



BEHAVIORAL SCIENCE RESEARCH ON THE NATURE OF GLOSSOLALIA

E. MANSELL PATTISON, M.D.

From: *JASA* 20 (September 1968): 73-86

*E. Mansell Pattison, M.D. is Assistant Professor of Psychiatry, Coordinator for Social and Community Psychiatry, University of Washington, School of Medicine, Seattle, Washington 98105. An expanded version of this paper was presented at the annual convention of the American Scientific Affiliation at Stanford University, Palo Alto, California, August 1967.

Glossolalia is an unusual pattern of aberrant speech. A review of the current research data from the work in anthropology, sociology, linguistics, psychology, psycholinguistics, and psychoacoustics provide a new source of data for examining the phenomena of glossolalia. It is a modification of the conscious connection between inner speech and outer speech, that may serve various psychodynamic functions. The meaning and function of glossolalia is closely tied to sociocultural context. The historic theological debates concerning glossolalia, centered on etiology-divine or devilish. Such debate is irrelevant. Glossolalia per se is not a spiritual phenomena, but it -may be a consequence of deep and meaningful spiritual exercise.

The widespread re-occurrence of the practice of glossolalia, or speaking in tongues, in the United States in the past two decades has evoked widespread theological debate and piqued public interest. A spate of books on the subject have appeared, but almost all by theologians devoted to either "proving" or "disproving" the spiritual claims of glossolalists.⁶ , 11,40 47,89, 92,95 Their

analysis of glossolalia is primarily confined to questions of biblical exegesis or theological interpretation. What behavioral science research they have quoted is almost entirely the few studies conducted at the beginning of the twentieth century. Thus, the nature of glossolalia has remained a topic of inconclusive debate.

Recently, however, glossolalia has attracted the interest of a variety of behavioral scientists. Recourse to this new data affords important information on the nature of glossolalia which should prove helpful in formulating a systematic scientific theory of this phenomena, as well as providing a more adequate basis for theological evaluation of it.

This paper will briefly review the variety of experimental studies which have been conducted on glossolalia, summarize our own research data on glossolalia, present a theoretical framework for the phenomena, and conclude with a commentary on possible theological implications of this data.

I. History of Glossolalia in Western Religion:

The Christian tradition of tongue speaking antedates the New Testament Apostles. Glossolalia had been practiced for many years along with other ecstatic phenomena by the prophets of the ancient religions of the Near East. Prophets and mystics of Assyria, Egypt, and Greece reportedly spoke in foreign tongues during states of ecstasy and uttered unintelligible phrases said to be revelations from the gods. The Hebrew prophets appear to have similarly engaged in ecstatic states and practiced glossolalia.^{4.39.66} So the practice was not unknown, in all probability, to the early Christian Apostles."

In common with the religious scene today, there was ardent disagreement about the meaning of glossolalia among the early Christians. The onlooking crowd at the Pentecost experience recorded in the Acts of the Apostles thought the group of disciples drunk, whereas the Apostle Peter asserted that they had been speaking a new language. In subsequent debate during the next two centuries five different positions on glossolalia were taken by various Christians: 1) that the spirit of God was speaking through the person, i.e. God possession, 2) that the devil was speaking

through the person, i.e. Demon possession, 3) that the person was given the supernatural ability to speak in a natural language, 4) that the person was given the supernatural ability to speak in a supernatural language, and 5) that the person was speaking in an oracular or cryptic manner which was a particular manifestation of a spiritual state.

Although the Apostle Paul warned against the enthusiastic excesses of first century glossolalists, the issue remained unresolved. But it came to a head over the practices and spiritual claims of second century followers of Montanus. Church councils then officially proscribed the practice of glossolalia. From then on until the 16th century glossolalia appeared sporadically, often in association with episodes of trances, hysterical states, and automatisms. In his classic history, R. A. Knox describes all such phenomena as types of "ecstatic" or "enthusiastic" behavior." During medieval times this was almost invariably taken to be evidence of demon possession.

With the advent of the pietistic revivals of the 17th and 18th centuries a new interpretation took hold. Dissatisfied with the intellectual rational concepts of religion, the pietists looked for direct human evidence for the existence and activity of God. Thus seizures, trances, automatistic behavior, and glossolalia were now taken to be manifestations of possession by God. Small sects sprang up which practiced a wide variety of such "enthusiastic" behavior. Huguenot children in 17th century France prophesied and allegedly spoke in foreign dialects. In the 18th century, Quakers and Methodists practiced glossolalia, and the 19th century saw the Irvingite movement in England.

In America, the "enthusiastic" movement spawned the Shakers. Glossolalia was practiced by the early Mormons, and a variety of indigenous sects took up and perpetuated glossolalia along with other more dramatic activities such as snake handling, fire eating, poison swallowing, and faith healing. Around 1900 came the beginning of the Pentecostal movement which became a major religious movement, and now is one of the most rapidly growing religious groups in America. What has attracted interest in the past ten years is glossolalia as practiced by members of the staid

mainline denominations like the Episcopalians, Lutherans, and Presbyterians.

In reviewing these "enthusiastic" groups one notes a lack of uniformity of practice. Some sects practiced a whole gamut of trance states, automatism, and hysterical symptomatology. While other sects practiced only one specific form of "enthusiasm," such as the quivering of the Shakers, or the glossolalia of the Irvingites. Likewise, glossolalia may be associated with full scale trance states or may be practiced by individuals during states of full consciousness with no other manifest changes in mien or behavior.

In the United States today, glossolalia is practiced by over two million people. Among the lower social classes, particularly in the primitive remote regions of the South, glossolalia is only part of a full range of snake handling, convulsionary, hysterical behavior. On the other hand, among urban middle and upper-class churches, glossolalia is practiced as an isolated phenomenon by physicians, college professors, captains of industry, even psychologists, who sit in full composure and dignity while speaking in tongues!

II. Glossolalia in Non-Western Societies:

Enthusiastic, ecstatic, mystic, possession, trance and other kindred phenomena have long been of interest to anthropologists. Cross-cultural reviews of ethnographic data on glossolalia in particular have been published by L. C. May,⁶⁵ Jennings,⁴⁴ M. Eliade,²⁶ among others.^{10-11 12,33,68} The practice was known in ancient India and China, and ethnographies describe glossolalia in almost every area of the world. May concludes: "As a rule, speaking-in-tongues and kindred phenomena are confined to those areas where there is spirit possession and where inspirational shamans hold forth. Glossolalia can be and often is the result of spirit-induced ecstasy making it possible for the inspirational shaman to cure, exorcize, and prophesy ... speaking-in-tongues is widespread and very ancient. Indeed, it is probable that as long as man has had divination, curing, sorcery, and propitiation of spirits, he has had glossolalia."

In a subsequent re-analysis of the data, anthropologist Erika Bourguignon^{10,11,12} notes that, as with Christian glossolalia,

primitive societies practice glossolalia in a variety of forms and ascribe a variety of meanings to it. In some societies it is a concomitant of trance states, in other it is an isolated behavior. Likewise, it is variously interpreted as a possession by god or devil, the ability to speak in a foreign tongue, or the special gift of a supernatural tongue.

Interestingly, in both Christian and non-Western religions there is often an "interpreter" who volunteers from the audience to either translate the message into human language or verify that the strange tongue is actually some foreign language known to the interpreter. This has been termed "erinenoglossia." Investigation of the phenomenon has never verified the claim to speak in an actual foreign language unknown to the glossolalist. The glossolalist may use phonemes or fragments of a foreign language with which he may have had forgotten contact. Or if the divine message is to be interpreted, the "interpretation" has been found to actually provide consensual validation for a specific social conflict facing the group. For example, in the cargo cult movements the "interpreter" tells the "unconverted" in the audience what the glossolalia of the charismatic leader means. The interpretation validates the "rightness" of the cargo cult to the unbelieving and also demonstrates that the strange language is something that one can understand after "initiation." ¹⁰⁷ In another study of an American millenarian cult, Festinger et al ¹²⁷ found that the "audience" of cultic believers interpreted spiritual messages according to pre-set expectations of what they needed to hear in order to maintain their "cognitive coherence" in a setting where reality factors were stretching the credibility of their waiting for the soon-to-appear coming of Christ.

Linguistic comparisons of glossolalia and the "interpretation" reveal that the interpretation is not a translation. For example, I have often observed a brief glossolalic utterance translated into a whole paragraph of English. Or I have heard the same glossolalic phrases repeated by the same glossolalist in different services, but each time the identical glossolalic utterances are given a different translation. As noted above, the observational data which is available strongly suggests that the testimonials to the fact that the

glossolalist has spoken in a foreign language unknown to him, does not represent a linguistic problem, but rather a phenomena of audience social psychology resulting in perceptual distortion.

There is no direct research on this aspect of glossolalia so far as I am aware. However, the now classical work on perceptual process by men like Solomon Asch and Leon Festinger indicate the crucial influence which social expectation and the need for cognitive coherence play in the ordering and interpretation of our perceptions. Thus, we can at least suggest that the reports of audience observers "verifying" the foreign language of glossolalists is not an indication of either malingering or pretense, but an honest report of *subjective* auditory perception, which of course may be quite different from the objective linguistic patterns spoken.

