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Echopraxia in Schizophrenia

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Introduction

The term echopraxia refers to the automatic repetition by an individual of visually perceived actions of others. It has been reported to occur in a variety of pathological mental states (Stengel, 1947). Descriptions of the phenomenon as it occurs in schizophrenia tend to be limited to a brief reference to its presence in catatonic patients, and it is not generally recognized to be a feature of the early stages of the illness. The purpose of this paper is to make an attempt to analyse the phenomenon, in discussing the subjective reports of a number of young schizophrenic patients who were interviewed in the early stages of their illness. Before proceeding to these reports it may be useful to examine briefly echopractic behaviour first as it is reported in normal development and then in clinical conditions, particularly chronic schizophrenia.

Normal Development

Although the term echopraxia is seldom used to describe behaviour in normal childhood development, there are some features of the motor mimicry displayed by young children which correspond closely with echopraxia as defined above. One of the earliest examinations of imitative behaviour was carried out by Baldwin (1895, 1897), who attempted to construct a complete theory of early development based on imitation. Baldwin traced the process through three distinct phases which lead to a socialized self. In the first "projective" phase, the child passively assimilates impressions from others. During the second "subjective" phase, the child is "a veritable copying machine", assuming the movements and attitudes of his model. In the final "ejective" phase, the child controls the previous involuntary imitation and learns to comprehend his model by acting like it.

Piaget (1951) in a study of play and imitation in childhood, considered that imitation evolves through three different stages which interrelate and overlap with each other.

The first stage, occurring in early infancy, is that of sensori-motor imitation. The imitation of the model is inseparable from the process of perceiving it, so that the presence of a concrete model is required.

At a later stage, from the age of 2 to 7 years, there is a gradual differentiation of this sensori-motor activity, so that imitation may occur with an image of the model and be "deferred" for a considerable time after the absence of the model. Here the memory image is an integral part of the imitative behaviour, acting as a "negative" for potential future imitations.

In the final stage of development from 8 to 12 years, imitation is progressively independent of perception and becomes a function of conceptual thinking. Imitation at this stage differs from the earlier forms in that it is consciously discriminative and deliberate, refers to detail in the model, and is affectively determined. It is no longer a perceptual-motor activity but refers to data lying outwith the immediate perceptual field.

According to Piaget this transition from primitive sensori-motor schemas to verbal schemas underlies the gradual acquisition of language. The purpose of imitation is to achieve understanding and facilitate adaptation to the environment. "Imitation then, and this is our essential conclusion, fits into the general framework of the sensori-motor adaptations which characterize the construction of intelligence."

This concept of functional continuity pertaining to different stages in the evolution of

imitative behaviour, which is implied in the observations of both Piaget and Baldwin, is closely in parallel with the views of evolution of the nervous system expressed by Hughlings Jackson (1958). This seems worth mentioning at this point because of the relevance of such concepts for interpreting the clinical data dealing with echopraxia in schizophrenia. Hughlings Jackson pointed out that there was no antithesis between the terms "voluntary" and "automatic". The term "voluntary" is a compound of the psychological and physiological. Concerning movements, there are all degrees in the process of evolution from the "most automatic" to the "least automatic", which is voluntary, but there is no absolute distinction between the two. With progressive disease of the brain it is the least automatic movements which are first affected, and with continuing dissolution of the nervous system, there comes a point when the "most automatic" movements are affected.

Piaget stated that, although in the process of evolution primitive sensori-motor adaptation is largely replaced by conceptual thinking, the former nevertheless remains all through life ". . . the essential tool for perceptive activity and the indispensable intermediary between the perceptions and conceptual intelligence". Thus in normal adult behaviour one may still observe traces of this primitive motor mimicry in the process of empathy which is also intricately linked with the visual perception of other people's actions.

So far, little experimental work has been done in this field. However, Sarbin (1954), in a paper on role theory, described an experimental study (Sarbin and Hardyck, 1953) which investigated the influence of postural behaviour (as actions of persons) on role perception. This work suggested that an individual's perception of others is more accurate if he empathizes with them.

