THE DEVELOPMENT AND EVOLUTION OF MIND: BIOLOGICAL *v.* PSYCHOSOCIAL IN- TERPRETATIONS OF THE ONTOPHYLO- GENETIC PARALLELISM.

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THE psychoanalysts have pushed psychological interpretations farther, perhaps, than any other school, yet they have resigned to biology the interpretation of the resemblance between mental development and mental evolution. We shall see that in doing so they are not clear either as to the data which necessitate the 'recapitulation hypothesis,' nor as to the meaning and consequences of this. They seem to feel in a vague way that in establishing (?) this biological interpretation of a mental process they have accomplished something of value :—

"Why, that I cannot tell," said he,
"But 'twas a famous victory."

We find Freud's views on mental recapitulation expressed in his *Introductory Lectures on Psychoanalysis* (1915–1917, transl. 1922).

Page 168. "In so far as each individual repeats in some abbreviated fashion during childhood the whole course of the development of the human race, the reference" (of dreams) "is *phylogenetic*. I believe it is not impossible that we may be able to discriminate between that part of the latent mental processes which belongs to the early days of the individual and that which has its roots in the infancy of the race. It seems to me, for instance, that symbolism, a mode of expression that has never been individually acquired, may claim to be regarded as a racial heritage."

Page 197. "In considering the two developments undergone by the Ego and by the Libido we must emphasize an aspect which *hitherto has received little attention*" (italics mine). "Both of them are at bottom inheritances, abbreviated repetitions of the evolution undergone by the whole human race. . . . In the development of the libido this phylogenetic origin is readily apparent, I should suppose. Think how in one class of animals the genital apparatus is in the closest contact with the mouth, in another it is indistinguishable from the excretory mechanism, in another it is part of the organs of motility. . . ." "One sees in animals all the various perversions, ingrained, so to speak, in the

form taken by their sexual organizations. Now the phylogenetic aspect is to some extent obscured in man by the circumstance that what is fundamentally inherited is nevertheless individually acquired anew," etc.

Page 307. "In the place of effecting a change in the outer world they set up a change in the body itself; that is, an internal action instead of an external one, an adaptation instead of an activity—from a phylogenetic point of view again a very significant regression."

Page 310. "All this seems to lead to but one impression, that childhood experiences of this kind" (phantasies of seduction, castration, etc.) "are in some way necessarily required by the neurosis, that they belong to its unvarying inventory. If they can be found in real events, well and good; but if reality has not supplied them they will be evolved out of hints," etc. "Even to-day we have not succeeded in tracing any variation in the results according as phantasy or reality plays the greater part in these experiences." "How is it to be explained that the same phantasies are always formed with the same content? I have an answer to this which I know will seem to you very daring. I believe that these *primal phantasies* . . . are a phylogenetic possession. In them the individual stretches out beyond it" (his own) "to the experience of past ages. . . . The child in its phantasy simply fills out the gaps in its true individual experiences with true prehistoric experiences."

As the lectures are didactic, these statements are presumably intended to be accepted literally. In *Beyond the Pleasure Principle* Freud refers in unmistakable terms to recapitulation, not as a theory, but as an unquestionable and accepted fact. Page 45: "We see that the germ-cell of a living animal is obliged to repeat in its development—although in a fleeting and curtailed fashion—the structures of all the forms from which the animal is descended, instead of hastening along the shortest path to its own final shape."

It appears significant to me, moreover, that in his psychosociological writings Freud makes no use of the hypothesis of recapitulation. In *Totem and Taboo*, for instance, where he has to account for a parallelism between infantile and primitive modes of thinking—a reproduction in early development of certain adult ancestral mental processes—he does not mention recapitulation. Indeed, he develops a most ingenious and plausible theory of 'unconscious tradition,' a mechanism whereby the antagonism of each generation to its precursor and successor is maintained in a sort of chain reaction of jealousy and suspicion. This mechanism of unconscious tradition, if it exists, would account for the repetition by successive generations of a series of affective attitudes which are supposed to be historically determined, i.e., to have an *evolutionary parallel*. It is, then, an alternative interpretation, which Freud apparently has dropped in favour of the recapitulation hypothesis.

