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Clinical Studies in Psychiatry
Conceptions of Modern Psychiatry
The Fusion of Psychiatry and Social Science
The Interpersonal Theory of Psychiatry
Personal Psychopathology
The Psychiatric Interview

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THE Interpersonal Theory of Psychiatry

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sphincter, and the greater the need to be rid of the rectal contents. How anxiety interferes with the whole field of sentience in these two activities in the elimination of waste will become more evident presently. But we should note at this particular time that the water content of the feces is in large measure a function of the time which the food mass is retained in the alimentary canal, and the water content is the principal factor in determining the consistency of the feces. In other words, the longer the feces are retained, other factors being equal, the firmer is the consistency of the feces, and there is a point at which the feces may become so firm, and there may be such a quantity of them coalesced into a mass, that the expulsion is actually an occasion of pain—so that there may be very real suffering in connection with their transit through the anal canal. Therefore, insofar as anxiety tends to bring about retention of the feces, anxiety connected with recurrent needs to defecate may come to be—in, let us say, the fourth, fifth, or sixth month of infantile life—associated with pain in the procedure which would normally be the satisfaction of the need to defecate. Now this pain does not remove the satisfaction of defecating, but pain is never attractive, crazy ideas about sadism-masochism notwithstanding. And so one of the striking influences of anxiety, in connection with this particular zone of interaction with the environment, is that it can lead to actual physical suffering in connection with the satisfaction of the need to empty the bowels.

CHAPTER
8

The Infant as a Person

The Infant's Differentiation of His Own Body

THE ORAL zone, as I have already suggested, is an independent dynamism in the sense that while it is the principal zone of interaction in satisfying the infant's need for water and food, it also manifests an excess over needs of the energy partitioned to it; this excess appears as a need to suck, to manipulate with the lips, and so forth, quite irrespective of the need or satisfaction of hunger and thirst. In this case, there occurs what is somewhat uncertainly called 'pleasure' in the various activities which characterize the zone.

By the age of six months the infant is manifesting a variety of zonal needs and some related sign processes. Maturation has been proceeding at a great rate. The eyes, for example, converge in the way that is necessary for binocular vision and the visual appreciation of distance. That does not mean that by the age of six months the infant is particularly good at judging distance. But by the age of six months, that particular coordinate activity of the two eyeballs has matured so that the *fovea centralis*—the center of most acute vision in each retina—is pointed at the particular object being looked at. In addition, coordinate activity of two or more zones of interaction is now frequent. For some time the eyes have been turned toward sources of sound, and by the age of six months the whole head is turned in that direction quite frequently. Hand and arm movement is well developed and serves to convey to the mouth anything that is grasped. This coordination of hands and mouth is a very outstanding aspect of early coordination of two zones of interaction. The infant in these early months literally

moves in such fashion as to carry anything that he can retain in his hand to his mouth, where it is tinkered with, sucked, and manipulated generally. Thus thumbs, fingers, toes, and all manner of portable objects have been explored and exploited by the mouth.

As a consequence of this manual-oral coordination, the discrimination of an exceedingly important pattern of experience begins—the differentiation of the infant's body from everything else in the universe. Perhaps this will become clearer if we compare this experience to the infant's differentiation of nipples into good and satisfactory, good and unsatisfactory, and wrong nipples; this differentiation of the nipples is primarily an *intrazonal discrimination*—that is, an organization of sentience which arises primarily within the oral zone; the eyes gradually contribute, although in the beginning they are not yet differentiated as an important zone of interaction. But in manual-oral coordination we are talking about *differentiation that is based on sentience from more than one zone.* Since the baby gets no milk when he sucks his thumb, one might think that the thumb would thus tend to fall into the class of wrong nipples—however suitable for satisfying the zonal need to suck; but the thumb is uniquely different from any nipple by reason of its being *in itself* a source of zonal sentience. *The thumb feels sucked.*