Echopraxia in Catatonic and Other States

The classical view that echopraxia is a sign of "automatic obedience" is still quoted in current texts, although this was doubted by Bleuler and questioned in more recent times by Stengel (1947). Bleuler (1911) considered that echopraxia in catatonia might result from a weakening of associations so that the patient failed to inhibit the perceived movement and "consequently the imitation is carried out". Bleuler also spoke of the sensory impression becoming predominant and simultaneously suppressing other associations, or alternatively the patient might believe that the gesture he perceived implied a command to imitate it. Bleuler concluded this brief discussion of possible mechanisms in echopraxia by stating: "However, all these conjectures can hardly satisfy us."

Alternative views have been derived from psychoanalytical theory. Representative of this approach is Fenichel's view that echopraxia in catatonia is a sign of regression to an infantile level, where the mechanism of primary identifications predominates. Fenichel (1946) attributed a restitutive function to the phenomenon, regarding echopractic behaviour as a primitive attempt at regaining contact with the environment.

The most recent psychiatric investigation of echo reactions appears to be that reported by Stengel in 1947. This was a study of echo reactions in various clinical states including catatonic schizophrenia. Stengel referred to echo phenomena observed in clinical conditions which he outlined as follows: (1) Aphasia of the "transcortical" type and advanced dementia resulting in a similar speech disorder. (2) Low-grade mental deficiency with incomplete development of speech. (3) Chronic epilepsy. (4) States of clouded consciousness of various origins. (5) Catatonic states. (6) Early period of speech development in childhood. (7) States of fatigue and lack of attention in the normal.

In interpreting his clinical observations, Stengel considered that echopraxia resulted from an urge to act and an impairment of incomplete development of spontaneous activity. He viewed echo reactions generally as an interaction between an impulse to maintain social contact and an opposing tendency to extreme autism. Stengel considered that echo reactions do not consist of indiscriminate repetition but depend on personal rapport and that selectivity

was exhibited by his patients, with regard to both the person imitated and the action repeated. Stengel used his clinical data to argue against the assumption that "automatic" echo reactions are fundamentally different from others. Finally, he found that the psychological mechanism underlying echo reactions was that of primitive identification and that the conditions which the phenomena had in common, in a variety of different clinical states, included an urge to act or speak, a tendency to repetition, and an incomplete development or impairment in the expression and perception of speech.

A common denominator of these interpretations concerning echopraxia in chronic schizophrenia thus appears to be in the nature of an analogy with the early stage of development, occurring before the establishment of an adequate ego boundary when there is no clear differentiation between the "I" and the "not I". So far, echopraxia in schizophrenia does not appear to have been approached from the standpoint of impaired perceptual functioning. The basis for such an approach has already been laid down by the work of Weckowicz and his colleagues in their experimental studies of perceptual constancy in schizophrenia. Perceptual constancy refers to the ability to perceive objects as stable structures when viewed from different angles or from different points in space. There is now abundant experimental evidence that perceptual constancy is impaired in schizophrenia (e.g. Crookes, 1957; Weckowicz *et al.*, 1957, 1958, 1959, 1960; Hamilton, 1963). Weckowicz and Sommer (1960) carried out several experimental studies which showed that body image and self-concept ("self") were impaired in schizophrenic patients. These authors reduced these disorders to a disturbance of perceptual constancy occurring in the subject's phenomenological space, which includes both the perceived physical space and perceived social space. Weckowicz and Sommer concluded that: "there is a close relationship between the perception and knowledge of the external world, of one's body and of one's self. One influences the other. All three are affected in schizophrenia probably by a disturbance of some underlying physiological mechanism". In the present paper, echopraxia in schizophrenia is approached from a similar standpoint.