This brief review of an extensive literature on both Christian and non-Christian sources barely indicates the wealth of evidence that glossolalia is an ancient and widespread phenomena. The phenomena of glossolalia, per se, has appeared in a variety of circumstances and has been ascribed a variety of meanings. Although the social meaning of the phenomena may vary, the behavior itself is remarkable for its ubiquity. The "strangeness" of tongues speaking thus can only be considered an artifact of cultural lack of awareness, as Jennings" has well decribed.

III. Socio-Cultural Aspects of Glossolalia:

The social function, and concomitantly the psychological significance, of glossolalia appears to vary with the particular social movement of which glossolalia is a part. Several examples will be given.

R. A. Knox⁵⁰ recounts the occurrence of glossolalia in the 18th and 19th century in traditional Christian groups where the experiential component of religious experience had been replaced by a chiefly intellectual religious practice. In this circumstance, -the glossolalia was a means to re-establish an experiential base for religious faith. Concomitantly, this was during the age of an enlightenment when rationalistic criticism of Christian faith was in

vogue. Thus the glossolalia was a "proof" of the existence of God, and a validation of the believer's faith.

In the cargo cults of Melanesia, the glossolalia likewise verifies the charismatic leader's claim to authority.¹⁰⁷ This seems to be a major social function of glossolalia as practiced by many shamans and priests as reported in many ethnographies.^{10,26,48,68}

In the staid main-line churches of America, the function of glossolalia seems to fit more into a means of protest. It can also be seen as a recurrent infusion of experiential religion into denominations that have become mainly intellectual enterprises.^{69,78}

By far the major practice of glossolalia, and all enthusiastic behavior, has been by the Pentecostal and Holiness groups. These groups are characterized by their marginal socio-economic position in society. As shown in a number of studies, the ecstatic behavior is both an outlet for repressed conflicts, and a means of justifying one's unique position in society as a possessor of truth and righteousness. ^{11,9,41,45,56}

The last variant, is the function of glossolalia in middle-class Pentecostal groups who do not occupy a marginal social position. In this situation, Gerlach et al suggest that glossolalia functions as a "rite de passage" -a technique of recruitment, a method of organization, and a means of demonstration of effect of behavioral change.³³ Here, the function of glossolalia is not to serve personal needs, or as mediating mechanism in relation to the larger society, but as a mechanism for nurturance of the social movement itself. ^{17,33,75,101}

IV. Personality and Psychopathology of the Glossolalist:

A major issue concerns the personality of the glossolalist. Is glossolalia a symptom of psychopathology? Are certain personality traits associated with glossolalia? The controversy was present in the early Christian church, debated throughout subsequent centuries, and remains relatively unresolved in most contemporary discussions. However, after reviewing the current data, I shall suggest that the contradictory claims and reports are an artifact of

confusion between populations samples and socio-cultural variables.

Knox⁵⁰ has pointed out that the 18th and 19th century occurrences of glossolalia were hailed by adherents as a sign of spiritual and emotional strength and health, while religious and non-religious skeptics alike interpreted the phenomena as a sign of emotional instability or a manifestation of emotional illness.

In the early part of the 20th century several psychological and psychiatric studies of glossolalists were reported. Psychological studies by Cutten,⁹¹ Lombard,⁶⁰ and Mosiman⁷⁰ concluded that glossolalists were probably emotionally unstable, and that glossolalia was a regressive pathological experience.

Several clinical psychiatric studies were also published.⁶³ Maeder⁶⁴ reported a case of glossolalia in a paranoid schizophrenic, Schjelderup⁸⁵ reported a case of tongue speaking in a neurotic during psychoanalysis, and Jean Bobon⁷ reported three cases occurring during the course of psychosis. These reports linked glossolalia to psychopathologic conflicts.

Other early reports concerning glossolalia in the context of more normal life situations, including a case reported by Oskar Pfister,⁷⁷ one by Theodore Flourney reported by Oskar Pfister,⁷⁷ one by Theodore Flourney,³⁰ and a discussion by Le Baron.¹⁹ Carl Jung⁴⁶ vision into consciousness of contents from the deepest levels of the collective unconscious as a positive preparation for integration of personality.

In our contemporary era the clinical reports have been based on larger and more diverse samples. In their respective books, William Sargant⁸⁴ and Jerome Frank³² allude to glossolalia as a form of regressive abreactive behavior. Weston LaBarre⁵⁴ reported an extensive case history of southern snake-handlers who also practiced glossolalia. He concluded that these were examples of externalization of characterological conflict.

A series of more systematic reports have tended to support the view that glossolalia is a reflection of personality instability. Wood¹⁰⁶ administered Rorschach protocols to a group of southern Pentecostals and concluded that they had unstable personality structures. Lapsley and Simpson,⁵¹ on the basis of interviews,

concluded that glossolalia was a dissociative reaction occurring in persons with truncated personality development. Finch²¹ comments on a case of glossolalia in a psychotic reaction. Klaus Thomas,⁹⁶ in Berlin, found that all the glossolalists he saw in the suicide prevention clinic were either pre-schizophrenic or had experienced psychotic episodes.

In South Africa, Vivier⁹⁸ extensively examined glossolalists and a comparable group of controls. He found more histories of developmental conflict and life disturbances among glossolalists. Yet he concluded that personality-wise the glossolalists were not significantly different from the control group. Comparable conclusions were reached by Kildahl and Qualben⁴⁹ in a study in Brooklyn.

Closer attention to sample biases was made by Paul Morentz,⁶⁹ a psychiatrist in Berkeley. He noted that glossolalia tends to assume a different meaning in Pentecostal churches where it is part of the expected religious ritual, in comparison to its appearance among staid main-line churches where it is usually considered deviant behavior. Based on his interviews of 60 such latter glossolalists, Morentz found six dominant personality patterns: 1) hostility to authority, 2) the wish to compensate for feelings of inadequacy, 3) the wish to rationalize feelings of isolation, 4) the wish to dominate, 5) strong feelings of dependency and suggestibility, and 6) wish for certainty.

The two most careful and sophisticated studies yet conducted have failed to support the prior emphasis on psychopathology. Stanley Plog⁸ in Los Angeles, on the basis of an extensive battery of tests has not found any typical personality patterns nor found a higher than expected rate of psychopathology. Gerlach and his associates,³³ in Minnesota, on the basis of several population samples find no evidence of unusual psychopathology among Pentecostal adherents. They conclude: "Most Pentecostals appear to be normally successful members of their families and communities . . . family relationships are more harmonious than normal in our society when all family members have had the full Pentecostal experience . . . most Pentecostals, though they are different in some behaviors are not 'sick' . . . they function

effectively and cope adequately. However, this does vary somewhat from group to group, and we are investigating the possibility that some groups or churches do attract more 'troubled' individuals than others. It is possible that some groups in more depressed areas attract more deprived persons, or more aged lonely persons . . . it is possible that some churches stimulate in some personality types behavior which is maladaptive."

Sherrill" has noted that many glossolalists in the neo-pentecostal movement are well-adjusted individuals who are looking for an expansion of their life activities, while Sadler⁸² criticized the psychiatric inferences of psychopathology in the Episcopalian Commission report on glossolalia by noting: "it is not necessarily dealing with the neurotic mind, but perhaps also with the creative, the positive aspect of the unconscious, the source of our artistic creativity."

To the reports cited above, I shall add my own rather unsystematic, but extensive observations over a 20 year period. In brief, my observations lead me to conclude that rather than being contradictory, the various types of reports and evidence cited above indicate that glossolalia is psychological phenomenon which bears no necessarily linear relationship with personality variables.

In common with the descriptions of Frank,³² Sargant,¹¹⁴ La Barre '54 Schwarz,⁸⁶ and KnoX,⁵⁰ I have observed glossolalia occurring as only one of many expressions of "ecstatic," "enthusiastic," and similar "regressive" behavior including snake-handling, dancing fits, hysterical convulsions, faith healings, etc. I have typically observed these as group phenomena in lower and lowermiddle class persons in both urban and rural areas. In many of these cases I would classify the behavior as frankly dissociative or hysterical episodes of a clinically neurotic nature. In clinical terms I found that most of these people demonstrated overt psychopathology of a sociopathic, hysterical, or hypochondriacal nature. On the other hand, I have extensively interviewed middleclass and upper-class glossolalists who demonstrated no psychopathology. They were well integrated, highly functional individuals who were clinically "normal." My observations should not be construed as meaning that psychopathology is necessarily

associated with social class. Rather, these class differences may reflect the personalities attracted to churches of that social strata . . . the same suggestion Gerlach et al make, and consonant with Morentz' observations. Indeed, I have found severe psychopathology among upper-class glossolalists and very normal lower-class glossolalists. I have also seen at least three cases of glossolalia in overt schizophrenic psychoses.

In taking all these observations into account, it would seem that glossolalia can be produced experimentally, as a by-product of psychotic disorganization, as a mechanism of expression of neurotic conflict, or as a normal expectation and behavior of a normal population. Thus, the phenomenon of glossolalia *per se* cannot be interpreted necessarily as either deviant or pathological, for its meaning is determined and must be interpreted in terms of the socio-cultural context.