The recurrent multizonal sentience here concerned is in many ways significantly different from the recurrent multizonal sentience in which distance receptors participate with the contact receptors of the oral zone, of the fingers, or of the anus. The latter group of multizonal sentience provides experience for the growing personification of the good mother, as I have explained at some length, and for certain uncomfortable variants which contribute to the personification of the bad mother. The infant's appropriate activity—although it is often adequate for the evocation of the good mother, the good and satisfactory nipple, the good mother's satisfaction-insuring cooperation—is not uniformly effective. Sometimes it is, at least for a time, wholly ineffectual. Sometimes it miscarries badly, and the bad mother appears, approaches, and results in anxiety and, in some cases, in actual pain.

But the infant's appropriate activity to secure the thumb-in-lips situation, once it has been patterned, is always adequate, unless it is opposed by anxiety. Of course, a certain amount of what we shall later discuss as trial-and-error learning is necessary for the infant to be reasonably sure of getting the thumb into the mouth, but, as the neuromuscular apparatus matures, it comes to be pretty dependable. It fails only when the infant is anxious. But in this case it is a failure which is not organized as such, but is instead part of the growing system of experience 'with' anxiety—that is, the experience of being anxious. And when the infant is anxious, anxiety is so much more conspicuous than are the matters opposed by anxiety that failures of this kind are not organized as failures of the activity to create the thumb-in-lips situation. In this thumb-in-lips situation there are *no* failures organized as such in the infant's experience; and the uniform success of this performance is thus significantly distinguished in multizonal experience by its invarying approximation to its foreseen achievement. This is in contrast to the activity with respect to producing the mother and getting food, being cleaned, being covered, and so on, which even though adequate and appropriate may on occasion fail. Needs are differentiated, so far as the infant is concerned, by their foreseen satisfaction. Foreseen satisfaction of hunger may, at least temporarily, miscarry rather badly. But foreseen satisfaction of the zonal need to suck when the thumb-in-lips situation is that which is appropriate is *invariably* followed by the achievement of the satisfaction. So here is an important distinction between this situation and all those previous situations which were obviously relevant and significant to the infant.

By the time the infant is six months old, grasping, the kinesthetically sensed [1] transporting by the hand to the mouth, and the oral sucking and other manipulation of anything thus presented to the mouth—all these are well advanced, along with visual and other accompanying sentience in many cases. But in the infant's experi-

[1] By "kinesthetically sensed" I refer to those types of receptor processes which acquaint us with the position of our joints and so on, or, more specifically, the position of joint surfaces and tension against joint surfaces and so on, and by which, after we have had a great deal of experience, we learn where our extremities are. The movement of these surfaces gives us our acquaintance with, or sentience about, the geometry of the body. Getting the thumb into the mouth involves learning how the elbow, the wrist, and other joints feel, or having prototaxic experience which is effective in bringing about adjustments of muscular movement, and so on.

ence, of all that which is thus grasped, transported, and manipulated, only the parts of his own body which he can get into his mouth, generally his thumb, uniformly and invariably feel sucked and orally manipulated. Thus of all the things which are transported to the mouth, which in actual fact amounts to practically everything which can be moved, the thumb is the only one that feels sucked at the same time that the mouth 'feels sucking.'

Now it is true that the hand feels a variety of events connected with the oral manipulation of sundry objects transported to the mouth, but these manual experiences and their coincident oral experiences are of a relatively wide variety. The hand feels all sorts of things—a ball, a block, or the rods of the crib, let us say. The hand may feel the ball or the block, or something of that kind, at the same time that the mouth is feeling the ball or the block, but the feeling in the hand and the feeling in the mouth, so far as we have any reason to suppose at this time, are not particularly connected with an object. There is sentience from the hand, and this does add up in the course of time to a great deal of acquaintance with objects; and there is very vivid sentience from the lips and mouth, which also adds up to a great deal of acquaintance with objects. But there is no particular reason for thinking of these as being either necessarily or probably organized into any unitary conception of the particular object. This is entirely the contrary of the experience with the thumb-in-lips. All these feelings of the hand with objects other than the thumb which are presented to the mouth combine in the organization of sentience about living among portable objects, so to speak; but the invariant coincidence of the manual-tactile sentience and the sundry oral elements of sentience is not present in these cases.