Clinical Data

I. Advanced Stages

The "more automatic" forms of echopraxia which can occur in schizophrenia may be illustrated by a brief description of the behaviour of two patients who were studied in a group setting. The group comprised eight male patients (4 catatonic and 4 hebephrenic) who were in the advanced stages of the illness and had remained in hospital many years. None of these patients was accessible to verbal communication and subjective reports of their echopractic behaviour could not be obtained. One mute catatonic patient (A.S.), aged 29 years, demonstrated echopraxia more markedly than any of the others in the group. When this patient perceived any action or change in posture of any other group member, he automatically moved into an identical position no matter how complex this may have been. For example A.S. was sitting rigidly immobile on the right side of a second patient J.W., looking at a point on the floor. The latter patient, J.W., then moved back in his chair and took up a slouching posture with his left hand on his chin, his left elbow leaning on the arm of the chair and his right leg crossed over his left. He also had put his right hand in his trouser pocket and his whole body was tilted towards the left. A.S. looked up at this patient as the latter was moving and then moved from his original position into one identical with that of J.W., including the body tilt. After a brief pause, A.S. shifted his attention to a third patient in the group who had just flexed his left knee upwards clasping it with both hands. A.S. repeated this newly-perceived action and maintained this change in posture until about a minute or so later when he altered his bodily position to repeat an action deliberately introduced by the observer, who had placed both hands round the back of his neck. The number of such automatic repetitions of visually perceived actions performed by this patient amounted to between 30 and 40 in any session of one hour in the group situation. He was also

observed to behave like this continuously throughout the day and the total number of such repetitions was uncountable. The repetitions were not limited to changes in bodily position, but also occurred with actions such as whistling. The initiation of such automatic repetition of actions seen appeared to be involuntary, but the patient showed frequently that he was aware of the process just after it had started by apparently attempting to stop it. When this occurred he put his arms in front of his eyes, or more frequently simply closed his eyes. This interrupted the echopractic activity, which then did not develop to completion. However, as soon as he opened his eyes and perceived another person's actions he at once resumed this type of behaviour.

Echopractic behaviour of this overt kind was not limited to catatonic patients in the group. One hebephrenic patient (E.H.) who had no other catatonic symptoms demonstrated echopraxia while looking at other people and at television. On several occasions in the ward he was observed to repeat a variety of complicated actions of persons appearing on the screen. From time to time he showed echopractic behaviour in the group situation. For example, he perceived another patient (W.M.) sitting opposite him rubbing his face and forehead with his hand. E.H. then automatically performed the same action three times. When he was asked one day why he had just repeated the actions of another person, he said, "I'm sitting here body-snatching. I keep picking up fresh bodies. Nobody else can make them work." ("How do you work them?") "I just sit in them and they work." ("You sit?") "You don't sit, you imagine or realize it. You can go in or out of any mind." On another occasion, when he was exhibiting echopraxia while watching the television screen, he was asked if he was enjoying the programme, and replied, "Yes, but I don't know which is myself."

II. Early Stages

The schizophrenic patients to whom the following reports refer were interviewed within the first two years of their illness. The diagnosis of schizophrenia was confirmed by two independent consultants. In the initial examination all these patients showed evidence of disordered thinking and affect. They also had an abundance of other symptoms which included disturbances in the processes of attention, perception and motility. They did not exhibit overt echopraxia to the degree found in chronic catatonic patients. The fact that these patients were nevertheless prone to engage in echopractic behaviour at certain times under certain conditions was revealed by the patients' verbal reports, which were gathered in a series of tape-recorded interviews. It was later recognized that these patients did have overt tendencies at times to repeat the actions and movements of the observer. For the purposes of this paper, the relevant statements from each patient have been abstracted from the tape recording and appended to a brief summary of the case.

Case 1. (K.M.) An intelligent young woman of 19 years. The duration of illness prior to interview was two years without remission. The onset of the psychosis occurred in the spring of 1959, early in her eighteenth year. She became moody, with transient bouts of depression followed by sudden hilarious laughter. She became progressively withdrawn socially, and developed ideas of reference, passivity feelings and sudden attacks of excitement and impulsiveness. There was an insidious deterioration in personality, with thought disorder, incongruity of affect, delusions, auditory hallucinations and cataleptic signs. Volition had become steadily impaired from the outset. She expressed bizarre ideas concerning the function of her brain and also delusions referring to other people reading and controlling her thoughts. She also exhibited body image disturbance and echolalia. When reviewed two years after the initial interview, there was no significant improvement in her clinical condition, and she showed overt echopraxia.

The patient said, "If Frankie (her boy-friend) was here —if he was standing up, I would be apt to think that I should be standing up too. I used to try and think myself somebody else. I was thinking too much of the other person. The way Jean (her sister) spoke, I wanted to speak. They had control over my mind. If Jean would walk down the road with an umbrella in her hand, I would try and walk the same way, even though I didn't know the step to take."

