HALLUCINOGENIC DRUGS
AND
THEIR PSYCHOTHERAPEUTIC USE

THE PROCEEDINGS OF THE QUARTERLY MEETING
OF THE
ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION
IN LONDON
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AND ALEXANDER WALK

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INTRODUCTION

ONE of the problems facing the organisers of a psychiatric conference is that the theme is seldom sufficiently compact to permit the printed proceedings being read easily and smoothly. The theme of the conference which is reported in this monograph attracted a large number of speakers from several disciplines, and although these speakers confined themselves to the general topic of the hallucinogenic drugs the discussion ranged to and fro over a wide area of investigation and knowledge. The editors therefore offer this brief introduction which may serve to help the reader to understand the ways in which the conference represented an advance in knowledge in a field of psychiatry which is relatively new and only partly explored.

The general properties of the older hallucinogenic drugs have been known for centuries, but medical interest in them is less than a hundred years old. It is less than twenty years since the hallucinogenic action of one of the more potent synthetic compounds, LSD, was discovered by Hofmann. Some ten years later, LSD was first used in an exploratory manner in the field of psychotherapy, on the grounds that the subjective experiences of those normal subjects who had volunteered to take LSD were similar in content to the unconscious material produced by patients during analytical work. Early investigators in the realm of psychotherapy found that regression to childhood occurred under LSD, with recovery of lost or repressed memories of childhood. Following early reports of success in psychotherapy in 1953 and 1954 in England, the U.S.A. and Germany, a number of investigators started using LSD in an attempt to effect a cure in intractable neurosis and to shorten the treatment time in others. In 1955 the clinical application of LSD had made sufficient progress for the subject to find a place in the programme of the Annual Meeting of the American Psychiatric Association held in that year in Atlantic City. During the next four years individual papers and communications to meetings and conferences came from clinicians and other research workers from several European countries, and from Canada, the United States and South America, whilst at the same time interest in LSD as a possible therapeutic tool was becoming world-wide. By 1959 the prospect that the hallucinogenic drugs were to have a profound influence in modifying existing methods of psychotherapy found expression in a three day Macy Foundation Conference on " The Use of LSD in Psychotherapy". The success of this endeavour encouraged workers in Europe to meet and to arrange their own discussions. The result was a small European symposium held at Göttingen in 1960, followed by the more ambitious R.M.P.A. Conference in February 1961 which forms the material of this monograph.

Research into the properties and potentialities of LSD and related compounds has been intense since 1943, and consequently its application has attracted the attention of neurophysiologists, pharmacologists, psychologists and other research workers as well as of clinical psychiatrists. The findings in these different disciplines have been of considerable interest to clinicians, and have suggested that the results of research into hallucinogenic drugs might offer a means of improving the understanding between clinicians and research workers in psychiatry.

It was therefore the intention and hope of the organizers of the 1961 Conference in London that investigators from fields other than the clinical and psychotherapeutic ones would be able to assist in interpreting the meaning of the remarkable psychic changes accompanying the administration of the hallucinogens. Thus understood, the significance of the first Conference session becomes clearer, with Dr. Cerletti orientating the meeting into the relationship of hallucinogens to other, both naturally occurring and synthetic, chemical substances. He indicated the importance of the chemical similarities and differences between the known compounds, as far as they are known. The remaining speakers in the opening session, drawn from the fields of experimental medicine and pharmacology, succeeded in establishing that some system which normally holds together and integrates mental functioning is temporarily gravely impaired after the administration of hallucinogens. This system may be identified as the ego by the psychologist or the reticular arousal system by the neurophysiologist, and the significance of this finding is not only of great importance to the psychotherapist, but also offers a way of understanding between clinicians and research workers.

As the conference settled down to discuss the clinical applications of the hallucinogenic drugs, less emphasis was placed on their property of producing visual and other hallucinations and more on their ability to loosen and disintegrate ego function. This emphasis had led at Göttingen to the adoption by the psychotherapists of the term 'psycholytic' as more appropriately describing what happens to patients in this therapy. In this connection the long-standing discussion as to whether the psycholytic drugs are psychotomimetic was re-opened and Professor Martin Roth in his discussion of the papers of the second session drew attention to the fact that it is the affective changes which are more noticeable after the administration of LSD and that these should be stressed rather than any comparison with the schizophrenic states.

Several speakers discussed the types of case most suitable for LSD therapy, and there seemed some general agreement that tension states, phobic and obsessive neurosis, sexual disorders and psychopathic conditions form the bulk of cases successfully treated. Furthermore there was some agreement among speakers that the revival of emotionally charged memories of childhood as well as various abreactive phenomena, including acting-out, were important aspects of treatment. The significance of transference relationships and of suggestion led on to important contributions in the field of 'brain-washing' and hypnosis. In view of the emotional content of the subject, the reader must draw his own conclusions about the extent to which therapy with the psycholytics is related to 'brain-washing'. At times it became clear that one of the difficulties in the use of LSD arose from the therapist's very enthusiasm and affective identification with the treatment situation. This state of affairs drew comment from the analysts, whose role in the conference was that of devil's advocates rather than that of disciples to the psycholytic therapists.

That the analysts should display reserve in relation to LSD therapy became apparent when speakers described their methodology—frequently so opposed to the traditional methods of psychoanalysis. Thus, speakers insisted on the importance of a group atmosphere and of free communication between patients and therapists ; they also stressed the need for a permissive environment, for the nurses to play an active role in treatment, and for the patient to spread his trust and reliance over more than one member of the therapeutic

team. The papers on techniques of treatment reveal, however, quite wide individual variations, which indicate the need for further research in this field and which contrast with the greater certainty expressed by the analysts on questions of methodology.