There may be frequent occasions of fairly sustained coincidence of manual sentience from grasping a nursing bottle and oral sentience from manipulating its attached nipple, but the relation of felt oral and manual needs, and the foresight of satisfaction by activity to integrate the appropriate situation is by no means invariably successful. And this situation of nursing bottle and nipple—by the age of six months or shortly afterward, the infant can grasp and hold the bottle and keep the nipple in approximation to the mouth—does really depend on somebody's providing the nursing bottle, and on the bottle's remaining within reach if it is dropped, which events are by no means invariable concomitants with the infant's wanting the bottle. As a matter of fact, infants very commonly have to go to the same length to get the nursing bottle that they do to get the milk-giving nipple of the mother—that is, they have to cry—and by the age of six months they often cry plenty without anything happening. So while there is the invariant relationship of the foreseen satisfaction connected with the thumb-in-lips, there is anything but this invariant relationship connected with any situation in which there is something intermediate, as it were, between the hand and the lips. The thumb-in-lips is dependable, and is independent of evoking the good mother; the infant can bring it into being, as it were, without cooperation—in isolation from any of his personifications, whether of the good mother or the bad mother. While he cannot live by sucking his thumb, and cannot thus satisfy recurrent needs for food and water, he has matured and profited enough by the organization of his experience to be self-sufficient in respect to satisfying this particular oral zonal need which, as I have said before, generally exceeds in its available transformable energy that which is required for the necessary nursing behavior.

The relatively invariant coincidence of felt need, foresight of satisfaction by adequate and appropriate activity, and independence of cooperation by an at least dimly prehended other person in securing the anticipated satisfaction—all these will come presently to be an important part of a master pattern of experience to which reference is made by the use of the word "my," and more particularly "my body," and, by the sophisticated, "my mind" or even "my soul." Bear in mind that I am for the moment omitting experiences in which anxiety opposes—to the point of preventing—adequate and appropriate activity, which as I have said tends to bring about the organization of experience-with-being-anxious, or experience-while-being-anxious, or anxiety-colored experience, and therefore does not add to the organization of data about the need and its satisfaction. The thumb-in-lips situation is the first we have encountered in which two zonal needs are satisfied by one adequate and appropriate activity that the infant can perform without cooperation of a chronologically more mature

person—in which there is no need for evoking the good mother and no danger, at this particular stage, of evoking the bad mother. It is the first situation in which there is an *invariant* coincidence of the felt need and the foresight of its satisfaction by certain activity which is always adequate and appropriate, with the satisfaction of the two zonal needs.

This is a pattern of experience, or it is a kind of experience that will be organized in a pattern. This is an extremely important pattern, for it is the pattern which will evolve, with further experience throughout years and years, into a symbol—a very complex, meaningful, and rich sign; and this sign is the organization of data to which one refers as "my body" and which may include, in a certain less exact sense, practically anything to which "my" is applied seriously. I am not, of course, suggesting that the infant's experience in sucking his thumb and feeling it sucked immediately blossoms out into a considerable formulation of his body. But it is the point of departure for this formulation; it is the type of experience, or the type of activity sequence, which is more or less paradigmatic of experience which will presently be said to include "my body." And for various reasons which will concern us later, it is this pattern, "my body," which has so much to do with the very firmly entrenched feelings of independence, of autonomous entity, if you please, which have been a great handicap to the development of a grasp on interpersonal relations, and which are behind what I have for many years called the delusion of unique individuality.[2] The importance of trying to see how this extraordinary pattern of experience characterized by "my" comes into being, why it has to be as it is, and how it appears as early as perhaps the sixth month of extrauterine life, is that it gives us some idea of how extremely troublesome it is to strip off, from this grand division of experience, the later elaborations which are vicious and misleading in complicating human interpersonal relations. Any important central development of experience that begins so early has roots which are extremely difficult to get at rationally or to formulate.