In *Leonardo da Vinci* also we find a reference to recapitulation.

Page 60 : " Important biological *analogies* " (my italics) " have taught us that the psychic development of the individual is a short repetition of the course of development of the race." Note here he refers to *analogies*, and that in *Totem and Taboo* (p. 265) he warns us : " We must not let our judgment about primitive men be influenced too far by the *analogy* with neurotics " (italics mine). From the form of these *earlier* pronouncements, from the absence of reference to phylogeny in *Three Contributions to the Sexual Theory* (which is concerned with the causes of *development*) and in *The History of Psychoanalysis*, and particularly from his hypothesis of ' unconscious tradition ' (which renders the recapitulatory hypothesis superfluous), I am inclined to suppose that Freud did not originally found upon the ' biogenetic law,' but accepted it from others.

Jung (*Psychology of the Unconscious*, pp. 27, 28), after referring to organic recapitulation, says : " Therefore the supposition is justified that ontogenesis corresponds in psychology to phylogenesis. Consequently it would be true, as well, that the state of infantile thinking in the child's psychic life, as well as in dreams, is nothing but an echo of the prehistoric and the ancient." Page 30 : " One might raise the objection that the mythological inclinations of children are implanted by education. The objection is futile." Page 35 : " Just as our bodies still keep the reminders of old functions and conditions in many old-fashioned organs, so our minds, too, which apparently have outgrown those archaic tendencies, nevertheless bear the marks of the evolution passed through, and the very ancient re-echoes, at least dreamily, in phantasies." Page 36 : " Man, in his phantastic thinking, has kept a condensation of the psychic history of his development. From all these signs it may be concluded that the soul possesses in some degree historical strata, the oldest stratum of which would correspond to the unconscious."

Jones (*Papers on Psychoanalysis*, 2nd ed., p. 6) says : " The relations it " (psychoanalysis) " bears to the theory of organic evolution become very striking. Freud's *recent* " (italics mine) " demonstration of the truth—long suspected, but now proved in a far deeper sense than had been anticipated—that ontogeny epitomizes phylogeny in the mental sphere just as definitely as in the physical," etc. " The conflict between the two systems recapitulates on a modified scale in the individual the history of its course in the race, producing strikingly similar manifestations in the two cases." Farther down he says : " Hardly any serious endeavour had hitherto been made to fertilize psychology with the ideas of organic evolution."

References might be made to Pfister, Ferenczi, Jelliffe, White, Brink, Janet, Payne, Lombroso, etc., but none of them *uses* or defines the theory in such a way that it is possible to verify their assumptions. The following are more explicit.

J. E. Lind (*Psychoanalytic Review*, 1917, iv, 324) says : " Of course,

strictly speaking, we are not able to say definitely that any delusion, hallucination or mannerism goes any farther back than the life-history of the individual. We can only surmise from the nature of some of them that they belong to the race-consciousness." In regard to a demented negro, who says he ate his wife because he loved her, Lind remarks, "We feel that such an expression is something more than ontogenetical." The hallucinations of a deteriorated *præcox* patient, who saw cows' heads on the wall of his room, "might not ordinarily attract much attention, but when we remember that throughout nearly all Africa the natives are an agricultural people and cattle are their chief possession" (! ?), "it takes on a different aspect." One can only remark that, if our memories cannot be trusted in regard to elementary facts learned in the schoolroom, we will have to be chary of trusting them in regard to ancestral experiences of events and conditions thousands of generations ago. Among this author's examples of supposed phylogenetic thinking we find this: "Patient dreamed of 'chockchuckoo' . . . and that one day he made 4,000 children"—the good old days, we presume. Lind further remarks: "I have often thought that a careful study of neologisms among negro psychotics might result in the discovery of many African roots." He thus regards language as germinally transmitted.