In the fifth session, the last to be devoted to purely clinical topics, speakers endeavoured to comment on the significance to the therapist of the phenomena evoked by LSD. Again, LSD therapists tried to show that material evoked by LSD was a product of unconscious contents and that it could be positively integrated into the personality. The analysts appeared divided on this point, some considering the material to be a phantasy of a defensive nature, whilst others treated it as an active emergence of the unconscious life of the patient. In the ensuing discussion emphasis rested on the significance of the early years in the formation of neurotic patterns and on the significance of the transference.

In the final session an attempt was made to examine the wider implications of the hallucinogenic drugs for mankind in relation to philosophical, ethical and religious issues. It was therefore with great interest that the Conference awaited the views of a social anthropologist, a journalist, a Member of Parliament and a historian and social scientist, all of whom had themselves taken hallucinogens, on those important questions. For many this was the most thought-provoking session of all, and one that made evident the immense field for research into human dynamic psychology opened up by the insights derived from both therapy and experimental work with the hallucinogens. Similarly the Conference had earlier stressed the need for controlled clinical trials to ascertain the efficiency of LSD therapy in comparison with other and possibly less exacting forms of treatment. Despite any convictions which the reader may have that such trials are desirable, he will not fully have captured the spirit of the Conference unless he can also feel in the pages which follow an impressive sense of new adventure and discovery in the field of the human mind.

ACKNOWLEDGEMENTS

THE editors would like to place on record that the proposal to arrange a meeting on the subject of the therapeutic uses of the hallucinogens arose through the medium of the Psychotherapy and Social Psychiatry Section of the Royal Medico-Psychological Association. The notion of holding such a conference within the framework of one of the Association's quarterly meetings developed with the support which grew from investigators and clinicians in several countries, representing different disciplines. Subsequently it was wisely decided that the conference should form the principal programme of the winter quarterly meeting of the Association in London in February 1961. It is noteworthy that this is the first occasion on which the Association has devoted one of its quarterly meetings to a meeting of this kind.

The editors wish specially to record the appreciation of the Association to the distinguished doctors from overseas who attended, and read papers. Warm appreciation is due also to the eminent laymen who read papers or contributed to the discussion in the final session, and who gave a broader perspective to the whole meeting than could have been achieved in any other way.

This symposium represented a deliberate attempt to bring together widely differing psychiatric points of view. The success of the meeting can be measured perhaps by the consistent attendance throughout ; and can be assessed again by the material which is now recorded in print. The editors have made no changes in the content of the papers, or of the discussions, but some alterations have been made to achieve consistency of presentation and good English where the conversational nature of the interchange in discussion made this appropriate.

The Royal Medico-Psychological Association wishes to record its thanks to Messrs. Sandoz Products Ltd., who not only supported the Conference in the practical manner, but also made available to the Conference the results of their research work. Acknowledgements are also due to Messrs. Parke Davis and Co. Ltd., who also generously supported the meeting.

The Association suffered a deep loss during the final weeks before the Conference through the death of the Chairman of the Psychotherapy and Social Psychiatry Section, Dr. E. B. Strauss ; and a further loss through the death of one of the contributors, Dr. H. J. Shorvon, a short time afterwards.

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FIRST SESSION

"THE HISTORICAL AND PSYCHO-PHARMACOLOGICAL BACKGROUND"

CHAIRMAN: ALEXANDER WALK

THE President of the Royal Medico-Psychological Association (Dr. Alexander Walk) in opening the session, expressed the pleasure which all members felt at this new development in the scope of their quarterly meetings, which had been brought about by the enterprise of the Section of Psychotherapy and Social Psychiatry joined later by the Clinical Psychiatry Section. He welcomed participants from European countries and from America, and pointed out that this was the first time that a conference on this international scale had been held on this most fascinating and rapidly developing topic. They would know that the Association was this year celebrating the 120th Anniversary of its foundation, and it might be of interest to mention that among the very earliest papers read at its meetings were some on the effects of drugs on mental states. He would like to recall, among the pioneers of research into the subject, the name of Dr. Rouhier, who published his monograph on peyotl in 1927. One could not fail to be impressed by Rouhier's foresight in realizing the potentialities inherent in the study of this and similar drugs. Quoting from Hugo the saying, "Every plant is a lamp" he expressed the hope that this lamp might throw light on some of the unknown territories of cerebral and psychic functions. This conference would show how far the ripples from this "stone thrown into a pool" had spread up to the present time.

SYNOPSIS OF CERTAIN DEVELOPMENTS WITHIN THE FIELD OF HALLUCINOGENIC DRUGS

By A. CERLETTI

IN the second half of 1960 the study of drugs with hallucinogenic or psychotomimetic properties has achieved a new success by the discovery of the active principle of the mysterious Aztec drug, the so called *ololiuqui* or *piule*. Looking back from the point we have reached today on the development in this field, interesting observations can be made with regard to certain historical, cultural, botanical, chemical and pharmacological criteria applying to this class of drugs. In the limited time of fifteen minutes I must restrict myself to showing you some common denominators which are becoming visible.

Let us start for this purpose with a few remarks about one of the first specific hallucinogens, mescaline, which, like ololiuqui had its roots deep in the precolumbian cultures of America. Long before the modern era of psychopharmacology chemists and pharmacologists worked on the active principle of "peyotl", the dumpling cactus botanically identified as *Lophophora williamsii* or *Anhalonium lewinii*. In 1888 Lewin, one of the earliest great pioneers in psychopharmacology, called the attention of scientists to the remarkable psychic effects produced by this plant. Ten years later Heffter was able to isolate mescaline in pure crystallized form, but it was only after some twenty years that Spath elucidated its structure and proved it by synthesis. As indicated in Figure 1, mescaline, the trimethoxy derivative of phenylethylamine, could theoretically undergo cyclization to form an indole. Such a hypothesis was actually discussed some thirty years later. In the meantime little development took place and psychopharmacology as a specialized discipline did not yet exist.