This patient reported experiencing "blank spells" in relation to which her perception of the environment and of her own body became unstable. She said that other people's faces kept changing; sometimes she saw only "half a face" (e.g. when the observer sat sideways) and she had to wait "until the two halves came together again" (when observer turned face to face). She said that

when she was looking at other people, they often changed in shape and size quite suddenly.

Case 2. (A.H.) A college student, aged 20, who had a markedly schizoid premorbid personality. The duration of illness prior to interview was 18 months. He became progressively unable to communicate coherently with others, and gradually withdrew into his own fantasy life. He lost control over his thinking and affective responses, and developed persecutory ideas that people around him were beasts who were exploiting him and treating him like an animal. There was progressive impairment in volition, and two years after the initial interview he had deteriorated further and was drifting about the country in a very solitary fashion, being sporadically employed for short periods in unskilled labour.

This patient reported, "I sometimes doubt myself as a person. When I'm mixing with people my own personality goes; it gets scattered. I am reflecting parts of them, just to try to be someone among them. I lose myself and become a mirror of them. If they laugh, I must laugh and they do something, I do it. It's got to be coincident, in complete sympathy. If I could assert myself as a person into the situation, it would be much better for all of us. I've got to make the landscape acceptable to the person, the landscape being me. If I am walking along the street and somebody is walking ahead of me and I think about it, I get afraid I will take up the same step."

As with the other patients in this study, this patient showed and experienced great variation in the functions of attention and perception. At one time he could be attending to and perceiving accurately certain aspects of his environment, while, at other times, these functions were so disrupted that the patient ceased to attend to any form of sensory stimulation. On these occasions, the patient did not appear to have any effective perceptual contact with his environment. He referred to these changes in subjective experience as "trances" and produced the following account:

"I get less and less conscious of what people are saying and my senses withdraw completely. My mind just comes to a stop, and then I don't pay attention to anything. I don't want to go into a trance, for I am nothing if I haven't got contact with the outside world. People disturb me in bringing this on by stopping and talking. I get a terrible excitement with butterflies and all hot and then everything flashes with emotion in your ears and eyes and everywhere. At these times when I go into a trance, everything in the past, all my experiences, knowledge, everything I have learned, things that should have been put to me at the time in dealing with the situation are not there. I don't have the ability at the time to use it. Everything goes and afterwards you can think about it."

Case 3. (J.H.) A student of high intelligence, aged 20 years, whose psychosis became manifest six months prior to his admission to hospital. He lost interest in his promising career, took to philosophical and religious speculation and gradually became preoccupied with his own fantasies. As well as disordered thinking and affect, he had symptoms of disordered motility, and he frequently experienced a transient loss of identity in relation to changes in mental function which he called "trances".

This patient stated that by concentrating visually on a person he could temporarily "become" that person. He reported to the effect that if the other person moved, the condition of being "at one with him" was disturbed and he had to alter his own body position in order to accommodate to the changes he perceived in the other person. Each time this happened, he felt that he was somehow different: "You are dying from moment to moment and living from moment to moment and you are different each time."

The patient went on to give an account of his mental state at the times when he behaved in this fashion. "You look at the object and concentrate on it so that you become the object. There's nothing else to hold the mind other than the object. The mind being concentrated on the object—this is the state of going into a trance—the mind loses the capabilities of receiving any messages from any other objects. The messages give us a sense of existence. When the mind concentrates on one particular object only, that one object is the only one to react to, and the mind becomes one with the object, the object is the mind. You lose the sense of the object's separate identity. While you're with it, you're not with it. It's the same with people. When I meet a person there is a sudden confusion for a moment."

At these times, he found that he could not utilize his memory resources in order to express his ideas, and he also failed to comprehend speech. On numerous occasions he found that if he did not make an effort to adapt to changes in the other person he then perceived them in a grossly distorted fashion, relating to size, shape and distance from him. Thus, on these occasions he perceived the other person as getting bigger and smaller alternately and "coming closer to me so that I had to shrink back".