A. B. Evarts (same *Review*, 1913, i, 388) says: "It is a fact recognized by all that the individual, in his development, relieves" (? recapitulates) "the history of his race." She then asserts that ontogeny shows, like phylogeny, the following series of phases: animality, acquisition of language, hunting, fire-making, playing with mud, basket-making, domesticating animals, agriculture, building, tool-using and, finally, abstract thinking (at the opposite end of the series from the acquisition of language!). This author appears to have reconstructed *both* the ontogenetic *and* the phylogenetic series out of her own inner consciousness, presumably by the method of 'free association,' unless, indeed, we are to regard this contribution as an example of reasoning from the unknown to the known.

J. S. van Teslaar, in an article on the "Significance of Psychoanalysis in the History of Science" (*International Journal of Psychoanalysis*, vol. ii, pp. 339 *et seq.*), makes the most definite and comprehensive statement of the doctrine of mental recapitulation I have yet come across: "Since Darwin the comparison between childhood and primitive mankind as representative of the same developmental stages has achieved new significance. Darwinism has led to the theoretic assumption that, in our physical as well as mental development, we recapitulate the biologic history of the race." Then, after referring inaccurately and superficially to the history of the theory, he asserts that "the facts are sufficient in their essentials to prove the recapitula-

tion theory is sound." . . . "That our mind does that very thing" (recapitulate) "has long been a theoretic conclusion of biological investigators. Freud found that ordinarily we are often prompted by bits of our racial past." . . . "Incidentally, Freud's discovery shows that in the course of its development the individual mind repeats our racial history. The details of Freud's work amount to a restatement of the recapitulation theory applied to the biologic history of the mind. For the first time there has been disclosed to us the *manner*" (italics mine) "in which psychic recapitulation operates and its consequences." In reality, the elucidation of the *mechanism*, "the manner in which" recapitulation "operates," "and its consequences," are things which apparently no psychoanalyst has attempted.

"Primordial cravings . . . are racial vestiges of the mind. They are racial endowments belonging to early psychic stages of our individual development, just as certain structures and organs of the embryo represent passing phases in the course of our physical development." This author talks of 'reconstructing' primitive world and thought from our knowledge of the unconscious. "For the first time since Darwin announced his discoveries" (?) "an important corollary of the theory of evolution—recapitulation—is thus proven to hold good of the psyche."

We may take these as an official expression of psychoanalytic opinion, because, though young America may appear to have gone one better than Freud, still he himself is explicit enough, and, so far as I know, there has not been one published word of criticism of the mental recapitulation theory on the psychoanalytic side. Indeed, the extravagances of the last three authors quoted are really the logical consequences of Freud's own premises. The manifest absurdity of these conclusions is due to the naïve acceptance and literal application of the theory; in fact, to the attempt (which Freud was too cautious to make) to *make use of it*. None of the writers earlier quoted *uses* this theory to make any close interpretation of definite facts; for them it is a stage property which belongs to the background of metapsychology. Lind is rash enough to bring it into the limelight, and credulous enough to accept his results as valid because they are consonant with the theory, instead of rejecting the theory because its consequences are inconsistent with fact. Besides this, it is worthy of note that none of these writers either bases any inferences upon this theory or makes it the object of further study, with a view to discovering the causes and mechanism of mental recapitulation.

STATEMENT OF PROBLEM

In this inquiry we have two definite questions to consider: (1) the evidence for the recapitulation theory of mind, and (2) the inferences it

enables us to draw. Why must we assume that mental recapitulation has occurred, and what does this assumption enable us to explain?

Freud's first (quoted) reference adduces *dream material* as evidence both of the infantile and of the archaic modes of thinking. He does not adduce here concrete material, and the only inference he draws is that symbolism has not been individually acquired, and therefore is recapitulated. In the second reference he is suggesting that oral, anal and muscle erotisms are psychological vestigial phases, representing *and homologous with* certain organic adult ancestral forms. He implies that, though evolution has changed the *form* so that the sexual organs are no longer closely associated with mouth, anus or limbs, yet the reactive disposition of sex, in the course of its development, passes inevitably through phases in which it is closely associated with and influenced by alimentary, excretory and motor functions. That is to say, the instincts are supposed to recapitulate, as a rudimentary *functional* association, an ancestral *spatial* association of their respective organs, which *organic* recapitulation fails to record. Mental recapitulation in this way will be able to tell us not only about the behaviour of ancestral forms, but even about their structure. Disregarding innumerable difficulties this raises, consider that Freud is here implying (a) that all the types of organization he mentions appear in the *human* ancestral series, and (b) that they appeared in evolution in the order in which he here mentions them. Unless these things are so, his recapitulatory interpretation of libidinal development breaks down. He does not even seem to be aware that his argument turns on these two points, and makes no attempt to demonstrate them or to cite biological opinion in favour of his assumption. He apparently regards all non-human animals as ancestral forms, and imagines himself at liberty to arrange them in any genealogical sequence he please. The results of such a method are "readily apparent, I should suppose," and the most exasperating feature is that, having permitted himself such liberties with biology and with scientific method in general, he makes no *use* of the conception, and does not develop or apply it in any way.