This problem in relation to glossolalia is but one variant of a more general problem of interpreting ecstatic and possession states of behavior.^{20,24,41} This has been widely discussed by anthropologists in terms of the cultural definition of normal behavior. A team of anthropologists and psychiatrists have addressed themselves to this problem of differentiating between psychopathological states and culture-bound behavior, which is pertinent to the glossolalist.¹¹ They begin with Hallowell's concept of the "culturally constituted universe" of the subject: "If this universe, as perceived by the subject, includes spirits that may possess human beings under certain circumstances, the 'knowledge' of this possibility informs the subject's behavior, although a certain latitude may be available to him in his manipulation of the background material. On the other hand, this knowledge and the attendant expectations are shared by a group, and the behavior of the subject will be recognized by the group as exemplifying the traditional 'knowledge' concerning the 'culturally constituted universe' which is available to the members of the group, as it is to the subject. Their reactions, then, will provide support, awe, admiration, therapeutic measures, restitution, etc., whatever the cultural context provides for the behavior in question. It becomes 'possession' only when his cultural milieu contains the concept of

possession, when his friends and relatives, seeing him act in this way, 'recognize' him to be possessed by the spirit or entity in question. The fact that he himself knows, and has previously known, that people may be so possessed is of importance in understanding how he has acquired his 'delusion' and how this belief by him and by the members of his significant reference groups encourage him to engage in this behavior. Where this belief system is not shared, where there is no belief in possession, the delusional content will still be derived from cultural sources, but group support for the delusion is lacking, and we are dealing with personal pathology. Here the delusion of being someone else represents a pathological view of the self; in cultural groups where the theory of spirit possession is a shared ideology, the 'delusion' is shared and we deal with culture, with religion and not personal pathology . . . it is, therefore, of considerable importance for psychiatry to be aware of the many diverse culturally constituted universes and not to restrict its understanding merely to its own culture-bound world."

To draw the inference from the above, when glossolalia is practiced as part of the expected ritual, we would not expect to find psychopathology, whereas in situations where glossolalia is not a cultural expectation, or the group is already part of a deviant subculture we would expect to find a correlation between glossolalia and psychopathology.

One final aspect of this problem merits comment. Many adherents of the glossolalia movement assert that the experience has made a change in the lives, has improved their style and quality of personality and life. Clinicians have been hesitant to accept such testimonials. Yet a careful study of non-pathological mystical experiences, such as in the work of Deikman^{21,22} Ludwig,^{61,62} Underhill,⁹⁷ Sedman,¹⁷ and Salzman⁸³ have illustrated that mystical experience, often in a religious context, can be an integrative emotional experience that results in an altered life style with subsequent improvement in life adaptation.

In this vein, Gerlach and his anthropology team³³ comment: "There are many indications that the religious experiences involved in Pentecostalism increase the willingness to take risks,

and to accept technological innovations. The conversion experience is a dividing line between Before and After. The experience of breaking with old religious patterns has been identified by many informants with a willingness to break with kinship, social, and economic patterns as well. To the degree that Pentecostalism increases self confidence, inspires people to work and save, to cooperate, to take risks and accept innovation and to break with old patterns, then it is indeed a religious motivation for socio-cultural change and economic development."

V. Psycholinguistic Aspects of Glossolalia:

With the survey of anthropological, psychological and sociological data as background, I shall turn to our studies on the psycholinguistic nature of glossolalia. These studies were conducted on a small number of volunteers, whose speech was recorded both in normal conversation and during glossolalic speech. In addition, we conducted extensive interviews with the subjects to assay their personality structure and to investigate the personal meanings and function of glossolalia in terms of personality function. Our concern in these studies was to understand the mechanism by which glossolalia is produced and relation of glossolalia to intra-psychic structure and function.

5A Structural Linguistics of Glossolalia:

The ethnographic accounts noted above have generally been observational and not included linguistic data. However, a number of linguistic studies on American English-speaking glossolalists have recently been done. 13,14,71,72,102,105

These reports vary somewhat in their specific technical conclusions, but in general there is consistency in the conclusions. The differences seem to stem from the fact that glossolalic speech varies in the degree of organization. Some glossolalia is very poorly organized and consists of little more than grunts and barely formed sounds, while other glossolalia is highly organized into systematic series of phenomes. Several linguistic studies, including our own, suggest that glossolalists develop their glossolalic speech from ill-formed structure to "Practiced" and "polished" glossolalic

speech. Thus the linguistic qualities of the glossolalia depends to some extent on the stage of development of glossolalia.

The following seem to be reasonable conclusions from the linguistic studies. Glossolalia, in at least English-speaking subjects, is composed of the basic speech elements of English. The major difference consisting of lack of organization of the basic phenomes into the syntactical elements necessary for intelligible speech. The para-linguistic elements of speech, pauses, breaths, intonations, etc. are markedly reduced and modified. Thus glossolalic speech tends to resemble the early speech qualities of young children prior to the organization of all the variables associated with adult language. Further, there is a reduction in the distribution of phenomes, i.e. a limited phonemic catalogue is utilized by the glossolalists. The conclusions of the linguists cited is that glossolalia presents the characteristics of partially formed language without the formal characteristics of language.

Indeed, many of the qualities of glossolalic speech are those found in the speech of young children, which George DevereauX25 has outlined. A comparison of his outline of children's speech and glossolalic speech is striking. On this basis, one may suggest that glossolalic speech appears to be a regression to an early mode of speech in which vocalization is used for purposes other than just the communication of rational thought. This hypothesis receives further support from other data to be cited.

Another line of investigation has focused on the replication of glossolalia under experimental rather than religious contexts.

Al Carlson,¹⁴ at the University of California, recorded two types of glossolalia, one type was recorded from glossolalists during spiritual exercises, and the other type was recorded by volunteers who were asked to spontaneously speak in unknown language without having ever heard glossolalia. These speech samples were then rated by glossolalists. The two types of glossolalia were not distinguished from each other. In fact, the "contrived" glossolalia received better ratings as "good glossolalia" than the actual glossolalia.

Werner Cohn,¹⁶ at the University of British Columbia, took naive students to Pentecostal churches to hear glossolalia and then asked the students to speak in glossolalia in the laboratory. They were able to successfully do so. Their recordings were then played to glossolalists who described the glossolalia as beautiful examples.

In sum, the structural linguistic data suggest that glossolalia has specific linguistic structure based on the language tongue of the speaker, that the linguistic organization is limited, and that the capacity to speak in this type of semi-organized language can be replicated under experimental conditions. Thus, glossolalia does not appear to be a "strange language," but rather the aborted formation of familiar language.

5B. Glossolalia as a Speech Form:

Glossolalia as a speech phenomenon can be classed with other disordered patterns of language and/or speech, the final production being vocalizations in the forms of words or segments of words which have no denotative or referential sense. T. H. Spoerri⁹¹ has described this speech as "unsemantical conglomerations of sounds" and "as sound externalized without sense which sometimes produces the impression of coherent speech." The terms "unintelligible," "meaningless," and "jibberish" have also been applied to the entities representing this type of speech. The entities resembling glossolalia are jargon aphasia, the schizophasia of the mental patient, the speech of the sleep talker and the neologistic stage of speech development in children.^{34,37,55}

Although glossolalia may resemble jargon aphasia, the resemblance is in the final speech production alone, since there is no evidence that the glossolalist has an organic lesion in the brain. Similarly, the final vocal productions of schizophasia may resemble glossolalia, but as Spoerri has pointed out and as we have observed, the schizophrenic involuntarily produces his utterances, which have no purpose and stem from the disorder of thought processes. The glossolalist, however, actually constructs and creates his speech system with purpose and planning and can use his tongue voluntarily when he wishes. 14.77.91,¹⁰⁵ He is also

aware that his utterances do not communicate meaning to others. The sleep talker often alternates meaningful utterances with words which cannot be recognized.⁸¹ Similar alternation occurs in glossolalia.¹⁰⁵ Lastly, glossolalia, as noted previously, has many characteristics of that stage in the development of speech when the child produces disorganized patterns of speech sounds i.e. nonsense words, which may be repeated over and over without any attempt to communicate.

The similarities of these various aberrant speech forms are superficial linguistic ones. For example, a neologism can be the product of brain damage, schizophrenic thought disorder, the undeveloped state of childhood language, a slip of the tongue in ordinary conversation, or the cleverly devised product of witty repartee. The significance of the neologism, then, cannot be determined solely by its linguistic characteristics.

As a linguistic phenomena, glossolalia seems to fit well in the stage of early language development. But that does not help much in understanding, for other adult language forms also employ this early phase type language. Examples include, jazz "scat" singing, onomatopoeic phrases, and indeed much of verbal "conversation" which is filled with much material that is communicative but would be meaningless jargon if reduced to structural linguistic analysis.⁷³

5C. Psycholinguistic Aspects of Glossolalia:

A number of methods are available for analyzing nondenotative or "meaningless" speech such as glossolalia to determine its relationship to natural language systems and to discover the meaning it might have for the individual. These methods have been derived from a variety of psychological, linguistic, paralinguistic, and acoustical approaches to language and speech.