Case 4. (A.M.) An intelligent man of 28 years of age, whose illness of one year's duration prior to interview, had been ushered in by a sudden display of bizarre behaviour at work. He had dropped his tools and stood motionless, staring into space with his arms outstretched to the side. He became progressively isolated socially and impaired in his volitional performance. He showed disorder in thinking and affect. In the second year of his illness he developed other symptoms, which included unorganized paranoid delusions, auditory hallucinations, ideas of reference and a disturbance in body image and motility. The following is a spontaneous communication from the patient directed towards the observer at the recorded interview:

"You sit there and you don't move much at all and you don't appear to change much. If you move noticeably, the person you are talking to might get distracted and lose track. One time I was sitting with a friend, and suddenly he changed and I told him 'don't move or I'll have to move too'. You have not changed much here because you have remained static, but sometimes it does affect me. Somebody moves or crosses his knees [as the observer had just done, and which the patient repeated]. I feel I have to move at the same time. It is a matter of time—like the

two minds getting attuned, for it makes it easier to understand the person's thoughts—reading the other person's mind. The problem is to differentiate myself from other people. I might have to impersonate somebody, playing a role or being an actor for a short period. I know you can't change yourself and become another person completely, that is obviously impossible, but you can play the part for a time. I say to myself 'Who will I be today?' You take in more of a person, you get acquainted and you gradually build up the person."

Frequently at interviews with this patient, verbal communication tended to break down, and the patient's attention was taken up by minor irrelevant actions on the part of the observer. At these times, such irrelevant movements were perceived as meaningful "signals" by the patient. For example, on one occasion the observer removed his hand from his pocket. The patient suddenly stopped talking and after a short pause said "I've lost my concentration now. I thought you wanted me to stop talking, and I knew it was a deliberate gesture. You had control in your mind and you sent out a signal. You held up your hand and it interrupted my thoughts."

Quite often, the dynamic changes in attention and perception just described would be immediately followed by a brief period in which the patient appeared to lose his perceptual contact with the environment. This patient's account of these "blank spells" is as follows:

"It's like a temporary blackout with my brain not working properly, like being in a vacuum. I just get cut off from outside things and go into another world. This happens when the tension starts to mount until it bursts in my brain. It has to do with what is going on around me—taking in too much of my surroundings—vital not to miss anything. I can't shut things out of my mind and everything closes in on me. It stops me thinking and then the mind goes a blank and everything gets switched off."

Case 5. (J.McD.) A 28-year-old labourer of less than average intelligence whose psychosis was of two years' duration without remission. This patient's symptoms included the rapid development of auditory and later visual hallucinations and poorly systematized paranoid delusions of being poisoned and being made radioactive. He said that he could communicate telepathically with other persons and also with cats, dogs and birds. He was convinced that other people, even those appearing on television, could read his thoughts. He expressed bizarre delusional ideas, for example that a ventilator in the room was attempting to have sexual relationships with him. He was convinced that other people were controlling his mind, inserting dirty ideas into his own thoughts and sending messages to him by moving different parts of their bodies. This patient's thinking disorder was so gross that his report is less coherent than some of the others but nevertheless it does follow the same trend.

"I could be my brother's sort of mind or my other brother's sort of mind. More or less when I'm facing him it makes me think he is just speaking to himself. If I have time to think about the other person you sit and study the person, you try and copy the way he reads or the way he speaks. That's how you imitate the other person. There's not many people you can imitate. You can do it by thinking hard enough to get a vision, make your mind a blank. When you have him in your mind and then you can try and express what he is saying, the way he reacts."

This patient produced much more material of this kind, all of which indicated a confusion of identity. "Your mind gets trained to this person, and when you see this person doing all these reactions, speaking and maybe moving about, you can sometimes—you can actually feel—I move in the same way as they were, but I don't know if the person feels whether I am in his sort of mind. Sometimes it makes me think I am taking an impression of his body. You would think I have taken an impression of his mind. I feel it coming on but I just can't do anything about it. I just have to work along with it."

This patient further described how, while sitting listening to a radio programme, he recalled seeing certain statues of Christ and saints in the church which he attended. In this process of recall from memory he appeared to assume the same bodily position of the particular statue or image which was in his mind at the time:

"I have seen the saints in my mind and when I can visualize it very clearly, I find my fingers and my hands going into the same position as the statue of the saint, and I'm standing the way he was standing."