The third statement of his quoted introduces a new and quite unjustified definition of *adaptation*, which he contrasts with *activity* and regards as equivalent to passive *tolerance*. In the fourth quotation he explains the consistency and identity of 'primary sexual phantasies' as a phylogenetic possession. Here at last we find the hypothesis used to explain something whereby, in turn, it can be tested and verified. From a biological point of view there is something to be said for the idea that mental imagery might form part of an instinct; at least, we do know that certain instinctive actions, performed prior to experience, are initiated *only* by highly complex and specific stimuli. It is not perhaps a very great step for the biologist to argue that, because there is an

innate appreciation of the meaning of a situation, there may also be a preformed image (innate), and that truly instinctive behaviour (first instance, or prior to experience of results) is *perceptual*.

Still this would not support Freud's position, which postulates that certain experience and behaviour are produced from within (i.e., from the developmental impetus), and *in a certain definite order in time*. Here he states explicitly that the childish and neurotic phantasies of seduction, castration and observation of parental coitus are too frequent and realistic to be due to the child's own experiences. He admits that these experiences are far more numerous than an ordinary observer would credit; he also admits that retrospective memory falsifications are responsible for some of the data: "We have not succeeded in tracing any variation in the results according as phantasy or reality plays the greater part in these experiences" (*Introd. Lect.*, p. 310). There is, therefore, *no positive way* of recognizing ancestral 'memories.' To distinguish these from ontogenetic structures, we have to rely upon excluding individual experiences and 'information' from which these phantasies *could* be constructed. Surely this process of exclusion is delicate and difficult, and only the most definite and unequivocal findings based upon exhaustive investigation with this problem in view will be conclusive in this case, particularly when we consider the gravity of the hypothesis our finding is destined to support. Freud is plainly unaware of the implications of the recapitulation theory (mental), and, contrary to his usual practice, he does not adduce actual evidence. Intuitively he appears to be aware that it is of no importance or value to psychology.

The reference in *Leonardo da Vinci* is not followed up; indeed, the onus of the theory is here laid upon the biologists, and its *psychological application is regarded as analogous*. It is neither supported by facts here adduced, nor does it help us to understand any of them. In *Beyond the Pleasure Principle* recapitulation is treated as an unquestionable and self-evident truth, even in the mental sphere. Again, it has no value either as an explanatory principle or as a basis for further inference and investigation. Freud simply adduces it as an instance supporting his conjecture of a general 'repetition compulsion' as characteristic of life in general.

Jung, though he recognizes that it is an 'organic' rather than a psychological theory, does not follow up this train of thought. Jones, also, is not concerned to verify the theory, and bases no inferences upon it. I understand he doubts its validity, and uses the term to indicate also the repetition of a previous *ontogenetic* phase. The minor prophets, however, are clear as to its being an extension of the 'biogenetic law.' Evarts even seems to go so far as to reconstruct *ontogeny* from phylogeny! Lind is the only one of those I have had access to who has seriously

attempted to interpret actual observations by this theory, and hence to verify the latter. But, even with the wild licence of conjecture he allows himself, he is not able to infer anything that we did not know before. The theory, then, adds nothing to our knowledge, nor does anything to compensate for the violence it requires us to do to the facts.