This situation started to change when Hofmann's discovery in 1943 (Stoll and Hofmann, 1943) of the enormously potent hallucinogenic compound lysergic acid diethylamide or LSD became more widely known. This discovery contributed decisively during subsequent years to the development of modern psychopharmacology. In contrast to mescaline and the later discovered active principles of both the sacred Aztec mushrooms and of ololiuqui, LSD is not of natural origin, but was obtained in the course of preparing semi-synthetic ergometrine-like derivatives of lysergic acid, a constituent common to all ergot alkaloids. Without any doubt this four-membered ring system containing an indole moiety is of fundamental importance for the effects of LSD on the central nervous system.

Among several amide side chains which were studied, the diethylamino substitution has proved most effective, but several other amide derivatives show distinct psychotropic properties, as we shall see when discussing ololiuqui. The possible specific importance of the tryptamine structure included in the LSD-molecule was mainly stressed about ten years ago by the discovery of 5-hydroxy tryptamine as a normal constituent in certain brain stem areas, and on the other side by the finding that most of the peripheral effects exerted by 5-hydroxy tryptamine were blocked in the presence of LSD.

Although, as already pointed out, LSD was of semi-synthetic origin, the main part of its molecule, namely lysergic acid, was the product of the fungus *claviceps purpurea* growing as ergot of rye. It represents a case of surprising coincidence that in 1958 a mushroom (*Psilocybe mexicana, heim*) found its way

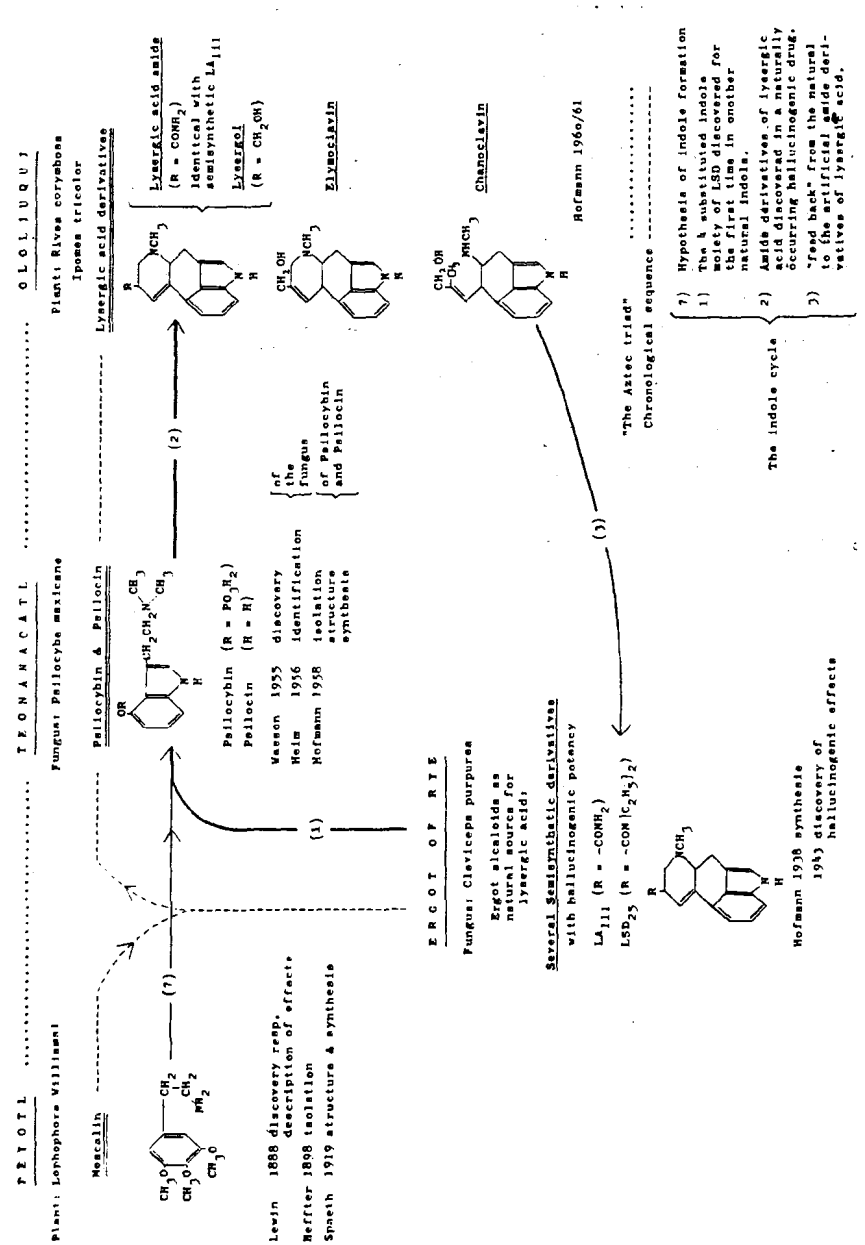


FIG 1

into the same laboratory where fifteen years before LSD had been discovered, and that the chemist was able to isolate from this source a new hallucinogenic drug, psilocybine, the structure of which was again identified as an indole derivative. Not only is this basic chemical property worth mentioning, but even more important is the finding that psilocybine as well as lysergic acid are the first examples of naturally occurring indoles with substitution in position 4 of the ring. This fact links up psilocybine very nicely with LSD, whereas the mushroom known to botanists as psilocybe and to the Indians as teonanacatl or sacred fungus comes in other respects in close connection with peyotl, the Aztec source of mescaline.