[2] [*Editors' note:* See Sullivan's paper, first given as a lecture in 1944 and published posthumously with minor revisions, "The Illusion of Personal Individuality," *Psychiatry* (1950) 13:317–332.]

To sum up briefly the beginnings of this experience, by mid-infancy the hands are exploring all reachable parts of the infant's life space and are encountering a variety of objects which fall into two grand divisions, the self-sentient and the non-self-sentient. The thumb is the classical example of what I mean by the self-sentient. It is discovered not by the hand but by the mouth, or rather by hand-mouth cooperation. The mouth feels the thumb, and the thumb feels the mouth; that is self-sentience. This, as I have said, is the point of departure for an enormous development. But the hands, not in connection with the mouth, proceed to contribute a great deal of sentience which is elaborated in this same general field, and the basis of elaboration is that some of the things which the hands encounter are not only felt by the hands but feel the hands, although many of the things that the hands encounter are felt by the hands but do not feel the hands. Prehension about the former (the self-sentient) becomes additional pre-information or information which will presently be organized as the conception of the body; and prehension about the latter (the non-self-sentient) will presently, but distinctly later, be part of the elaborate group of conceptions and misconceptions which is external reality—that which is outside the body.

One might glibly say that the infant is now 'learning about' his own body. But this objective language, by which one might describe in general terms what the infant is doing as something observed, is extremely misleading, so far as contributing to the study of development of personality is concerned. A great deal of what might be read into the infant's behavior cannot, for the best reasons on earth, be the case from the infant's standpoint.

The Influence of Anxiety on the Infant's Acquaintance with His Body

The infant's acquaintance with that which is infant—that which is self-sentient, which feels as well as is felt—does not proceed very far in most directions before it encounters very powerful influences brought to bear by the more mature persons making up the infant's objectively verifiable world. The reason for the infant's not even being free to get acquainted with his own body is a blend of two things, one of which we have touched on at some length

before: first, the social responsibility carried by the mothering one to take her infant and turn out a decent, acceptable human being; and, second, a variety of beliefs entertained by the mothering one, some of which may be valid—that is, pretty good approximations to something inhering in the universe and, in particular, in the raising of infants.

One of these bodies of social responsibility and belief soon begins to interfere with the thumb-in-mouth situation. The tendency of the manual zone is not only to grasp and transport to the mouth, but also to pull, and tinker, and so on. Because of this effect of the manual zone on things that it contacts, and because of the present eruption of teeth, it is believed—and, I have no doubt, correctly in some instances at least—that too much of this thumb-in-mouth or hand-in-mouth will result in an aesthetically unfortunate, and perhaps even digestively unfortunate, distortion of the teeth, such that if it is not interfered with, the baby will presently have what is called buckteeth. And this would necessitate expensive, tedious, and, to the child, very unwelcome orthodontic intervention for the sake of beauty. So it becomes to many mothering ones important to do something about the infant's initial venture in self-sufficiency—thumb-sucking. And as time passes, a varying degree of anxiety, identifiable to the infant as the undergoing of forbidding gestures and so on, is brought to bear to interfere with the infant's very important discovery that his body is, in a curious sense, invariably dependable. Thus the infant's activity in satisfying, by sucking his thumb, excess zonal needs pertaining to the mouth is apt to be brought under stern prohibition by the mothering one. So far as I know, this stern prohibition does not ever appear immediately, and even if it did, the infant would suck his thumb when the mother was not around. Thus the thumb-in-lips experience invariably takes places; we do not expect to find an infant who has not sucked his thumb. Nothing less than restraint apparatus to keep the hand away from the mouth would prevent an infant from doing so, and it is quite possible that the result of such very early restraint would be anything but a human being as we like to think of one. Thus there always occurs this discovery by the infant of what might presently be called by a variety of names such as self-sufficiency or (and this name is much more distressing to me) autoerotic perfection. But, as I have said, it is only a matter of time in most cases before this discovery by the infant becomes subject to strong pressure from the carrier of culture who is looking after the infant, lest there be evil effects from it.