None of the psychoanalysts is interested in the *mechanism* of recapitulation ; no *inductive* studies are made of this *chef d'œuvre* of psychoanalysis. We have seen that it was a late idea on Freud's part, a second thought. Even now the *rôle* of recapitulation in psychoanalysis is that of a mystical subject for 'meditation' rather than an integral part of their working hypotheses. At least it seems, by these references, to be in itself a source of satisfaction, for they are content to adduce it without applying, criticizing, verifying or studying it inductively.

CULTURE TRANSMISSION

If we take the evidence for mental recapitulation at its strongest, as showing the outcrop of highly *specific* (see "Critique of the Theory of Mental Recapitulation," in this *Journal*, May, 1924) *identifiable* fragments of genuine ancestral myths in the individual's phantasy life, we must ask ourselves, is a simpler, less onerous interpretation of the facts not possible ? Is it not possible to believe these 'race memories' are transmitted *viâ* the 'social inheritance' (tradition) rather than through the mechanism of the germ-plasm ? How can Freud exclude or evaluate the factor of experience ? On what grounds does Jung wave away as "futile" the objection that myths may be implanted by education ? Nursery rhymes and fairy stories are simply decorous and decorated editions of myth themes. They might easily give to the phantasies of childhood the specific archaic forms which lead us to observe a similarity between mental evolution and mental development. To give an instance of such a 'social vestige' from my own observation, the 'Jack and Jill' rhyme, so frequently exploited by pantomimes, can be traced back, etymologically and formally, to the ancient Scandinavian mythic fragment in which Hjuke and Bil (Iduna), with the pail 'Seething Over' and the pole 'Brewing,' are sent by their father to fetch the scaldic mead at night from the secret fountain Byrgir (hence possibly, by corruption, the somewhat inappropriate 'hill'). They are carried off (or run away) with the valuables, and are adopted by the Moon-god, and in subsequent conflict with his own father, Hjuke (Hoce in Beowulf) received a wound "clean to the thigh bone," for which reason he bore the epithet of 'Gelding.' Either he or his brother Volund (Wayland Smith) married Bil (Iduna), so that all the elements for a psychoanalytic interpretation are here available. The story, too, has assumed a dozen forms, has spread throughout the whole Aryan (not merely Teutonic)

world, and maintains itself in our present culture as the rhyme, as a tale of a bad man with two children who wickedly gathered faggots (the mythological crime was arson), as the (Norse) names of the moon-spots, etc., and finally has attained the dignity of history in the tale of Hengist (the Gelding), the Saxon leader. In all this the vitality of the myth is abundantly evident, and it is conceivable that it should be made the topic of phantasy and revived and elaborated into a form resembling one of the innumerable antique variants. If a *præcox* patient, regressing to such an infantile phantasy, re-endowed it with adult sexual meaning of the symbolic kind characteristic of the myths and generally restored it to functional perfection, then the parallelism between the archaic and the infantile psychopathic products might be striking. If, then, we overlook the possibilities of traditional transmission, the cultural link between the myth periods and modern times, we are apt to imagine that the similarity between the ancestral and the infantile thought-processes must be biologically (germinally) determined. The traditional link is so fragmentary, trivial and obscure that it is easily overlooked.

Quite possibly this once famous belief is now too dead to inspire anything, but other myths may not be; the example was chosen at random. It illustrates, at any rate, the possibility of a surreptitious social transmission of the forms, affective values, and even names of myths for phantasy to restore to their original form. The important point is the insignificance *to the adult* of nursery tradition, and his consequent difficulty in appreciating what access the child really has in his life-history to archaic material. This very possibility has been overlooked by psychoanalysts because they are still too much under the spell of the 'individual' point of view. Lind, for example, never mentions negro folk-lore as an ontogenetic source of archaic material, e.g., the 'Uncle Remus' collections, where we can actually find 'plantation stories' collated with their African (and ancestral) parallels.