The third Aztec wonder drug which today is used as a substitute when the sacred mushrooms are not available, kept its secret until very recently. It has been known for many years that ololiuqui was identical with the seeds of *Rivea corymbosa*, a plant similar to our "morning glory", *Convolvulus ipomoea* or Moon creeper. Recent reports on the effectiveness of this plant material were however absolutely contradictory. Wasson, the discoverer of the mushroom cult in the Mexican Sierra Mazateca, was the man best qualified to obtain authentic ololiuqui material in one of his latest expeditions to the remote mountain regions in Mexico. From seeds collected by him belonging both to *Rivea corymbosa* and to *Ipomoea tricolor*, Hofmann isolated an alkaloidal fraction with an indole structure, which showed similar psychic effects to those obtained after ingestion of the raw material. It was surprising to find here the presence of an indole ring. The further steps of the structural analysis provided us with results which not only heightened this surprise, but even seemed to render it unbelievable at a first glance: amide derivatives of lysergic acid could be extracted from the ololiuqui material. Never before was it considered as probable that lysergic acid derivatives, the highly specific products of a fungus, would also be synthesized by a plant. But there is no doubt today that in the class of *Convolvulaceae* this occurs. The main two alkaloids present in ololiuqui are lysergic acid amide and isolysergic acid amide. Both had been synthesized in our laboratories many years ago, and one of them was also studied at this time with positive result as a psychotropic agent in humans. There is no time to discuss the other substances which Hofmann isolated from ololiuqui. All of them are chemically closely related to lysergic acid. For the general consideration of our survey on specific hallucinogens it is noteworthy that the basic chemical structure of the most potent agent, LSD, which itself is not of natural origin, has been found in one of the oldest natural drugs used for hallucinogenic purposes. A nicely fitting circle can thus be drawn along many points, where the different hallucinogens get in touch with each other, be it from the point of view of their chemistry or from other aspects, including the older and the more recent history of these drugs (Fig. 1).

REFERENCE

STOLL, W. A., *Schweiz. Archiv. f. Neurol. u. Psychiat.*, 1947, **60**, 1.

CONDITIONING EXPERIMENTS WITH LSD

By P. B. Bradley and B. J. Key

The effects of *d*-lysergic acid diethylamide (LSD) have been observed in animals carrying chronically implanted recording electrodes which enable changes in the electrical activity of the brain to be correlated with changes in behaviour. These experiments have shown that this drug, in small doses (15–25 μg./kg.), caused behavioural excitement and alerting of electrocortical activity (Bradley and Elkes, 1957). When the effects were compared with those of central excitant drugs, for example amphetamine, certain differences were observed. The alerting effects of LSD in both the cat and the monkey were found to be much more dependent upon environmental conditions than were those of amphetamine. Thus, whilst the alerting produced by amphetamine was just as marked when extraneous fluctuations in the surrounding environment had been eliminated, the degree of alerting produced by LSD appeared to be directly

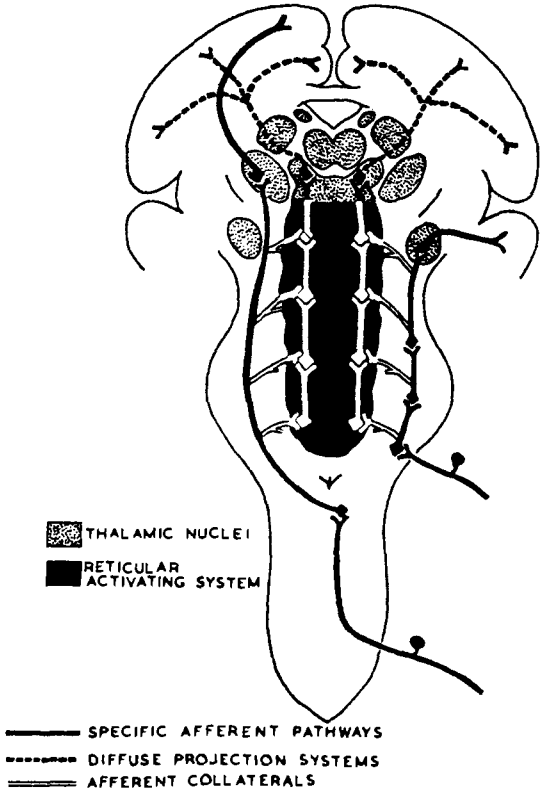


Fig. 1.—Diagrammatic representation of the specific and non-specific sensory pathways in the brain, showing the afferent collaterals related to the brain stem reticular formation.