By the exploration of the hands, as I have said, many things besides the mouth are discovered—among them, the feet, the umbilicus, the anus, and the external genitals. So far as I have yet detected in my very casual contact with infant-rearing, most mothering ones see nothing the matter with the infant's feeling of the umbilicus; by the time the infant has sufficient dexterity of the upper extremities to do so, the umbilicus will presumably be very nicely healed, and, therefore, there is no great risk of fatal infection. And since one of the deeply ingrained motor patterns seems to be a general motion of curling up, it is quite early that, for instance, a foot and a hand are brought into contact with each other; and that is all right from the mother's point of view.

But an equally convenient kind of exploration, from a geometrical standpoint—namely, feeling of the perineal region, the anus and the external genitals—is, in the estimation of the mothering one, a very different matter indeed. As I suggested before, there is a certain reason, probably ingrained in the organization of the human being, for keeping a certain distance from at least stale feces. Particularly in the northwestern European culture, if a culture area may be so described, the idea of the noxious character of the feces and even the noxious character of the anal region is very strikingly implanted. The hand manipulating the anus, as any mother knows, will shortly be the hand that is in the mouth; thanks to the great development of the doctrine of germs and to the doubts about physical and sexual purity and cleanliness—which are written into the so-called Christian underpinnings of Western culture, built in turn on the Jewish foundations—many mothers feel that a finger conveying anything from the perineal region to the mouth would be disastrous. Thus any exploration of the fecal mass by the hands of the baby, or any tinkering around the area that is touched by the fecal mass, frequently is extremely repellent to the mothering one. And even if these things are not so regarded by the mothering one, she will know that they are so regarded by a large number of other people. Thus the sooner she

can get her young to leave that part of the body alone, the better for their standing as potential members of the community in which they live. And, therefore, while in a good many cases there is some pretty strong forbidding of much sucking of the thumb, there is almost invariably pretty strong forbidding of any tampering with the expelled feces or the anal orifice itself.

The social responsibilities and beliefs pertaining to the place of lust in life are somewhat different from those which apply to the expelled feces and the anal orifice itself, although they are all too frequently confused—that is, literally welded together. These beliefs and social responsibilities—the dangers to public decorum and personal standing in the community which presently will relate to what one does with and about one's genitals and other people's genitals—lead to the necessity for strong forbidding on the part of the mothering one of the infant's explorations of the external genitals by the hand.

Thus anxiety, and all sorts of blended feelings in which anxiety is an element, can be evoked in the mothering one with regard to the culturally strong taboos about feces—and even dirt, insofar as it comes to have a more or less fecal connotation—and about handling, or even looking at, the external genitals. The extent to which anxiety in the mothering one, and blended emotions in which anxiety composes an important part, can attach to these two fields of activity is very widely variable. On the one hand, the mothering one's attitude can be what I would say is simply necessary for the infant's becoming a person suitable for life in his particular community—that is, a gradual discouragement of interest in the extruded fecal mass and in the sentient anus, which feels as well as is felt, and in the genitals, which similarly feel as well as are felt. The mother may discourage this from very clear consideration of the customs and beliefs and interests which are acceptable in the community and in the community as she presumes it will develop by the time her young participate actively in it. On the other hand, the mothering one's attitude may be a state of practically sustained, very severe anxiety because baby handles his penis, let us say, or a state of sustained and severe anxiety over his getting his hands soiled with feces. This sometimes amounts to what a psychiatrist without previous acquaintance with the behavior