Before considering further this culture transmission, we must notice Freud's reference to symbolism as "never individually acquired." It is presumable that he refers particularly to sexual symbolism. Now we are told that all suitable objects are made to serve as sexual symbols, both by the neurotic and by primitive man. There is, therefore, no particular *choice* of symbols characteristic of this type or phase of mind which would enable us to postulate a connection (causal) between ancestral form and infantile phase. In this random, indiscriminating acceptance of everything as a symbol there is nothing specific to identify the two, and to prove more than a chance resemblance. As for the allegation that the symbolism cannot have been inspired by anything in 'tradition,' i.e., cannot be due to the individual's own experience or

have been imparted by others, I adduce the following three samples of nursery rhyme :—

I had a little husband, no bigger than my thumb ;
I put him in a pint pot and there I bid him drum, etc.

Cock-a-doodle-doo,
My dame has lost her shoe,
My master's lost his fiddling stick
And don't know what to do.
What is my dame to do ?
Till master finds his fiddling stick
She'll dance without her shoe.
My dame will dance with you
Till master's found his fiddling stick
For dame and doodle-doo.

I had a little nut tree, nothing it would bear
But a silver nutmeg, and a golden pear.
The King of Spain's daughter came to visit me,
And all for the sake of my little nut tree.

Poetic use of ' nut tree ' in this sense is not uncommon.

Now this argument does not require me to decide the validity of the Freudian interpretations of these and other suggestive nursery rhymes, but it must be this sort of symbolism that Freud refers to as " probably a racial heritage," and all I require to do is to show that it is, in fact, *taught to the child from his earliest lullabys*. It is *verbally, not germinally, transmitted*, so why should we strain biology and psychology to put the matter beyond a simple explanation ? The real Freudian interpretation of these facts is that the nurse or mother, to amuse the child, produces what she regards as rhyming nonsense. Under this process of ' free association,' however, her unconscious impulses find symbolic expression. The conditions are specially favourable for the relaxation of the censorship, more favourable in many ways than a psychoanalytic ' sitting.' Here, again, I am not concerned to demonstrate the validity of the psychoanalytic interpretation ; if it is invalid, then their finding (by exclusion) that these symbols are germinally transmitted is also invalid. If it is valid, then it is simpler to suppose that this symbolism is transmitted to the child by the expressions of his parents and nurses than through the medium of unimaginable determinants in his germ-plasm, derived, we cannot conjecture how or when, from a hypothetical ancestor. The whole force of the argument for recapitulation rests on the denial of the possibility of a *traditional* or verbal transmission, and the consequent postulation of an organic transmission. Yet here we see how such a denial might be perfectly honest but perfectly incorrect—because the transmission is *unconscious*.

It might at least be better worth while to investigate the content, etc., of nursery tradition than to close down psychological research by postulating mental recapitulation.

The upbringing of children, moreover, in the class from which so much analytic material is derived is left, to a large extent, in the hands of relatively uncultured and conservative people. Moreover, adults do almost deliberately 'regress' to meet the simple child half-way. In consequence the child first adapts to an intimate and tolerant circle, then to a succession of wider, more exacting, more cultured ones. It may even be true that those phases in the adaptation of the individual to society may correspond in some measure with stages in the history of society and of culture, but this is not recapitulation. The recapitulation theory postulates a *developmental* tendency to repeat evolution, but here *adaptations are exacted* from the child in a sequence simulating the history of culture. There is no evidence that the child has an innate tendency to strive for these adaptations, and in this particular order. Psychoanalysis, indeed, has adduced much evidence to the contrary. This socialization is not, strictly speaking, a development at all, but a process of modification imposed upon the child by custom and other *non-biological circumstances*. The life-history is determined by a particular sequence of stimuli which, from the biological point of view, is accidental. The demands of social life are the same for this generation as in the past, and in both series the most urgent obligations will tend to be enforced first, simulating recapitulation.

Culture itself, as we have seen, is not homogeneous, but has its more or less dissociated undercurrents—a sort of social 'unconscious.' With the evolution of a culture, and particularly at the critical moment when two culture streams blend and 'fertilize,' elements of both are dissociated as they cease to be compatible with the resultant trend of culture. But, as in the case of memories in the individual mind, it is long before any social production is wholly lost; such rather tends to be degraded and concealed, or retained by the less cultured classes. By such means much archaic material is preserved and rendered accessible to the neurotic (*vide Tom Sawyer and Huckleberry Finn*). Indeed, for several reasons, the child has this primitive material early forced upon him, and through such 'strata' he must pursue his development. Naturally, at nursery age he will possess nursery culture, with all the archaic vestiges of tradition, custom and ritual (note games). This and the phantasies dependent on and constructed of this he has to put behind him as he grows up, and we know the strength of the 'Peter Pan' motive. There are many circumstances, then, that tend to mould the individual along the general lines of the ancestral history, and their effect is a pseudo-recapitulation, which must be discounted before we are justified in postulating a biological recapitulation in the sphere of mind.