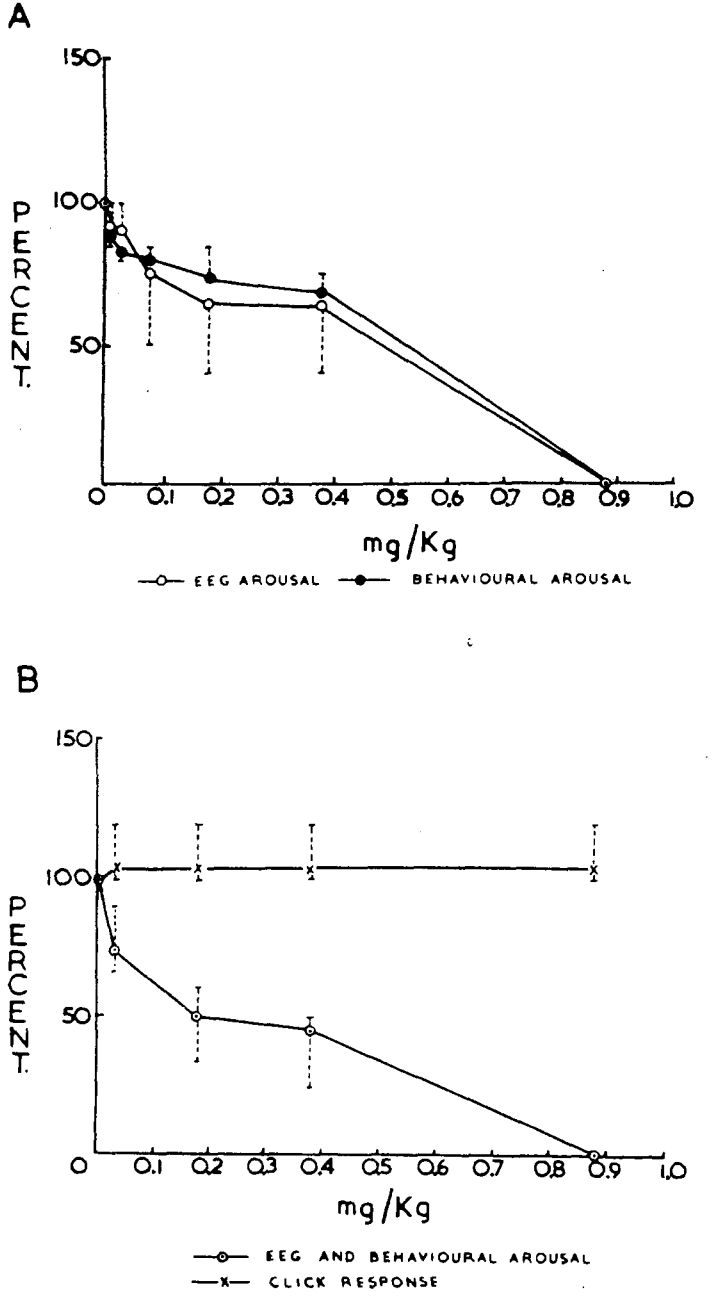


Fig. 2.—Graphs of the percentage change in arousal thresholds following increasing doses of *dl*-amphetamine. A: arousal produced by electrical stimulation of the brain stem reticular formation. B: arousal produced by auditory stimulation.

related to the amount of stimulation from the environment and was diminished when these influences were excluded. A further distinction between the effects of the two drugs was provided by the level of the transection of the brain which blocked their alerting effects on electrocortical activity. The effects of amphetamine were not altered by a high spinal section but were blocked by a transection of the mid-brain, whilst the effects of LSD were modified by the lower section, i.e. at the spinal cord.

The conclusions which were drawn from the results outlined above were that amphetamine appeared to be acting directly on receptors located in the reticular formation of the brain stem while the effects of LSD were more closely related to the influence of afferent impulses entering the reticular formation through collaterals from the sensory pathways (Figure 1).

Support for this hypothesis has been provided by the results of subsequent experiments in which the effects of drugs were examined on thresholds for arousal produced either by direct electrical stimulation of the brain stem reticular formation or by afferent stimulation (Bradley and Key, 1958). With amphetamine the thresholds for arousal produced by brain stem stimulation and by afferent stimulation fell progressively with increasing doses of the drug until the preparations became fully alert (Figure 2). This occurred at a dose level which had been found to cause alerting of behaviour and electrocortical activity in previous studies (1·0 mg./kg.). The fall in the thresholds was consistent with a direct excitant action by the drug on the reticular formation.

LSD had no effect on the threshold for direct stimulation of the reticular formation but caused a marked fall in the threshold for arousal produced by auditory stimulation and the preparations became noticeably more responsive to external stimuli (Figure 3). At the same time, the threshold for evoked responses to click stimuli recorded from the primary auditory cortex did not change.

Thus, LSD had no direct excitatory effects on the brain stem reticular formation, nor did it appear to have any effect on the responses in the sensory pathway in the doses used. Its action in these experiments was selectively related to the influence of afferent signals in causing arousal. The results are therefore consistent with the hypothesis that the drug has an action related to sensory influences on the brain stem reticular formation and not to a direct action on this system or an action on the afferent pathway itself. They are also in keeping with certain findings in a group of normal human subjects who were given small doses of LSD and in which it was found that the drug increased the responsiveness of the alpha rhythm to photic stimulation, (Bradley, Elkes and Elkes, 1953).

The assessment of the effects of drugs on thresholds for arousal, carried out in acute cat preparations of the *encéphale isolé* type, did not take into consideration the process of habituation whereby the animal learns not to respond to a continuous or repeated stimulus. Experiments designed to overcome this difficulty by the use of positive conditioning were carried out in cat preparations carrying chronically implanted electrodes (Key and Bradley, 1960). Conditioning was achieved by pairing the particular stimulus (a note from an audio-oscillator) with an electric shock delivered to the feet. Thresholds both for electro-cortical activation and for behavioural alerting were determined by increasing the intensity of the stimulus in steps until a response was obtained. Following conditioning it was found that the threshold for the conditioned stimulus