Historically, the first approach to meaning used methods derived from analytical psychiatry and psychology. Pfister,⁷⁷ the Swiss psychoanalyst, published a paper in the early part of the century on a few subjects who spoke in glossolalia. He attempted to explain the phenomenon through a psychological analysis of the patient. A 24-year-old male subject was analyzed in the following

manner. Pfister had the subject utter a spontaneous speech which he wrote down. Then Pfister read it aloud and, at each individual word, encouraged free association on the part of the patient by asking: What comes to your mind in this connection? The final result in each instance was a connected speech dealing with childhood experiences and unfulfilled wishes. Standing behind each of the neologisms to which he had had the subjects free associate, Pfister found "painful thoughts which revived analogous experiences-for the most part infantile-repressed by consciousness but now brought forth in disguised form." Pfister was convinced that what to the outside sounded like nonsense words had considerable meaning to the individuals producing the words. Weinstein¹⁰³ has found similar meaning in the jargon of aphasics with brain injuries. The word association technique to neologisms or nonsense words has been used in recent years by I. Iritanti,⁴² outside the psychoanalytic context, to determine the physiognomic, or expressive features of "words" which do not have a referential or denotative sense. When a number of different subjects were asked to associate meaning to a number of nonsense words they frequently associated the same or similar referent to the sound. Further, many of the nonsense words evoked an overwhelming consensus when the subjects were asked to choose between two polar referents for the sound.¹⁰⁴

A second approach to glossolalia is linguistic, following the stratificational model of language and speech postulated by Lamb and Gleason in 1964.⁵⁷ They postulate that language is a system which relates meaning to sound through a series of codes, i.e., language encodes messages into speech sounds. The encoding process thus begins with an analytical operation, i.e., selecting the information stored in the cortical centers which are needed to respond and then synthesizing the information according to various subcodes into a language context which can then be projected as speech. There are four subcodes in the development of language. The first, the interface between experience and language, involves the *sememic* code. At this level, the meaning which stands behind words is first integrated and synthesized. At the second level, the meaning or the idea which is to be conveyed is organized

according to grammatical rules through the *lexemic* code. At the third level, the lexemic code is organized into smaller units such as words through the *morphemic* code. Finally, in the fourth stage, the morphemic code is organized into the matrix of the actual phonemes or basis linguistic units of language, i.e., in English, vowels and consonants. This is the *phonemic* code. Each of the above subcodes is a set of rules which specify how units of the stratum above are to be encoded into the units of the one below.

Wolfram¹⁰⁵ and Nida,⁷² for example, have studied the various subcodes of glossolalia. Studies on the phonemic strata indicate that the phonemes of the glossolalic utterance are closely associated with the language background of the speaker and that one would expect more diversity in the phonemic structure if different language systems were represented. Further, they have found a higher frequency of vowels, especially the vowel "a" than is expected in standard English. However, the mean for the number of consonants, vowels, and diphthongs is significantly lower than the total number of phonemes occurring in general American English, indicating a restricted phonemic code in glossolalia. Bernstein⁵ and others, in their investigation of restricted language code, has postulated that the "restricted" code conveys less information, is often used in ritualistic modes of communication, that it often tends to be impersonal in that it is not particularly prepared to fit a specific referent, and that the nonverbal component will be the major source for indicating changes in meaning. As will be seen later, these are all characteristics of glossolalia. The use of certain phonemes, e.g., vowels, to the exclusion of others and the way phonemes are organized in sequence, has been studied. Irwin⁴³ has found that during the first two months of life, 80% of an infant's vocalizations are vowels. However, at 30 months only 50% are vowels. Wepman,¹⁰³ using similar linguistic studies of the development of speech in children has postulated that each stage of development in childhood is mirrored in the various types of aphasia. He has hypothesized that for the adult, aphasia may be a regressive linguistic phenomenon. Similar psychodynamic interpretations of linguistic findings in subjects with articulation disorders of phonemes have been

published by Rousey and Moriarty who feel that vowels transmit information about how certain drives (sexual and aggressive) are handled while consonants are considered to transmit the nature and quality of defensive behavior which the individual utilizes in establishing relationships.

Study of the morphemic stratum of glossolalia reveals that the phonemes are combined in primarily "open" syllables, i.e. that they begin and end with vowels. This characteristic is most prevalent in early speech development. Nida points out that there are frequently recurring groups of two or three syllables which appear to have the characteristics of words, but are not words since they do not convey meaning. These are 11 pseudo-morphemes." On the lexemic stratum there is apparently only a minimum of organization in glossolalia. Glossolalia, then, according to the linguists is organized in the phonemic and pseudomorphemic strata but to a limited extent on the lexemic stratum. There is, however, no structure on the sememic or semantic stratum, and it is this void that keeps glossolalia from being a natural language.

A third approach to "meaningless" speech involves the analysis of the speech process, a type of paralinguistic study devised by Freida Goldman-Eisler.³ She has found that pauses in spontaneous speech are related to the information content of subsequent words. She feels that pausing is associated with verbal planning and selection, whereas continuous and rapid vocalization would be the result of practice and occur in the use of well-learned sequences of words. She has also shown that breath rate while speaking reflects the degree of excitation of the speaker—a high breath rate indicating excited states and low breath rate states of inhibition and control. A cursory examination of the „speech processes" of five of our subjects reveal two categories of glossolalia. The first category is "playful" glossolalia, characterized by rapid, fluent speech devoid of hesitation pauses and with an increase of breath rate and an increased syllable output per breath. The fast, fluent speech is indicative of habitual, well-learned sequences of speech which require little verbal planning or encoding, i.e., little cortical control. The high breath rate indicates a state of emotional

excitement. The high syllable output per breath would indicate a sing-song or monotonous form of vocalization.

The second type of glossolalia may be classified as serious." This type is characterized by a slower rate of speech with numerous hesitation pauses, a lower breath rate and a reduced number of syllables per breath. Using the Goldman-Eisler concepts, the presence of hesitation pauses would indicate some degree of encoding (probably encoding of intonational features to the phoneme clusters). The lower breath rate and the reduced number of syllables per breath would suggest more dramatic or expressive vocalization.

Still another approach to glossolalia, psychoacoustic studies, suggest that the suprasegmental or prosodic elements of speech, sometime labeled as intonation, may be helpful in telling us about the individual producing the utterance. Speech contains factual information in linguistic segments, but it also contains in its acoustic parameters considerable information about the individual speaker as well as what the individual wishes to convey about what he is speaking." Starkweather^{93,94} has taken recordings of speech and filtered them to remove verbal content. When this was done subjects could still relate the sounds they heard to the personality of the speaker and his emotional state. In similar studies, Kramer⁵¹ has found that "a person's tone of voice, or manner of speaking, reveals aspects of both his relatively stable personality characteristics and his more transitory emotional states." Recent studies²³ indicate that the sounds we label as vowels are more apt to carry the intonational qualities of the voice than consonants. Some investigators¹³ believe that the intonational features carrying the speaker's emotional attitude are encoded in the phonemic sequence which convey the denotative aspects of speech. These intonational features have been aptly labeled as the audiointegument of the phonemic clusters of words.⁹¹ The acoustic parameters which make up the audiointegument of the prosodic features of speech are: 1) acoustic phonetic duration, 2) average fundamental voice frequency, and 3) average speech power.¹⁶ The sound spectrograph is a device which can display and quantitate these variables in the "voice print" which it

produces. In normal speech spectrographs one sees a rather clear demarcation between each of the vowel structures (formants) and between vowel formants and consonantal "noise." In the glossolalic speech spectrographs, formants, noises, and brief separations are present, but the rapid rate of speech almost makes them indistinguishable. In the spectrographs of "serious" glossolalia the voice print approximates normal speech. This may indicate that the individual producing this type of glossolalia is attempting to actually communicate something to the listener.

Since glossolalia is a nondenotative speech phenomenon, it is likely that a study of its prosodic features with the sound spectrogram might lead to some useful information about the specific emotional state of the speaker while engaged in his "tongue." It is already known from linguistic studies that glossolalia usually contains a preponderance of vowels when compared to natural English. Acoustic studies of intonation have revealed that vowels carry the tonal or emotional integument to a greater extent than do consonants. Fonagy¹⁶ believes that speech sounds are preconsciously and purposefully autoregulated, i.e., selected to adapt to actual circumstances such as distance of noise level. Our tapes revealed just such an autoregulation in speech sounds as the speaker converted from natural English to glossolalia. In each of the tapes the individual's glossolalic speech was considerably softer and quieter than the normal conversational speech which had just preceded it. None-the-less, it was still easily heard. It may be that the switching to a type of speech which contains more sonorous elements, such as vowels, requires less volume or loudness since the sonorous elements are known to be more resistant to noise and are not so easily absorbed by growing distance. There is also a change in style of expression as well as a difference in intonational patterns when the subjects change to glossolalic speech. Sonographic analysis may be helpful in defining and describing more precisely the changes that occur. Work is presently under-way to correlate acoustic variables with specific emotional states, The study of glossolalia awaits further development in this area.

5D. The Stages of Glossolalia:

Our study of five glossolalic speakers parallel the findings of Walter Wolfram'01 that development of glossolalia can be divided into two stages. The early process of acquisition of glossolalia may be labeled as the initiatory stage. The stage of individuation and eventual stereotypy of the utterances is the "habitual" stage.