Case 6. (C.G.) A clerk, aged 27 years. The duration of illness was nine months. As well as disorders of thinking and affect, this patient had auditory hallucinations, delusions of reference and disordered motility. He stated that he had telepathic powers and that he could communicate with other persons, at great distances, by moving his toe or other parts of the body. He engaged in conversation with his own thumb which he claimed could speak back to him.

During the recorded interview, this patient suddenly brought spontaneously to mind certain experiences he had had while in hospital. "Oh, I have never talked about this before. When I was in that other ward—there was—sometimes the action of people. There was a Willie T. He used to walk about lighting his pipe. It may be the case that I was walking about and the image came into my mind of his walking about. It was almost as if I was he. I was doing the same things as he was doing. Some others too. I knew I was walking about and I felt it was the same action—doing the same things as he did—the same way he walked. I think it was just memory."

This patient appeared to be engaging in echopractic behaviour while perceiving memory images of other persons. He also reported to the effect that while he was perceiving an image of a girl, he felt that he had assumed a female body and began to walk and act like a female. However, the patient's motor behaviour was also influenced by direct visual perception of other people's actions. He said, "I found people could speak to me by their actions. If they were standing with their arms folded. I found my arms and shoulders moving." This patient not only passively assimilated the movements of other persons and equated these movements with thoughts, but at times engaged in a "conversation of gestures". In

relation to this he said—"It's like casting your mind over to the other person, it's thought you're passing over."

Case 7. (G.H.) An apprentice slater, aged 21, with a hebephrenic illness of sixteen months' duration prior to admission. During this period his personality had undergone a rapid, progressive and persisting deterioration. Thought disorder and incongruity of affect were pronounced. He had numerous bizarre ideas (e.g. he had swallowed a fork which was travelling around inside his body), auditory hallucinations and unorganized paranoid delusions. He showed a marked distortion of body image and also defects in visual and auditory perception. He also exhibited stereotypies of behaviour, some minor catatonic symptoms and marked echolalia. When reviewed three years after this interview, his clinical state was one of dementia. This patient stated when he came to interview:

"I don't know if I'm George today." When asked to explain this, he replied to the effect that he had just been in the company of another person and had copied his actions. "I felt I was better, a man grown up. I just thought I could use any name. I can use any kind of name that goes with my mind. I feel like I am everybody. When I'm talking I feel I just want to do what they are doing and be everybody and copy them to be what they are. It helps me to understand everybody and what they are and how they feel."

This patient also made a spontaneous report at interview which seemed to be a projection of his own echopractic experience on to the observer with the development of an associated delusion of supernatural power. On this occasion the observer touched a paper on his desk and the patient said, "I can make you move just now, doctor. I can make you touch a table." (How can you do that?) "You did it. I pointed my finger there and you pointed yours. I moved my finger just now and you were looking at my finger and studying it and the brain came from my finger and you put your finger down there just now as if I was guiding it. I was guiding it because my finger went that way and yours did the very same."

This patient had experienced "blank spells" frequently from the onset of his illness. During these episodes the patient suffered a severe impairment of perceptual constancy in relation to his own body and the environment. He said that at these times his body was "breaking up into bits". He had to remain still during the episode, otherwise his body might move forward but "leave my feet behind me". If this patient moved his head and eyes, stationary objects were perceived to move accordingly. Objects in the interview room, such as the table, ashtray, telephone, were perceived to be changing in size and shape and moving closer or farther away from him. When looking at another person he said he saw "one picture one moment and another picture the next". When out walking, he perceived the sun to be falling out of the sky towards him. "I followed the sun and it seemed to drive me along. The sun seemed too big for me and it was coming closer. Everything else seemed to be coming closer and bigger all the time."