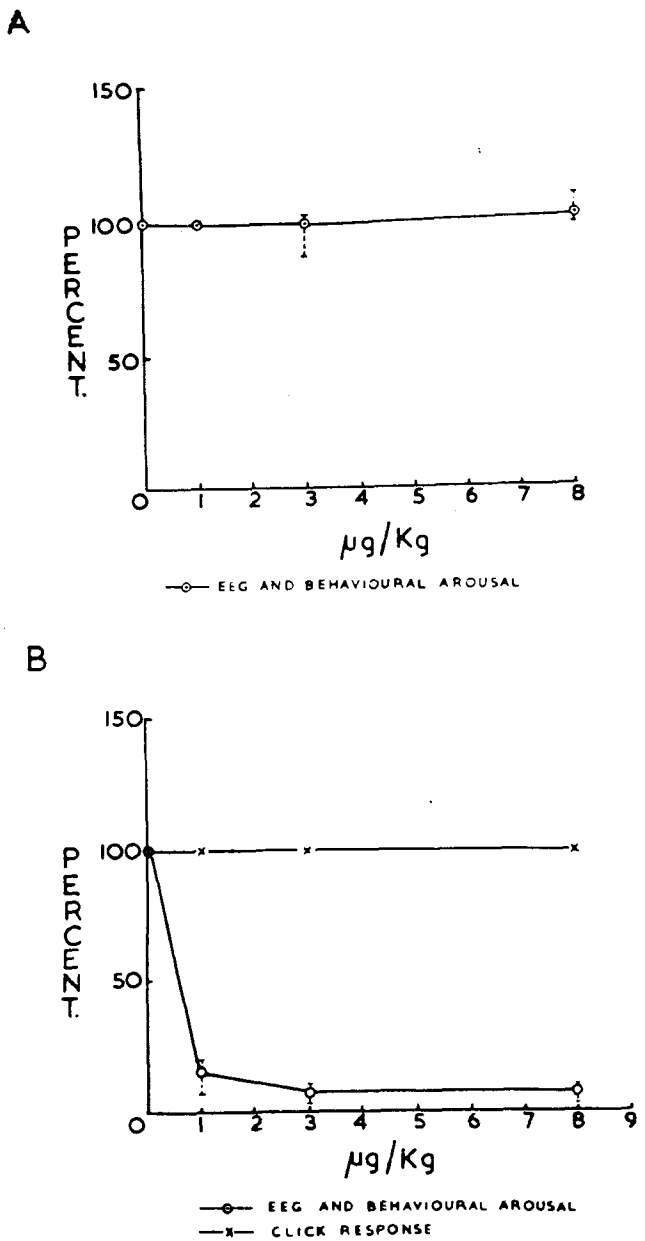


FIG. 3.—Graphs of the percentage change in arousal thresholds following increasing doses of LSD 25. A: arousal produced by electrical stimulation of the brain stem reticular formation. B: arousal produced by auditory stimulation.

remained stable and that the stimulus could be presented without reinforcement 30–40 times before extinction took place. In addition, during the conditioning trials, the arousal thresholds progressively decreased until they reached a level which appeared to be close to the threshold of hearing for the cat (Figure 4).

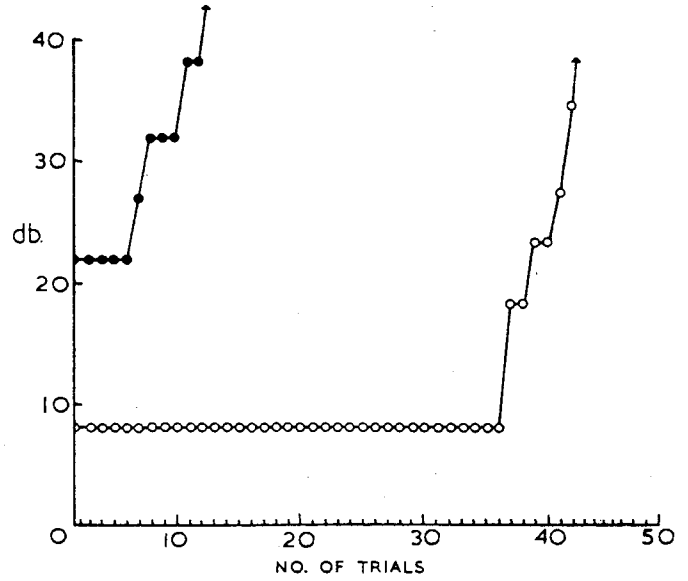


FIG. 4.—Graphs showing the effect of the continued presentation of an auditory stimulus on the threshold for arousal. Full circles: a non-conditioned stimulus (pure tone of 40 c/s). Open circles: a stimulus which had been previously conditioned (pure tone of 600 c/s).

Experiments with LSD were carried out using three different auditory stimuli (notes of different pitch). One of these was the stimulus to which the animal had previously been conditioned. The second was repeatedly presented over a short period of time before the drug was given so that the animal became habituated to this stimulus, i.e. the response was lost. The third stimulus was not conditioned and its threshold was determined immediately before giving the drug (5 μg./kg. i.p.). Following this dose conditioned arousal thresholds remained unaffected but the threshold for arousal produced by the non-conditioned or neutral stimulus fell sharply and the stimulus to which the animal had become habituated now evoked a marked response, both in terms of the behaviour and the electrical activity of the cortex (Figure 5). Moreover, the intensity of the stimulus needed to produce this latter effect was markedly lower than the original control level. This result was not obtained if an injection of normal saline of equivalent volume was given instead of the LSD.

The effect of 5 μg./kg. of LSD on the behaviour of the animal was not as marked as might have been expected from the decrease in the arousal threshold. The animals appeared more responsive to all modalities of afferent stimulation but did not become excited. Following a total dose of 10 μg./kg. there was no further change in the arousal thresholds but the animals remained alert for long periods and showed increased interest in their surroundings. This was evident from the EEG record where the incidence of movement artefact was considerably