Initially, the individual who pursues glossolalia has attended religious or quasi-religious meetings where the utterances are heard for the first time. There is evidence to suggest that if the individual wishes glossolalia for himself, he sets about to learn how to reproduce it. In some settings, the religious leaders may actually provide a few sample utterances asking the initiate to repeat segments of glossolalia after them. In some instances, the counselor will suggest that the initiate imagine "foreign words" and try to speak them. In other instances, a charismatic leader speaks in tongues and an impressionistic initiate may attempt to follow the leader whispering or talking to himself.

Glossolalic utterances which are heard are stored in memory until the decision is made to speak in tongues. The stored memory fragments may be brought into awareness and may even be practiced, i.e., recited over and over again to oneself until an acceptable form of glossolalia is mastered. With its mastering, "spontaneous" glossolalic utterances may be externalized for the first time. The glossolalic utterances may first be spoken under a variety of affective and emotional states. When spoken, the glossolalia may be similar to that of the group where it was learned or similar to the glossolalic leader who taught it. As the initiate speaks glossolalia on more and more occasions, the speech becomes more individualized until eventually the utterances are expressive of the personality and behavior of the speaker. With repeated use of "tongues" the speech becomes automatic and habitual.

5E. Playful and Serious Glossolalia:

The habitual glossolalic utterances we have studied contain numerous alterations, reduplications, and repetitions of the various vocal segments. These are all characteristics of "expressive

speech". This expressive quality of glossolalia is described by T. H. Spoerri⁹¹ as "kuntsprachen" or "art speech." He points out that in our literary world there are many examples of neologisms or private words which are used in various art forms. Most frequently they are used in poetry and prose as devices to express a feeling or a mood which cannot be expressed by common vocabulary words. One has only to look at the poetic works of James Joyce, T. W. Eliot, Theodore Roethke, Ogden Nash, etc., to see this phenomenon. In a sense, we have all experienced this sort of verbal behavior when we use curse or slang words rather than common everyday words, because the latter are insufficient to express our feelings or emotions. Several of our subjects reported that one of their favorite pastimes was creating new words for their glossolalic vocabulary. It is in this way that glossolalic speech begins to gradually differ from the initial vocalizations and become more unique and representative of the individual and his style of expression.

Although all glossolalia may be described as expressive, there are various categories or levels of expression from the more playful to the more serious. Bobon⁷ points out that the adult, under the cover of various motives produces glossolalia or private tongues as an activity of play. This "playful" quality was observed in several of our subjects—one giggling and laughing while speaking in her tongue, the other clowning with arms outstretched in a Christ-like fashion. In both of these samples of glossolalia, the individuals seemed absorbed in their own utterances and seemed to be taking some delight from listening to themselves. McDonald Critchley and others have observed this phenomenon in other circumstances and feels that individuals can receive aesthetic delight in their own vocalizations, i.e., that they enjoy words for their own sake, listening to the shape, color and sounds of the words produced.^{15,51} The "playful" category of glossolalia is produced volitionally. It is characterized by rapid, fluent vocalizations of utterances, devoid of hesitation pauses and rendered in a monotonous or sing-song style. The breathing rate is regular and the individual usually appears relaxed and at ease.

At the other end of the continuum is the "serious" category of glossolalia. Here, the intonation pattern imposed on the automatic speech appears to reflect the strong emotional feelings of the subject. Often there are feelings toward others present. One subject, whose glossolalic speech became pleading and quite serious, made it clear that she was simultaneously wishing to herself that the interviewer might accept glossolalia for himself. In another case the subject reported using her tongue while simultaneously thinking about a very personal and troubling problem. In the serious category of glossolalia, the vocalizations are not rapid, hesitation pauses are present, and the intonation pattern is more variable and dramatic.

Experience with our subjects has revealed that one individual can move along the continuum from the "playful" to the more "serious" categories as the need arises. In both categories, the utterances may be produced volitionally and with intention. However, as glossolalia becomes more and more a part of an individual's life style, he may occasionally use it without awareness just as he might blink his eyes or tap his fingers without total awareness and volition.

5F. Conceptual Framework for Glossolalia:

As a form of learned, organized vocal behavior, glossolalia can be conceptualized as arising in internal cognition and then being externalized as audible speech. Earlier in the paper I described the linguistic model of transformation from language to speech. However, that model does not deal with the cognitive mechanisms involved. In cognitive terms, glossolalia appears to be a borderline phenomenon between inner speech and external speech.

Inner speech was first described by Plato as "thinking to oneself".⁶⁷ It is characterized by the articulation of inaudible sounds by means of which we think to ourselves. We use it to prepare for and to precede external speech, to mediate tasks and to express a variety of motivational or affective states.^{29,108} Inner speech is believed to be characterized by a reduction in phonemes, by increased fragmentation of language structure and by underdevelopment and incompleteness of thought. Zbinkin¹⁰⁸ has

pointed out that the flow of thought of inner speech changes is rapid. This inner speech is fragmented, underdeveloped and incomplete so that, if externalized, would be extremely difficult to understand.

Developmentally, Vygotsky⁹⁹ has postulated that in the normal maturation of children, there is a gradual transition from verbalized private or egocentric speech to whispered and then to inner speech. Private or egocentric speech of children is the precursor of inner speech which is often quite expressive and may be characterized by endless repeating real or nonsense words. It is this function of inner speech which adults use when they contrive neologisms or nonsense words to express themselves more poignantly.

Inner speech may also subserve emotional needs. The "thought" that is brought into awareness and elaborated on through the process or vehicle of inner speech may be strongly affect laden. David Rapaport⁸⁰ has pointed out that part of the drive state or tension experienced on the unconscious level can be discharged or reduced by bringing memory traces to perceptual awareness—that is, through bringing ideas into consciousness. As Lord Brain has pointed out, "thinking is strongly emotional and may indeed be pursued for its emotional value." Next, not only are memory traces laden with emotion, but the vehicles through which they are carried, i.e., inner speech, also carry an emotional message. In addition to the affect in the thought of inner speech are certain qualities which convey emotions which are very much like suprasegmental or intonational features of vocalization. We experience this characteristic of inner speech daily when we ask ourselves questions, raise doubts, or express anger as we speak to ourselves without ever externalizing or making the utterances audible to others.

External speech may or may not be connected with inner speech. Usually it is, but not every act of speaking is a manifestation of thought. Speech, as in automatic speech, may be a reproduction of ready made results of cognitive activity with little or no thinking required to produce the utterance.³ Russian psychologists have studied automatic externalized utterances in relation to inner speech.^{90,108} They find that if individuals are

asked to repeat nonsense words and simultaneously carry out mental tasks (engaging the inner speech mechanism), the mental tasks are dealt with inefficiently at first, but as the individual's production of these words becomes more and more automatic, he becomes more and more efficient at simultaneous mental tasks unrelated to the utterances. Thus, as the speech material becomes more automatic, less cortical involvement is necessary and inner speech is gradually restored.

From the theory just reviewed, a conceptual model of the transition from thought to speech can be formulated as follows: A residue of previous experience, i.e., a memory of a stored fact or an emotion or reverie is first stimulated to awareness. Awareness of thought may take the form of either visual or language patterns. If language is the vehicle, the material brought into awareness is organized on the sememic, level and proceeds through the language subcode, through the phonemic matrix, to inner speech. Simultaneously, emotional tone, mood, etc., may be superimposed on the organizing thought-language, so that the phonemic sequences of inner speech will have an audiotegument, e.g., intonational features. Inner speech may be used for a variety of purposes including task solving, preparation and shaping of inner speech for communication to others, and for the purpose of speaking to oneself for a variety of reasons. In the transformation of inner speech to external speech, the muscular mechanism of respiration and vocal cords becomes active and audible speech, capable of being heard by other, occurs. The feeling tone state of inner speech, can be expressed through other motor pathways such as gesture, etc. 88 The steps between "awareness" and "externalization" may become so habitual that they become automatic. When this occurs, the inner speech mechanism is free to pursue thought and feeling states quite separate from the automatic phonemic sequences being uttered.

5G. Glossolalia as a Borderline Phenomenon Between Inner and External Speech:

Glossolalia initially utilizes the mediative or task orientation of an individual's inner speech. When the glossolalic phrases which

have been heard and stored in memory are brought into awareness, they are practiced over and over again in inner speech until an acceptable form of glossolalia is mastered. With its mastery, the inner speech is reproduced externally and the spontaneous glossolalic utterance may be heard for the first time. With repeated use of his "tongue" his speech becomes more and more automatic, no longer requiring the use of the inner speech mechanism. The verbal part of the inner speech mechanism is used only in the initial stage of glossolalia and later in the habitual stage when affect and mood states arise which call for creation of more expressive words. When new words are not being made and the automatic utterances are spoken as in the serious category, the individual may simultaneously engage in inner speech mechanism with a number of thoughts and feeling states *while* speaking in tongues. It is our impression that the feeling tone of these thoughts in inner speech is encoded onto the automatic speech utterances. Sociolinguistic studies of individuals who use a restricted language code in their subcultures indicate that the intonational pattern or the audio-integument is more representative of what the individual is feeling than are the stereotyped words of the restricted code.