Discussion

The reports of these schizophrenic patients appear to indicate that subjective awareness of echopraxia may precede its overt clinical manifestation by a very considerable period of time. Thus, specific enquiry for this symptom may lead to early recognition of its presence in the clinical picture in hebephrenic as well as catatonic states. Although echopraxia in chronic schizophrenic patients may persist for long periods of time as illustrated above, in the early stages it appears to occur only at certain times under certain conditions. The echopraxia reported by these patients chiefly occurred when they were looking at and attempting active communication with another person. To some extent, this bears out Stengel's view that echo reactions are dependent on personal rapport. Another feature suggested by the present study was that echopractic behaviour most frequently occurred when verbal communication was in process of breaking down, albeit transiently. This too is in agreement with Stengel's observation that echo reactions are associated with impairment of the expressive and perceptive aspects of speech. Further examination suggested that at these times the patients were unable to utilize their immediate memory resources for the purposes of expressing ideas and were at the same time failing to perceive speech in an organized fashion. With this latter change in subjective experience, verbal conversation became for one patient (A.M.): "just a babble of noise" or as another patient (G.H.) put it—"words in the air". These particular difficulties that schizophrenic patients have in the perception of speech have been reported in previous clinical and experimental studies (McGhie and Chapman, 1961, 1964; Lawson, McGhie and Chapman, 1964). In addition, some of the experimental findings in these studies (Chapman and McGhie, 1962) suggested that in schizophrenia there is a breakdown in selective attention, which may, in certain conditions, lead to an overloading of short-term memory with irrelevant sensory data. It is probable that this breakdown is related to the impairment in perceptual functioning which may give rise to a wide

variety of symptoms in schizophrenia, as described by Weckowicz and Sommer (1960).

The echopraxia, described by the patients in this study, appears to have a close relationship in time with other subjective changes in perceptual experience which the patients report to develop during the episodic "blank spells". There appears to be a point of time when the patient is so overwhelmed by a flood of sensory impressions that it is impossible to assimilate them, or to select any of them for integration with past experience. We would very tentatively suggest from our observations, that it is at this point of time during the transition from active attention to a condition of inattention that perceptual constancy becomes disturbed in relation to the body, self and environment, and that echopraxia may develop.

Although we have said that echopraxia chiefly occurred when the patients were looking at another person, this was not always so, as illustrated by the reports of two patients (Cases 5 and 6) who behaved in a similar fashion while perceiving a memory image of another person. Also, apart from observations made in this study, echopraxia of a gross degree in relation to television images has been previously reported (Hay, 1955). Since similar behaviour can arise from three quite different sources, it would seem that the source of perceptual stimulation is not such an essential feature of echopraxia as the way in which the sensory impressions are perceived and assimilated. If we accept this type of motor mimicry, in response to indirect sources of stimulation, as being no different from that which occurs in the face-to-face situation, then it may be possible to broaden our previous definition of echopraxia to include all forms of mimetic motor behaviour which arise simultaneously with the perception of any sensory data pertaining to the actions of another person. This definition of echopraxia would then correspond more closely with that of imitation in childhood development as described by Piaget.

The clinical findings in the present study confirm that the patients identify in a primitive way with the other person when they engage in echopractic behaviour. However, the dynamic conditions in which echopraxia occurs appear to be more complicated than this. The identifications experienced by these patients appeared to be of a secondary and transient nature and at the time of interview, none of them suffered a persisting loss of identity. The duration of these fleeting identifications appeared to coincide with the time taken for the visual perception of the other person to be assimilated in consciousness. In other words, a change in the perception of the patient's "social space" was associated with a corresponding change in identification. The patients found that they could prevent both these fleeting identifications and the development of echopraxia by looking away from the other person. For example the patient C.G. (Case 6) said—"They make movements first and I contact back. They have a certain control over my mind and body, so I look away. I cannot look at a person when this comes on for all these peculiar sensations will come over me." (It is worth while noting at this point that echopraxia may be associated with delusions of influence.) The chronic catatonic patient (A.S.) tended to combat these experiences by closing or covering his eyes. Thus all the patients in the study were subjectively aware of their tendencies towards identifying with and imitating others. As far as one could observe, the identifications did not precede the echopraxia. Both phenomena appeared to occur simultaneously as the patient's perceptual contact with his environment was being disrupted as described above. Some of the patients' reports suggest that sensory data from internal sources, memory, proprioception, etc., were disrupted at the same time.

Thus, this tentative theoretical approach to echopraxia in schizophrenia is similar to that followed by Weckowicz and Sommer in order to account for disorders of body image and self-concept in schizophrenia. We would suggest, then, that echopraxia may develop as the result of a disturbance in perceptual constancy which affects the perception of the environment, one's body and one's self.