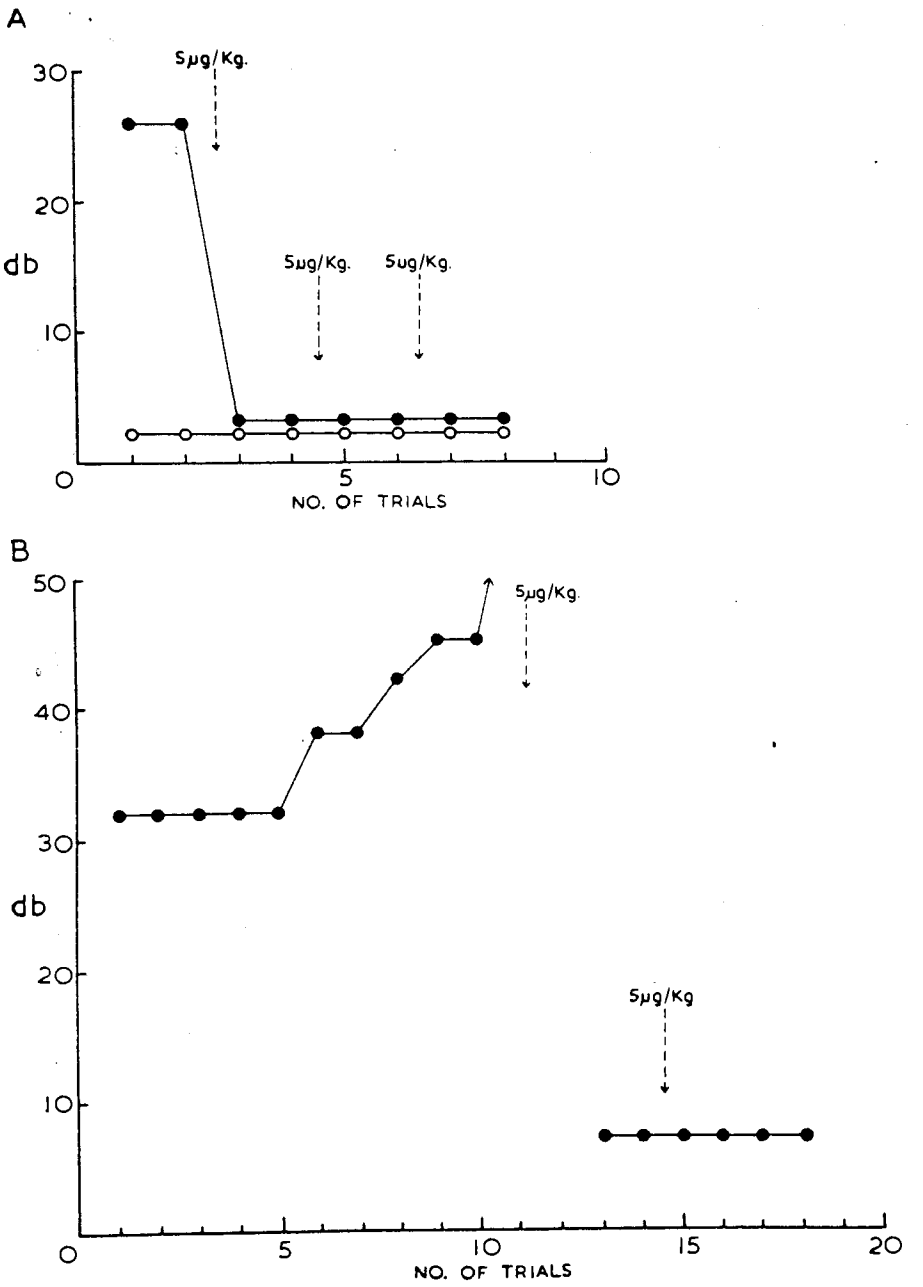


FIG. 5.—Graphs showing the effect of LSD 25 on thresholds for arousal produced by: A: conditioned (open circles) and non-conditioned (full circles) auditory stimuli and B: auditory stimulus to which the animal had become habituated. (From Key, B. J., and Bradley, P. B., *Psychopharmacologia*, 1960, 1, 456.)

increased. This effect was even more marked when the dose was increased to 15 μg./kg. but sleep activity in the EEG and the corresponding behavioural state could still be observed, if only for short periods, when all extraneous noise was reduced to a minimum. The symptoms of restlessness seemed to be dependent to a large extent on the external environment and any slight noise or movement was sufficient to arouse the animal. When the effects of the drug appeared to have reached a maximum, an auditory stimulus was repeatedly presented over a period of 1½ hours but habituation to this stimulus did not occur.

The effect of LSD on the threshold for non-conditioned arousal responses confirmed the earlier findings since these thresholds showed a marked fall when the drug was given and the animals became more sensitive to external stimuli. Probably more significant was the finding that after 5 μg./kg. of LSD, the animal responded to an auditory stimulus to which it had previously become habituated. The return of this response could not be due to dehabituation brought about by the injection or to handling since a control injection of normal saline failed to produce a comparable result.

Thus, the effects of LSD appeared to be similar to those produced by positive conditioning and it may be that the drug increases the significance level of a wide range of sensory stimuli to a level similar to that which can be achieved by the process of conditioning.

One possible explanation of the differential effect of LSD on conditioned and non-conditioned arousal responses is that the animal was no longer able to discriminate between the different sounds when this drug had been given. A further series of experiments using cats has therefore been performed to determine the effects of LSD on a conditioned avoidance response involving discrimination between two pure tones. This investigation has shown that the drug did not produce any significant change in the ability of the animal to distinguish between auditory stimuli, in terms of the physical parameters of stimulation (Key, 1961b). However, it did affect the rate of extinction of a conditioned barrier crossing response and also the rate of habituation of a non-conditioned arousal response (Key, 1961a)—both being consistent with the hypothesis that LSD produces an increase in the significance level of sensory stimuli as already suggested.

In summary, our findings, both from electrophysiological and conditioning experiments with LSD suggest that the drug has a site of action closely related to the neurophysiological mechanisms concerned with the filtering and integration of sensory information. We further suggest that the way in which this takes place is through an action selectively related to sensory influences on the diffuse systems of the brain and especially the arousal system at the brain stem level (see Figure 1). Such influences probably reach the reticular formation through collateral branches from the lemniscal pathways and the action of LSD could be related either to the collaterals themselves and the region of the brain stem in which they terminate or to the so-called "down-stream" influences which the reticular formation is thought to exert on the sensory pathways. If we accept the hypothesis that the ascending reticular system not only controls levels of wakefulness and sleep but also, through diffuse pathways, controls or modulates the functional level of activity of other parts of the brain, then an action by LSD on this system in the manner outlined above could account for

many of the effects produced by this drug in man. Thus, the distortions of sensory perception which occur in drug-induced hallucinatory states could be explained by such a mechanism of action, as can the increased accessibility which appears to be responsible for the use of LSD in psychotherapy.

References

BRADLEY, P. B., and ELKES, J., "The Effects of Some Drugs on the Electrical Activity of the Brain", *Brain*, 1957, **80**, 77–117.