would call frank, severe mental disorder—that is, major psychosis on the part of the mothering one. And this attitude can very successfully obliterate, by inducing intolerable anxiety in the infant, any possible chance of his catching on to what is happening. Thus the social responsibilities and beliefs of the mothering one are apt to interfere to a startling extent with the infant's very dependable, independent, appropriate and adequate action for the satisfaction of purely zonal needs. This may lead to all sorts of efforts by the mothering one—forbidding gestures which get more and more unpleasant, if not actually the inculcating of pain or the use of incredible orthopedic interferences—which are apt to be enforced to segregate out these zones of "ownness" as belonging to that queer thing which we shall shortly discuss as the area of personality called *not-me*.

Thus the development of the pattern of experience which will presently be manifest as the very extensive symbol organization called "my body" gets a good many additions and limitations from the mothering one who may be the embodiment of culture, prejudice, mental disorder, or what not; and so I believe it perfectly safe to say that no one can become a person with just a mature attitude toward his body—in other words, simply with that degree of information which can be acquired by the use of human abilities as they mature.

The Learning of Facial Expressions

Lest we lose track of a great deal that is going on by mid-infancy —that is, by the age of six to eight months—I want to call attention to another very important type of interpersonal process which has been at work. And the interpersonal process involved in the learning of facial expressions is closely related to the experience of "my body" and might be called one of the vicissitudes of ownness.

We are provided with muscular apparatus, fixed to the bones and cartilages of the head, which is capable of doing a great many useful and necessary things for the survival of the underlying animal and therefore of the person. Many of these muscular structures are immediately under a comparatively thin layer of covering—skin and some fatty tissue, and so on. The effector aspect of these muscles—the nerve centers and the muscular tissue itself—

is capable of a very striking manifestation of postural tonicity. A great many of the skeletal muscles are also capable of this postural tonicity but in a much less refined fashion. This postural tonicity has no immediate reference to, shall I say, the simplest function. For instance, the simplest function of these muscles in my arm is to pull up my arm, and they are ordinarily, except when I am asleep or under general anesthetic, maintaining a posture so they can immediately pull, if properly innervated; that is, when I am resting my hand on my thigh, these muscles do not just go flabby and hang down, so to speak. Instead, they come to rest in a posture which permits me immediately to move my forearm when I tighten these muscles. We speak of that as a postural tension, and, in the case of the arm muscles and many others, this postural tension is essentially a sort of active resting condition, so that immediate results can be brought about if there are to be changes in geometry.

With a good many of these effector structures around the face, the postural tensions are much more differentiated than in the case of the arm. And, while it is true that a person who is so mad that he could bite a tenpenny nail, as the expression has it, will be maintaining very high postural tension in his masseter or biting muscles, still these extreme examples of what we call emotional expression, or expressive postures, are not anywhere near easily equated with preparation, or resting preparedness for action, of these muscles. There is actually an enormous amount of change in the appearance of the surface of the face that can be brought about by shifting the pattern of postural tensions in a great many muscles in the face.

By mid-infancy, solely because of contact with the mothering one and any other significant people, the infant has learned certain patterns of postural tension of the face that are right and wrong. Among the most important of all these learnings is the coordination of posture and change of posture—that is, the expressive movement—of the face which is ordinarily called smiling. It might be thought, and in fact I am sure that for many years it has been taught, that we are born with instincts, or something of that general class, for smiling, and, I suppose, for expressing all sorts of things from respectful admiration to frank disgust. But that charmingly simple idea undergoes a little damage when we lift our

eyes from our own community and bring them down on the very young in a strikingly alien culture area, such as, for example, Bali or one of the Micronesian Islands in the period before the war and the diffusion of Western culture. In these places, oddly enough, some human beings seem not to have the instinct to smile in the sense that we know it, but instead an instinct to smile in a very different way, so different that you wouldn't recognize it as a smile until you noticed what the others did in a similar situation. The point is that man has an unending, a numerically enormous, number of possible resting states of the face, and a still more enormous number of transitions in resting states of these so-called expressive muscles. Thus a truly astounding number of so-called expressions is possible, and it is by the organization of initially prototaxic experience, later elaborated further into combinations of sentience from various zones, that the infant gradually picks out from this numerical multitude rough approximations to what the culture-carriers esteem as expressions. That is literally the way that a great deal of our facial expression comes into being.

