The resulting "calcification," as shown by the work of Höber (7) and Macdonald (9), gives a more stable colloidal system, which, in turn, gives more stable memory traces (1).

Now the chief sources of L within us seem to be—

(1) The good, as well as evil, desires and wishes of our own hearts having their origin in our ductless glands and environment.

(2) The ultra-cognoscible mind.

And, if these two sources supply the L for dream data, the dissolution of the dream should imply reversion of its L to the sources of its origin. If, however, dreams be regularly "fixed," by giving them attention on awaking and regularly recording, a regular drain of L from its two chief sources of origin should thereby be established. Such a drain probably matters little to the first group of sources, because the ductless glands and environment can as regularly renew the supply, but, in respect of this second source, if one possess it, such a regular drain should eventually so decrease the reservoir of L as to leave room to apply enough H to obtain consciousness of the event, or idea, mediated thereby.

If this view be correct, the regular recording of dreams would in time render possible consciousness of what Freud terms a "repressed complex," and such regular recording forms parts of psycho-analytic treatment. The recording, however, is done primarily to give the analyst material to analyse, and he naturally believes that his analysis is the all-essential part of the treatment, whereas

from the above we find that the mere regular recording may be "the" essential.

The next point concerning dreams is that our ordinary beliefs concerning them may be, in part, a sort of normal Korsakov phenomenon. They belong to our inner store of cognoscible data, all of which are normally met, on arrival as it were, by consciousness. When, then, consciousness wanders round that inner store of data, it presumes that any L then "met" had also been previously met.

Now if sleep means an entire withdrawal of consciousness, and if during it there be a ceaseless production of all types of kaleidoscopic patterns of L by integration and their equally ceaseless disintegration to their origins, then, at any moment of sleep, there will be a number of these patterns in being, in production, and in disintegration. The time occupied in disintegration, however, will vary, but not directly, with the size, or strength, of each integration, those of ordinary, or intellectual, size reverting to the infra-cognoscible level with the speed of an ordinary visual after-image, whereas those of large, or emotional, size take, like a sun after-image, some more easily sensed time (1, 2, 3, 4, 5).

If next, on awakening, this type of integration ceases, those patterns previously wrought, and of adequate size to take some little time to disintegrate, will still be in existence though disintegrating, and can be "met" by consciousness if it then turn to its inner store of data. We always infer, however, that anything "met" in that store has been previously "met." Accordingly even though these dream data may not previously have "met" consciousness, yet, because they are in that inner store, it would be inferred that they had been met, and the time of meeting placed somewhere in the previous period of sleep.

It should be clearly understood, however, that the psychophysical mechanism I have previously outlined makes equally possible contemporary consciousness of dream data, and that a decision between the two possibilities depends on knowing how much of the factor H , or consciousness, or "censorship," is available during sleep. We can certainly distinguish "light" and "deep" sleep, yet in both conditions the sleeper is unconscious, and the "light" and "deep" do not refer to consciousness, but instead to the strength of stimulus required to restore consciousness. The point being made here is that the universal belief that dreams possess contemporary consciousness is possibly a wrong inference, which we must automatically make so long as introspection is our

guide. That possibly wrong inference is next automatically incorporated into speculations concerning dreams and dream-states, and, of course, if wrong, makes these other speculations wrong. This hypothesis, then, if correct, might have quite a useful life in front of it.

According to the above, the essential difference between a scientific theory and a dream is that in the former the integrations are directed, whereas in the latter they are undirected, or at random. And just as at bridge some player, or even all four players, can be occasionally dealt the "straight flush" instead of the more usual haphazard collection of cards, so also these random cerebral combinations can be anticipated to give occasionally a regular and orderly result instead of the much more usual haphazard combination. When also that combination obtains registration by its possessor, the one to whom it has been delivered may well cry "Eureka" and perpend on the possible source of the inspiration. And when we do perpend we should, I think, consider the possibility that Nature may only be able to deal to us such cards as we with infinite toil make in ourselves. The straight flush, therefore, should be more readily attainable by definite selection than by waiting for the random deal. At the same time, however, it is possible for us to mislay, or forget, some one card which Nature may kindly find for us.

It may now be pointed out that if it be a wrong inference that "dreams" are conscious events of sleep, an intellectual dream would ordinarily not be recalled, because its data would subside with the speed of a visual after-image, and so sink below the cognoscible level before consciousness could be applied to it. If, however, our occupation be an emotional one, *e.g.*, the soldier in battle, or some change take place within us whereby all excitation processes obtain an accretion of L , we should, according to the above, be then able to dream occupational dreams—an obviously bad sign if our work be "intellectual," or at any rate "skilled," because it implies the L has become too great to permit adequate application of H for good judgment.

Finally we may consider the origin of dreams. Dreams, like theories, have their proper manifest content of L , and a latent content in the various sources of L , whence their L is integrated. If, next, it be a wrong inference that dreams are conscious events of sleep, the dreams normally capable of registration and remembrance would be those with such a content in L , that the subsidence of that L persists over from the sleeping to the waking state. That in turn means enough L to be emotional, or at any rate to

imply low judgment capacity or inferior censorship. The dreams we remember, therefore, must be derived from sources in us containing much *L*, the ultra-cognoscible and the para-critical divisions of mind, so that the sources of dreams should be in number at least equal to the number of emotions enumerated by McDougall. If, however, we do not appreciate that the *L* of dreams is an integration from many sources, and employ a psycho-analytic method that only tracks down, or precipitates as it were, one origin, whereas someone else, by using a different analytic agent, tracks down another, we obtain material for disputation. Hence, I suggest, the origin of the schools of Freud, Jung and Adler.

References.—(1) Burridge, *Journ. Ment. Sci.*, 1929, lxxv, p. 371.—(2) *Idem, ibid.*, 1929, lxxv, p. 395.—(3) *Idem, ibid.*, 1929, lxxv, p. 697.—(4) *Idem, ibid.*, 1931, lxxvii, p. 355.—(5) *Idem, ibid.*, 1931, lxxvii, p. 345.—(6) *Idem, Arch. Internat. de Pharm. et Thérap.*, 1922, xxvii, p. 239.—(7) Höber, *Phys. Chem. d. Zell. u. d. Gewebe*, Leipzig.—(8) McDougall, *Social Psychology*, London.—(9) Macdonald, *Quart. Journ. Exp. Physiol.*, 1909, ii, p. 65.