Alajouanine and Lhermittel describe this beautifully in one of their patients who had retained her external stereotyped words but was seen to modify the utterance of the expression both as regards speed and intonation, At one moment it would be monotonous, although rapid; then it would become faster or slower according to the circumstances, and altered in intonation, which would become sometimes sad, sometimes even tearful-sometimes, on the contrary, satisfying or approving. They further point out that the "melody of speech" had come to superimpose itself upon the stereotyped utterance. During the use of glossolalia in this way, the speaker is engaging his "inner speech" mechanism while he produces automatic external vocalization. His inner speech is dealing with an affectladen thought or thoughts rather than just listening to his own vocal productions. The feeling state surrounding the thought or "memory trace" implicit in the thought itself and in the suprasegmental aspect of inner speech (as mentioned previously) is encoded onto the phonemic combinations which are being

produced for external vocalization. Thus, the feeling tone part of the "inner" speech is transposed to the phonemic sequences. Glossolalia, then, becomes a vehicle for conveying meaning through the intonational features superimposed on the externalized utterance.

5H Intra-Psychic Aspects of Glossolalia:

Glossolalia, as noted earlier, is but one of many motor, perceptual, and cognitive functions that may occur in "peculiar" states, i.e., behavior which seems to be out of character or outside the everyday expectations of society. Both in psychiatry and anthropology these states have been summed up in omnibus fashion under the terms "trance" or "possession state." Bourguignon and Pettay¹² note that in attempting to explain these phenomenon in psychological terms: "A variety of hypotheses have been advanced ... hysteria, hypnosis, nonpathological dissociation, cultural learning, social learning, histrionics, and epilepsy . . . yet these explanatory categories are themselves, on the whole, poorly understood and the argument tends to center on the question whether these states are to be considered pathological."

In a recent paper, Davidson,²⁰ a psychiatrist, concludes from his cross-cultural studies of trance states that psychiatry must exercise caution in interpreting behavior which has been outside the ken of traditional psychiatric investigations, lest we ascribe meaning to such behavior solely in terms of our own cultural biases.

In his recent review, *Altered States of Consciousness* Arnold Ludwig⁶¹ has called attention to these phenomena as: "relatively uncharted realms of mental activity, the nature and function of which have been neither systematically explored nor adequately conceptualized." He defines altered states of consciousness as "any mental states, induced by various physiological, psychological, or pharmacological maneuvers or agents, which can be recognized subjectively by the individual himself (or by an objective observer of the individual) as representing a sufficient deviation in subjective experience or

psychological functioning from certain general norms for that individual during alert, waking internal sensations or mental processes, changes in the formal characteristics of thought, and impairment of de reality testing to various degrees." Ludwig goes on to note that altered states of consciousness may be may be produced by: "a wide variety of agents or maneuvers which interfere with the normal inflow of sensory or proprioceptive stimuli, *the normal outflow of motor impulses*, the normal 'emotional tone,' or the normal flow and organization of cognitive processes."

In glossolalia we have an interesting combination of preoccupation with the thought-speech process which interferes with both the normal flow 'of cog nitive process (thought) and the normal outflow of motor impulses (speech). As a footnote, over 25 years ago Kubie and Margolin⁵³ reported on the hypnagogic influence of listening to one's own breath sounds, an observation which is related to the intense focus of attention by the glossolalist on his own voice.¹⁵

In concluding his analysis of altered states of consciousness, of which glossolalia is one instance, Ludwig concludes that they are: "final common path ways for many different forms of human expression and experience, both adaptive and maladaptive. In some instances, the psychological regression found in ASC's will prove to be atavistic and harmful to the individual or society, while in other instances the regression will be "in the service of the ego" and enable man to transcend the bounds of logic and formality or express repressed needs and desires in a socially sanctioned constructive way."

Further theoretical elaboration has been provided by the work of Arthur Deikman on states of exper imental meditation.²¹⁻²² Although his work deals with perceptual function, Deikman's theoretical structure is most germane to the motoric phenomenon of glossolalia. Deikman focuses on the process of "*de* automatization of the psychological structures that or ganize, limit, select, and interpret perceptual stimuli."

The concept is derived from Hartmann's discussion of the automatization of motor behavior:

"In well-established achievements they (motor apparatuses) function automatically: the integration of the somatic systems involved in the action is automatized, and so is the integration of the individual mental acts involved in it. With increasing exercise of the action its intermediate steps disappear from consciousness ... not only motor behavior but perception and thinking, too, show automatization . . . it is obvious that automatization may have economic advantages, in saving attention cathexis in particular and simple cathexis of consciousness in general . . . here, as in most adaptation processes, we have a purposive provision for the average expectable range of tasks." The process of de-automatization is developed by Gill and Brenman:³⁵ "De-automatization is an undoing of the automatizations of apparatuses-both means and goal structures-directed toward the environment. De-automatization is, as it were, a shake-up which can be followed by an advance consciousness. This sufficient deviation may be or a retreat in the level or organization . . . some represented by a greater preoccupation than usual with manipulation of the attention directed toward the functioning of an apparatus is necessary if it is to be automatized." On the basis of the above theoretical statements, Deikman concludes: "de-automatization conceptualized as the undoing of automatization, presumably by reinvesting actions and precepts with attention. Under special conditions of dysfunction, such as in acute psychosis or in LSD states, or special goal conditions such as exist in religious mystics, the pragmatic systems of automatic selection are set aside or break down, in favor of alternate modes of consciousness whose stimuli processing may be less efficient from a biological point of view but whose very inefficiency may permit the experience of aspects of the real world formerly excluded or ignored. The extent to which a shift take place is a function of the motivation of the individual, his particular neurophysiological state, and the environmental conditions encouraging or discouraging such a change . . . the content of the mystic experience reflects not only its unusual mode of consciousness but also the particular stimuli being processed through that mode. The

mystic experience can be beatific, satanic, revelatory, or psychotic, depending on the stimuli predominant in each case. Such an explanation says nothing conclusive about the source of the "transcendent" stimuli. God or the 'unconscious share equal possibilities here and one's interpretation will reflect one's presuppositions and beliefs . . . the available scientific evidence tends and to support the view the mystic experience is one of internal perception, an experience that can be ecstatic, profound, or therapeutic for purely internal reasons."

From the above descriptions of the processes of deautomatization that accompany various altered states of consciousness we can conclude, based on our own observations and the reports we have reviewed, that the uses of glossolalia are numerous. In the subjects whom we studied, it is used voluntarily in many secular situations to reduce tension and anxiety through a number of thought and motor pathways. The playful category of glossolalia is particularly used for the indiscriminate motor discharge of affect as has been postulated by Rapaport. That is, the individual feels a general state of uneasiness or tension or restlessness and not knowing the cause seeks to relieve the tension through the motor act of rapid and fluid vocalization. Glossolalia may be used in this way either consciously or unconsciously. One of our subjects claimed that during examination time, he frequently would burst into tongues and usually was not fully aware of it at first. A similar phenomenon occurs when other motor acts which are used routinely to release such tension (such as tapping one's fingers, crossing legs, etc.) becomes so automatic and habitual that the individual is often not fully aware that he is performing them.

The "serious" category of glossolalia may also serve to aid in the reduction of tension. As has been pointed out, some release of tension or discharge of affect can take place in the conscious awareness of a thought. In this category of glossolalia, there is discharge of affect through thought as well as through the motor act of speaking. In addition the encoding of the feeling tone of inner speech onto the external automatic vocalizations allows for projection of affect and tension, thereby reducing tension further.

Thus, the automatic glossolalic utterances are used primarily in the serious type of glossolalia as a vehicle for the release of feelings experienced in inner speech through the audio-integument or intonational features imposed on the externalized utterances. The "serious" category of glossolalia provides a way of externally discharging extremely personal emotions and desires without revealing their content to others.

In subjects we interviewed glossolalia was often used to entertain oneself or relieve boredom while engaged in rote motor tasks such as driving the car or typing. In these and other instances subjects used glossolalia to avoid anxiety situations by blocking out the environment through listening to their own utterances and thereby altering the state of consciousness. During these times the individual is preoccupied with listening to his vocal utterances, his breath rate becomes regular and rhythmical and he appears relaxed to the point that his glossolalic speech becomes slurred. An altered state of consciousness probably occurs during these times. De-automatization can occur at any level in the transition from thought to speech. Thus, focussing on one's own breath sounds as alluded to previously could alter the state of consciousness. Or, the focussing of attention exclusively on the glossolalic utterance, i.e., the shape, tone, and color of the words themselves, may also alter consciousness.

in the above instances there seems to be a degree of regression in several aspects of ego function. Indeed in possession states or gross types of "hysterical behavior" glossolalia may occur with a marked degree of regression in most ego functions. In some glossolalists the regressive state is pathological, although in most instances of which we are speaking the regression is not pathological, but rather a regression in the service of the ego.⁵²

In the cases of students whom we studied we were struck by the lack of regression of ego functions which occurred. These students were able to willfully launch into glossolalia with little change of consciousness or associated ego functions. Here we observe what might be termed a highly focal regression in the service of the ego.^{52,6L62,79}

In fact most of the instances of glossolalia observed in the middle-class persons we have studied occurs with remarkably little regression of associated ego function. The glossolalic knows his "tongue" well, that is it is a familiar object to him. Because of this and his perception that it brings him closer to God, his "tongue" gives him security when he needs it. The restricted linguistic code of glossolalia, the predominance of vowel sounds, the egocentric "playful" quality of the utterance all suggest that glossolalia may be a focal thought-speech regression that is highly restricted to specific ego functions. Unlike gross trance states where more total regression takes place, glossolalia, when practiced as a speech phenomenon, is not associated with any measurable physiological changes as determined by galvanic -skin responses or EEG tracings in the individual speaker.⁷⁴ Thus, glossolalia serves to "recharge" the batteries so that the individual may continue to function, or reaffirm his commitment to a style of living and adaptation to reality conflict.