Facial expressions are always a blend of both postural tensions and motion. That is to say, a fixed frown, for example, rapidly loses its capacity to communicate to anyone, and becomes recognized as a feature. But prescribed changes from certain momentarily fixed postural tones to certain other momentarily fixed postural tones has immense and dependable communicative capacity for those who know each other—that is, for denizens of the same or approximately the same culture. These expressions are learned —and this learning is by trial and error under the influence of anxiety or the absence of anxiety. Insofar as there is success, there is nothing forbidding, no discouraging disturbance of euphoria. Insofar as things fail there is a disturbance of euphoria, again because of the social responsibility, and the expectation of the development of intelligence, and all sorts of things which the mothering one has about the infant. Thus people literally learn to express their emotions by trial-and-error approximations under the influence of anxiety. Now I am not talking here of how the infant looks very early in life when he is crying, but I am talking about how the infant looks when he is crying by the time he is twelve months old, by which time his crying shows a good deal of influ-

ence by the expectations, the use of minor forbidding gestures, the anxiety, and so on of the mothering one.

The Learning of Phonemes

I am now going to touch briefly on another type of learning which manifests itself in mid-infancy, and which I shall presently discuss in more detail. Provided the underlying human animal has not had any genetic or pathological misfortunes, by the sixth to eighth month a form of learning appears which is a manifestation of human potentialities of simply overwhelming importance in subsequent life: this is not trial-and-error learning under the influence of anxiety, but it is trial-and-error learning by human example or by human model. Here it is not the anxiety-tinted or euphoria-protecting attitude of the mothering one which determines success, but it is the infant's already developed coordination of two zones of interaction. We have touched upon one development of coordination which does not have human example—namely, the getting of the thumb into the lips. That appears to be arranged by a rather astounding connection in the central nervous system in the human and certain closely related species, the mouth being an enormous source of data in the early acquaintance with reality. But the coordination of two zones that I am now referring to is a coordination in which, when we first mentioned it, we did not separate the zones—this was when we spoke of the infant's hearing his own crying. I am now talking about hearing as an independent zone of interaction. The delicate coordination of sound production with activities of the hearing zone is now proceeding by maturation, and the infant is now 'experimenting' [3] in approximating sounds heard, needless to say, from others. There is no need for the infant to approximate sounds heard from himself—they are there, they always have been there. One of the first things we mentioned was the birth cry, which I suggested that the infant heard, but that was probably heard by bone conduction or anyway by solid conduction. But now I am talking about the long process of learning by trial and error from example, by

[3] When I use such words as "experimenting" in talking about the infant, you must understand that this is all illusory language and that I don't mean quite what you might find in the dictionary.

which the infant begins to approximate sounds *made by him* to sounds *heard by him*. And this development, which originally appears in rather curious noises commonly called gurgling and cooing, proceeds in the next few months through babbling to the actual close approximation of those particular stations in the continuum of sound which are the phonemes out of which the speech of the people significant to the infant is constructed. Now this cannot occur if the infant cannot hear, and it could not occur if the infant were living in an utterly mute and silent environment. But, barring these circumstances, as early as the eighth month after birth the coordination of the ear-receptor and the voice-producing apparatus is already beginning to manifest itself in what are literally the preliminaries to acquiring the capacity to make the right phonemal sounds, out of which all the stupendous structure of language will presently have its being.