With this approach one can trace different degrees of echopraxia in schizophrenia which seem to bear a resemblance to Piaget's three developmental stages of imitation. In one extreme, echopraxia in schizophrenia can be

almost completely "automatic" or "involuntary", even in the early stages, and in the other extreme it may be a more "voluntary" conscious act. At certain times the patients had very little control over their echo reactions. On the other hand, the patient A.M. (Case 4) who talked of playing roles and said to himself—"Who will I be today?"—appeared to be exercising conscious discrimination in this respect. Echopraxia in relation to memory images appears to lie somewhere between these extremes. This form of echopraxia is still "automatic" in the sense that it appears to be an integral part of the perceptual activity, but there would seem to be some degree of discrimination involved. "Voluntary" echopraxia appears to occur when the patient's cognitive function and perceptual processes are least disturbed. With progressive dissolution of mental function, whether this be transient as in the early stages, or more persistent as in the chronic catatonic states, echopraxia may become more automatic.

If this comparison with genetic psychology is valid, it may be possible to obtain a better understanding of the significance of echopraxia in schizophrenia. We could then consider a functional continuity to exist between the primitive sensori-motor activity represented in the "automatic" echopraxia of the chronic catatonic and the "voluntary" form, nearer to the process of empathy in normal persons, exhibited by less deteriorated patients. Echopraxia in relation to memory images would be intermediate in this transition, corresponding with Piaget's stage of deferred imitation; all three stages of echopraxia could similarly be related to corresponding levels of language development. In other words, the degree of "automaticity" in echopraxia can possibly be utilized as a measure of impairment in thinking and language ability. Echopraxia in schizophrenia would be regarded as a sensori-motor adaptation which may vary in degree, facilitating understanding and adaptation, and in an interpersonal situation serving as a primitive form of sensori-motor communication.

Returning to the concept of evolution and dissolution of the nervous system, we might conclude at this point that one of the earliest changes in schizophrenic experience involves impairment of the process of empathy with other persons. Without this ability—"the essential tool for perceptive activity"—or as the disease progresses, without more overt echopraxia, the schizophrenic's perception and understanding of the outside world becomes subject to increasing degrees of distortion.

The phenomenon of echopraxia in relation to memory images seems worthy of elaboration, since it has not been hitherto reported in the psychopathology of schizophrenia. The reports of the patients who engaged in this behaviour suggested that the dynamics of the process were similar to those described by Piaget in his "deferred imitation" in childhood. That is, the visual perception of the image is not dissociated from the accompanying motor activity, but is inherent in it. The visual or memory image is the "negative" which is continued as a "positive" in the imitation. This form of echopraxia is thus a perceptual-motor activity, the imitated action being an integral part of the perception of the image itself. Consequently, the duration of the activity does not outlast the perception of the image. If this is true for schizophrenia, its implications for bizarre behavioural changes in this disease are considerable. Thus, if a schizophrenic is engaged in the perception of an image of Christ being crucified, he is likely to "act out" this perception by appropriate modification of his motor behaviour. However, one could conceive such perceptual-motor schemas as having a content potentially more dangerous than this, and it is possible that echopraxia to memory images, especially in the acute cases, could be the source of homicidal or suicidal acts of an "automatic" nature.

It is tempting to compare echopraxia as described above with similar patterns of behaviour in childhood and in particular to Piaget's three developmental stages of imitation. However, it would seem important not to attempt to link echopraxia in adult schizophrenic patients with any one stage of infantile development, because the process appears to be a very dynamic one and at different times in the same patient one may observe behaviour which bears some resemblance to all three stages of development.

Summary

The evolution of imitative behaviour in the early stages of normal development is briefly examined, with particular attention being paid to Piaget's three levels of motor mimicry. The observations of previous workers who have studied echopractic behaviour in advanced schizophrenic patients are discussed, and a few illustrations of this type of imitative behaviour are cited from our own observations of a group of chronic schizophrenic patients. An examination of the subjective reports of young schizophrenic patients suggests that echopraxia also occurs in the early stages of a schizophrenic illness, although in a more transient and controlled form. Here echopractic tendencies in young schizophrenic patients are interpreted as resulting from the general breakdown in perceptual constancy which appears to be a feature of the early stages of the illness. Finally an attempt is made to relate the different forms of echopractic behaviour observed in schizophrenic patients to the developmental stages of imitative behaviour outlined by Piaget.

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