VI. Summary of Behavioral Science Research Data on Glossolalia:

1) Glossolalia is an ancient and widespread phenomenon of most societies, occurring most usually in specific religious contexts,

2) glossolalia may occur as part of larger syndrome of hysterical, dissociative, or trance states, or it may occur as a discrete piece of behavior,

3) glossolalia is not necessarily correlated with specific personality variables,

4) glossolalia may be deviant psychopathological behavior or it may be normal expected behavior depending on the sociocultural context,

5) glossolalia is a form of partially developed speech in which the thought-speech apparatus of the person is employed for a variety of intrapsychic functions,

6) glossolalia may accompany psychopathological regression or it may be a form of healthy regression in the service of the ego leading to more creative modes of life.

VII. Possible Theological Implications:

At the outset of this paper it was noted that most religious discussions of glossolalia have been polarized. In both early Christianity and in non-Western religions throughout history it would appear that glossolalia and kindred ecstatic phenomena have been interpreted in terms of either divine or devilish supernatural forces.

in some current theological discussions, attempts have been made to bring in psychological explanations. Almost always these authors "explain away" glossolalia as merely a psychological phenomena to which little attention should be paid. Now in my discussion in this paper, there is a wealth of reasonable data which gives us an outline of the psychological, social, and cultural contexts within which glossolalia can be and is produced. Thus we need not invoke either divine or devilish supernatural forces to explain or justify the existence and function of glossolalia.

However, the fact that we have a credible scientific framework for explaining and understanding this behavior does not necessarily undercut its importance or value to either an individual or a religious group. Glossolalia can be useful and valuable as a media of spiritual exercise for an adherent. It has certain important values for at least Pentecostal groups. For glossolalic adherents in the main-line denominations, the phenomenon also has social functions although here it often is used in more destructive fashion on occasion.

Perhaps the most important distinction that should be made is between cause and consequence. Glossolalia is not *caused* by supernatural forces. However, glossolalia may be a *consequence* of involvement in deep and meaningful spiritual worship. Glossolalia does not miraculously change people in a supernatural sense, but participating in glossolalia as a part of a larger social and personal commitment may play an important role in the change of direction in participant's lives.

Thus our analysis may suggest that the appropriate theological discussion is not regarding the cause of glossolalia, but rather

whether or under what circumstance the practice of glossolalia might prove useful or destructive to the goals of the church.

VIII. Summary

Glossolalia is an unusual pattern of aberrant *speech*. A review of the current research data from the work in anthropology, sociology, linguistics, psychology, psycholinguistics, and psychoacoustics provide a new source of data for examining the phenomena of glossolalia. It is a modification of the conscious connection between inner speech and outer speech, that may serve various psychodynamic functions. The meaning and function of glossolalia is closely tied to its socio-cultural context. The historic theological debates concerning glossolalia centered on etiology—whether divine or devilish. Such debate is irrelevant. Glossolalia *per se* is not a spiritual phenomena, but it may be a consequence of deep and meaningful spiritual exercise.

BIBLIOGRAPHY

1. Alajouanine, T. and Lhermitte, F. Non-Verbal Communication in Aphasia. In: Ciba Symposium, Disorders of Language, New York, 1963.
2. Alland, A., Jr. Possession in a Revivalistic Negro Church. *J. Sci. Stud. Relig.* 1:204-213, 1962.
3. Arieti, S. The microgeny of thought and perception. *Arch. Gen Psychiat.* 6:454-468, 1961.
4. Beare, F. W. Speaking with tongues. *J. Bibl. Lit.* 63:229-246, 1964.
5. Bernstein, B. Linguistic Codes, hesitation phenomena, and intelligence. *Lang. & Speech*, 5:31-46, 1962.
6. Bloch-Heoll, N. The Pentecostal Movement: Its Origin, Development, and Distinctive Character. London. Allen & Unwin, 1964.
7. Bobon, J. Les Pseudo-Glossolalies Ludiques et Magiques. *J. Belge de Neurol. et de Psychiat.* 47: 327-395, 1947.
8. Boisen, A. T. Economic distress and religious experience: A study of the Holy Rollers. *Psychiatry* 2: 185-194, 1939.
9. Boisen, A. T. Religion in Crisis and Custom: A sociological and

- Psychological study. New York, Harper, 1955.
10. Bourguignon, E. The Self, The behavioral environment, and the theory of spirit possession. In: M.E. Spiro (ed.) Context and Meaning in Cultural Anthropology. New York, Free Press, 1965.
 11. Bourguignon, E. and Haas, A. Transcultural Research and Culture-Bound Psychiatry. Paper read at the Western Div. mtgs. Amer. Psychiat. Assn., Honolulu, Sept. 1965.
 12. Bourguignon, E. and Pettay, L. Spirit Possession, Trance and Cross-cultural research. Unpublished paper, Ohio State University, 1966.
 13. Campbell, J. A. A speaking acquaintance with tongues. Unpublished paper, Univ. Pittsburgh, 1965.
 14. Carlson, A. Tongues of fire revisited. Unpublished papers, Univ. Calif. Berkeley, 1967.
 15. Castaldo, V. and Holzman, P.S. The effects of hearing one's own voice on sleep mentation. J. Nerv. Ment. Dis. 144:2-13, 1967.
 16. Cohn, W. Personality and Pentecostal Groups-A Research Note. Unpublished paper, Univ. Brit. Columbia, 1967.
 17. Cohn, W. The Paradoxes of Marginal Group-A Social Psychological Suggestion. Unpublished paper, Univ. Brit. Columb., 1967.
 18. Currie, S. D. Speaking in tongues, early evidence outside the New Testament bearing on "Glossis Lalein." Interpretation 19:274-294, 1965.
 19. Cutten, G. B. Speaking with tongues: historically and psychologically considered. New Haven, Yale Univ. Press, 1927.
 20. Davidson, W. D. Psychiatric Significance of Trance Cults. Proceedings of the 121st ann. mtg. Amer. Psychiat. Assn., 1965.
 21. Deikman, A. J. Implications of experimentally induced contemplative meditation. J. Nerv. Ment. Dis. 142:101116, 1966.
 22. Deikman, A. J. De-Automatization and the mystic experience. Psychiatry 29:324-338, 1966.
 23. Denes, P. and Milton-Williams, J. Further studies in intonation. Lang. & Speech 5;1-14, 1962.
 24. Devereaux, G. Normal and Abnormal: The key problem of psychiatric anthropology. In: Some uses of anthropology. Wash, D.C.: Anthr. Soc. Wash., 1956.

25. Devereaux, G. The voices of children. *Amer. J. Psychother.* 19:4-19, 1965.
26. Eliade, M. *Shamanism; Archaic techniques of ecstasy.* New York: Pantheon, 1964.
27. Festinger, L., Riecken, H. W. and Schachter, S. *When Prophecy Fails.* Minneapolis: Univ. Minn. Press, 1956.
28. Finch, J. G. God-inspired or self-induced? *Christian Herald*, 87:12-19, 1964.
29. Flavell, J. The function of private speech in children's thinking. Paper read at Soc. Res. Child Dev. Minneapolis, March, 1965.
30. Flourney, T. *Ees Indes a]a Planete Mars: Etude sur un Cas de Somnambulisme avec Glossolalie,* Geneve: Ch. Eggimarm & Cie., 1900.
31. Fonagy, I. and Fonagy, J. Sound pressure level and duration: *Phonetica* 15: 14-21, 1966.
32. Frank, J. *Persuasion and Healing: A comparative study of Psychotherapy.* Baltimore, John Hopkins Press, 1961.
33. Gerlach, L. P. and Hine, V. H. *The charismatic revival: Processes of recruitment, conversion, and behavioral change in a modern religious movement.* Unpublished papers, Univ. Minnesota, 1966.
34. Geschwind, N. Non-Aphasic disorders of speech. *Inter. J. Neurol.* 4:207-214, 1964.
35. Gill, M. M. and Brenman, M. *Hypnosis and related states: psychoanalytic studies in regression.* New York, Inter. Univ. Press, 1959.
36. Goldman-Eisler, F. Speech analysis and mental processes. *Lang. & Speech* 1:59-75, 1958.
37. Goldstein, K. *Language and language disturbances.* New York: Grune & Stratton, 1948.
38. Gromacki, R. G. *The modern tongues movement.* Philadelphia: Prebyt. & Ref. Publ., 1967,
39. Guillaume, A. *Prophecy and divination among the hebrews and other semites.* London: Hodder & Stoughton, 1938.
40. Hoekema, A. A. *What about tongue-speaking?* Grand Rapids: W. B. Eerdmans, 1966.
41. Holt, J. B. *Holiness religion, culture shock and social*