We see also in *intellectual* development a rough ontophylogenetic parallelism which suggests recapitulation. Simple and fundamental ideas must be mastered before more complex and abstruse ones which imply them, whether in the history of knowledge (racial, phylogenetic) or in learning (individual assimilation of knowledge). Certain discoveries and propositions *must* precede others, whether they are made for the first time or learnt from other people. This is a *logical*, not a *biological*, recapitulation, and the two causes or 'mechanisms' are quite distinct.

CONCLUSIONS

In conclusion, we must restate the biological view of recapitulation as implying an innate tendency to pursue a particular course of development which imitates the course of evolution sufficiently closely to compel us to suppose that the two series are causally related (either as cause and effect—Lamarckism; or as joint effects of germinal variation—Weissmannism). Where there has been no evolution, no change in germinal potentialities, there *can be no ancestral series* to recapitulate. On the other hand, *modifications* of the individual (though they may be acquired by the *whole species*, and hence are not mere differences, as Archdall Reid would have it) are not part of development, and cannot, therefore, no matter how they suggest ancestral forms, be regarded as evidence of recapitulation.

Now there is no evidence of biological evolution having taken place during the history of our culture. It is, indeed, inconceivable that the fusions, differentiations, waxings and wanings of culture should have been paralleled, much less caused, by changes in the innate endowment for cerebral development. At least, where a fusion of culture has taken place in the race history, the child cannot recapitulate *both* of its race histories. Actually, when we speak of the evolution of the human mind (as distinct from the evolution of mind in general—the topic of comparative psychology), we really mean *the history of culture, which is not an evolution but a continuous development, which is not broken at each generation as organic evolution is*. The Freudians, and I think even Baldwin, have been misled by the popular or even metaphorical application of the term 'evolution' to the history of culture; it would be more accurate to call it a development, for it is essentially the same thing that is handed on and built up from generation to generation, not a succession of organisms. The two processes are of an entirely different nature, and we must look for their causes in entirely different directions.

I should think it is glaringly obvious that the elaboration and accumulation of tradition and the devising of new ways of training and applying thought are quite independent of cerebral evolution. Indeed, I intend to put forward the thesis (which Freud's work goes far to prove) that most of the conditions with which psychopathology has

to deal are the result of stresses brought about by this independent 'development' of culture.

If, then, the evolution of mind is not an evolution in the biological sense, and if, as we have seen, the development of mind is not mainly a biological development, if we are, in fact, dealing with the *social* processes of the *history* and of the *assimilation of culture*, why should we evoke *biological* mechanisms to explain (!) these? How can we speak of mental development recapitulating mental evolution in the biological sense when, in the biological sense, mind (of man in culture period) neither develops nor evolves? The history of culture and the assimilation of culture are social processes, to be explained by social psychology.

This does not, of course, imply that the historical growth and individual assimilation of culture are not limited and conditioned by the evolution and development of brain, though the potentialities of the latter may at no time be fully utilized. I mean merely that nearly all our *knowledge* of mind refers to the products of social thinking and to the acquisition of these by the individual, and to the results of training and education in the widest sense. Of the native tendencies of mind and of the consequences of a development independent of social environment we have no knowledge, certainly not enough knowledge to enable us to demonstrate a recapitulatory tendency in this 'untutored brain function.' All the characters by which (objectively) we know mind are moulded by custom and tradition, and these factors, consequently, are far more important for our understanding of mental process than are the biological factors (see "The Conception of a Culture," *Jour. of Ment. Sc.*, 1923). The ontophylogenetic parallelism of mind is a social fact.