- reorganization. *Amer. Sociol. Rev.* 5:740-747, 1940,
42. Iritani, T. A study of the expressive values of nonlinguistic sounds and their influence on the articulation of perceived objects. Unpublished doctoral dissertation, Clark Univ., 1962.
 43. Irwin, O. C. and Chen, H. P. Infant speech: vowel and consonant frequency. *J. Speech & Hearing Dis.* 13:123-125, 1948.
 44. Jennings, G. J. An ethnological study of glossolalia. *J. Amer. Sci. Affil.* 20:5-16, 1968.
 45. Johnson, B. Do holiness sects socialize in dominant values? *Soc. Forces* 39:309-316, 1961.
 46. Jung, C. G. *Collected Works*, 1:79,9:55,11:163,284.
 47. Kelsey, M. T. *Tongue speaking*. Garden City, New York: Doubleday, 1964.
 48. Kiev, A. *Magic, Faith, and Healing*. New York: Free Press, 1964.
 49. Kildahl, J. P. and Qualben, P. A. A study of speaking in tongues. Unpublished data, 1966.
 50. Knox, R. A. *Enthusiasm: A chapter in the history of religion*. London: Oxford Press, 1950.
 51. Kramer, E. Elimination of verbal cues in judgments of emotion from voice. *J. Alm. Soc. Psychol.* 68:390-396, 1964.
 52. Kris, E. *Psychoanalytic explorations in art*. New York: Inter. Univ. Press, 1952.
 53. Kubie, L. S. and Margolin, S. A physiological method for the induction of states of partial sleep, and securing free association and early memories in such states. *Trans. Amer. Neurol. Assn.* 136-139, 1942.
 54. LaBarre, W. *They shall take up serpents: Psychology of the southern snake-handling cult*. Minneapolis: Univ. Minn. Press, 1962.
 55. Laffal, J. *Pathological and Normal Language*. New York: Atherton, 1965.
 56. Lanternari, V. *The religions of the oppressed*. New York: A. A. Knopf, 1963.
 57. Lamb, J. and Gleason, A. Brain function. In: Carterette, E. C. (ed.) *Speech, Language and Communication*. Berkeley, Univ. Calif. Press, 1964.

58. Lapsley, J. N. and Simpson, J. H. Speaking in tongues. *Pastoral Psychology* 15:16-24, 48-55, 1964.
59. LeBaron, A. A case of psychic automatism, including speaking with tongues. *Proc. Soc. Psychical Res.* XII, 1896-97.
60. Lombard, E. *De le Glossolalia chez les Premiers Chretiens et des Phenomenes Similaires.* Lausanne; Bridel, 1910.
61. Ludwig, A. M. Altered states of consciousness. *Arch. Gen. Psychiat.* 15:225-234, 1966.
62. Ludwig, A. M. The trance. *Comp. Psychiat.* 8:7-15, 1967.
63. Mackie, A. *The Gift of Tongues: A study in pathologic aspects of Christianity.* New York: G. H. Doren, 1921.
64. Maeder, La Langue d'un Aliene: Analyse d'un cas de Glossolalie. *Arch. de Psychologie* LX: 1910.
65. May, L. C. A survey of glossolalia and related phenomena in non-Christian religions. *Amer. Anthropol.* 58:75-96, 1956.
66. Martin, I. J. *Glossolalia in the Apostolic Church.* Berea, Ky.: Berea College Press, 1960.
67. McGuigan, E. J. *Thinking: Studies of covert language processes .* New York: Appleton-Century-Croft, 1966.
68. Mischel, W. and Miscbel, F. Psychological aspects of spirit possession. *Amer. Anthropol.* 60:249-260, 1958.
69. Morentz, P. *Lecture on Glossolalia.* Unpublished paper, Univ. Calif. Berkeley, 1966.
70. Mosiman, E. *Eas zungenreden, geschichtlich and psyche logishuntersucht.* Tübingen: Mohr, 1911.
71. Motley, M. T. *Glossolalia: analyses of selected aspects of phonology and morphology.* Unpublished masters thesis. Univ. Texas, 1967.
72. Nida, E. *Preliminary report on glossolalia.* Paper presented at Ling. Soc. Amer., New York, Dec. 1964.
73. Ostwald, P. F. *Soundmaking.* Springfield, Ill. C. C. Thomas, 1963.
74. Palmer, G. *Studies of Tension Reduction in Glossolalia.* Unpublished data, Univ. Minnesota, 1966.
75. Parsons, A. *A study of an ethnic central city church.* *J. Sci. Stud. Relig.* 4:2-16, 1965.
76. Peterson, G. E. and Shoup, J. E. *A physiological theory of*

- phonetics. *J. Speech & Hearing Res.* 31:5-67, 1966. Pfister, O. Die psychologische Enträtselung der religiösen Glossolalie und der automatischen Kryptographie. *Jahrbuch psychoanalyt. psychopath. Forsch.* 111, 1912.
78. Plog, S. C. Preliminary analysis of group questionnaires on glossolalia. Unpublished data. Univ. Calif. Los Angeles, 1966.
79. Prince, R. H. and Savage, C. Mystical States and the Concept of Regression. *Proceedings of the R.M. Buckley Soc., Montreal*, 1966.
80. Rapaport, D. *Toward a Theory of Thinking in Organization and Pathology of thought*. New York: Columbia Univ. Press, 1959.
81. Rechtschaffen, A., Goodenough, D. Patterns of Sleep Talking. *Arch. Gen. Psychiatry* 31:426-431, 1962.
82. Sadler, A. W. Glossolalia and possession: an Episcopal study commission. *J. Sci. Stud. Religion* 1964.
83. Salzman, L. The Psychology of Religious and Ideological Conversion. *Psychiatry* 16: 177-187, 1953.
84. Sargant, W. *Battle for the Mind*. Garden City, N.Y., Doubleday, 1957.
85. Schjelderup, H. K. Psychologische Analyse eines Falls von Zungenreden. *Zeitsch. für Psychol.* 122: 1-12, 1931.
86. Schwarz, B. Ordeal by Serpents, Fire and Strychnine. *Psychiat. Quart.* 34:405-429, 1960.
87. Sedman, G. Depersonalization in a Group of Normal Subjects. *Brit. J. Psychiat.* 112:907-912, 1966.
88. Shapiro, J. An Introduction to Inner Speech. *Arkansas Rehab. & Trng. Ctr. Papers*, Vol. 1, No. 4, 1966.
89. Sherrill, J. L. *They Speak with Other Tongues*. Westwood, N.J.: Fleming & Revell, 1965.
90. Sokolov, A. N. Investigations of the problem of verbal mechanisms of thinking. *Psikhologichesk. nauka USSR*, 1:488-515, 1959.
91. Spoerri, T. H. *Sprachphänomene und Psychose*. Basel: S. Karger, 1964.
92. Stagg, F., Hinson, E. G., and Oates, W. E. *Glossolalia: Tongue Speaking in Biblical, Historical, and Psychological Perspective*.

Nashville: Abingdon, 1967.

93. Starkweather, J. A. Content-free speech as a source of information about the speaker. *J. Alm. Soc. Psychol.* 52:394-402, 1956.
94. Starkweather, J. A. The communication value of content free speech. *Amer. J. Psychol.* 69:121-126, 1956.
95. Stolee, H. J. *Speaking in Tongues*. Minneapolis: Augsburg Publ. Co., 1936.
96. Thomas, K. *Speaking in Tongues*. Unpublished paper. Berlin Suicide Prevention Center, 1965.
97. Underhill, E. *Mysticism*. New York: Meridian, 1955.
98. Vivier, L. *Glossolalia*. Unpublished doctoral thesis. Dept. Psychiatry, Univ. Witwatersrand, 1960.
99. Vygotsky, L. S. *Thought and Language*. Cambridge: M.I.T. Press, 1962.
100. Weinstein, E. A., Lyerly, O. G. and Cole, M. Meaning in jargon Aphasia. *Cortex* 2:165-187, 1966.
101. Willems, E. Pentecostal Validation of Authority. *J. Sci. Stud. Relig.* 6:253-258, 1967.
102. Welmer, W. E. Linguistic Analysis of Glossolalia. *Personal Communication*. Dept. Linguistics, U.C.L.A., 1966.
103. Wepman, J. M. and Jones, L. V. Five Aphasia: A Commentary on aphasia as a regressive linguistic phenomenon. In: Rioch, D. & Weinstein, E. A. (ed.) *Disorders of Communication*. Baltimore: Williams & Wilkins, 1964.
104. Werner, H. and Kaplan, B. *Symbol Formation: An Organismic-Developmental Approach to Language and the Expression of Thought*. New York: J. Wiley, 1963.
105. Wolfram, W. The sociolinguistics of Glossolalia. Unpublished master's thesis. Hartford Seminary Foundation, 1966.
106. Wood, W. W. Culture and Personality Aspects of the Pentecostal Holiness Religion. Unpublished doctoral thesis. Univ. No. Carolina, 1961.
107. Worsley, P. *The Trumpet Shall Sound: A Study of "Cargo Cults" in Melanesia*. London: Macgibbon & Kee, 1957.
108. Zhinkin, N. I. Approaches to the Study of the Speech Mechanism. *Psikholog. nauka USSR.* 1:470-487, 1959.

My appreciation is due to Robert L. Casey, M.D. and Peter Ostwald, M.D. for their collaboration in the analysis of the glossolalia. tapes reported in this paper. More technical reports on this data with their joint authorship will be published.