BRADLEY, P. B., ELKES, C., and ELKES, J., "On Some Effects of Lysergic Acid Diethylamide (LSD 25) in Normal Volunteers", *J. Physiol.*, 1953, **121**, 50.

BRADLEY, P. B., and KEY, B. J., "The Effects of Drugs on Arousal Responses Produced by Electrical Stimulation of the Reticular Formation of the Brain Stem", *EEG Clin. Neurophysiol.* 1958, **10**, 97–110.

KEY, B. J., "The Effects of Chlorpromazine and Lysergic Acid Diethylamide on the Rate of Habituation of the Arousal Response", *Nature*, 1961a, **190**, 275–277.

KEY, B. J., "The Effect of Drugs on Discrimination and Sensory Generalization of Auditory Stimuli in Animals", *Nature*, 1961b. In preparation.

KEY, B. J., and BRADLEY, P. B., "The Effects of Drugs on Conditioning and Habituation to Arousal Stimuli in Animals", *Psychopharmacologia*, 1960, **1**, 450–462.

MESCALINE AND HUMAN THINKING

By PETER MCKELLAR

A SUBSTANTIAL period of time divides the civilization of the Aztecs from the beginning of this conference. In this period much mescaline has been consumed. It has been used for two purposes. First, the Aztecs, Mexican Indians, and others, have employed it to induce mystical experiences. Secondly, since Prentiss and Morgan (1895), psychiatrists, psychologists, and others have used it experimentally to produce altered mental states, or model psychoses in the hope that study of these would assist understanding of natural psychoses. Thus mescaline may well provide insight into two kinds of human thinking: those we call mystical, and those we call psychotic. There is a third possibility which may also be kept in mind. Mescaline and other hallucinogenic drugs may alert people to notice things that are going on all the time in normal mental life. Typical human thinking is less characterized either by realistic assessment of evidence, or by sustained acts of logical inference than is often supposed. Mescaline provides a useful technique for amplifying and caricaturing deviations from realism. These deviations are by no means uncommon in everyday thought. Elsewhere I have argued that many more observations need to be made of the actual phenomena of human thinking, in all their variety, before an overall theory of thinking can be formulated (McKellar, 1957). It will be argued that some of these observations can more easily be made with the mescaline type of experiment. I shall thus discuss the use of such experiments in the study of the phenomena of human thinking, both normal and abnormal. If anybody recognizes his own mental life in the phenomena to be described I hope he will not assume that he is being accused either of psychosis or mysticism, but perhaps only of normality.

I now turn to some of the kinds of observations that can be made. After administration of mescaline the subject's intellectual standards begin to exhibit deterioration. His thinking becomes more loose and slipshod. There is a weakening of the forces of control which direct his thought towards logic and evidence. Nitrous oxide, like alcohol, produces rather similar changes. During experiments on himself with nitrous oxide, William James (1896) wrote down a number of statements which seemed, at the time, to embody profound truths. He was less happy about their profundity when he returned to normal. One thing he wrote was:

> "There are no differences, but differences of degree between different degrees of difference and no difference."

I tried out this dark statement upon one subject who was inclined to react mystically during a mescaline experiment. She was most impressed, and declared, very seriously: "That's either utter nonsense, or it's so true that it's almost the only thing worth saying". This all-or-nothing kind of thinking is very typical of mescaline and other forms of intoxication. I would submit that sober realistic thought accepts a fairly wide scale of alternatives between the extremes of "profound truth" and "utter nonsense". Moreover it is interested in its gradations. This discriminative reaction departs with mescaline, which permits greater toleration of such incompatibilities and much crudity of thought

generally. The differences between the mescaline subject and his normal self can be examined in these terms. I invited another subject to tell me what questions he would sooner answer tomorrow (on return to normality), and what questions he felt better able to answer today (under mescaline). He replied, making reference to philosophy, that tomorrow he would be better able to give an account of what the philosopher Kant had actually said about time, but today he understood better what Hegel really meant.

Along with this weakening of capacity for discrimination and critical thinking, may go a tendency for association to intrude upon reasoning. A mescaline subject may experience a sort of sub-vocal flight of ideas. These ideas are highly autonomous in that the subject has little control over either their sequence or content. As a result his responses can have remarkably little reference to the task he is set. For example, his reply may be to a question of his own which is associatively linked with the question he has in fact been asked. Something rather similar occurs in the schizophrenic psychoses, though with the important difference that with patients it is difficult to obtain introspective reports on what has happened. Such reports are available in mescaline experiments. As one of our subjects said, "between the stimulus and your (own) response there's a great deal of traffic that doesn't come to the surface". The strange connections, or seeming absences of connection, that can occur in schizophrenics have sometimes been likened to the move of the knight—which jumps over the intervening square—in a game of chess. In mescaline experiments introspection reveals some of the ways in which knight's move thinking can occur. Of the schizophrenic Bleuler (1911) remarks, "the patients may lose themselves in the most irrelevant side associations". Under mescaline some subjects do just this, and the result is either knight's move thinking or long periods of silence. Thus one of our subjects exhibited blockage when asked to explain in what way a dog and a lion are similar. Eventually it emerged that she was in difficulty because she was not sure whether the sex of the animals was involved or not. Did we mean "dog" in the generic sense, or "dog" in the purely masculine sense as opposed to "bitch"? Part of the intellectual malfunctioning which occurs with mescaline seems to involve a weakening of the ability to inhibit irrelevant side associations. It is upon such inhibition that normal reasoning depends.

Much attention has been paid to the psychotic's tendency to think concretely, and to his loss of ability to abstract. Rivers (1923) has emphasized similar tendencies towards concretization in dreams, and Silberer (1909) has studied hypnagogic imagery from the same standpoint. Thinking with mescaline also tends to become more concrete. Thus one of our subjects was asked to interpret the "bird in the hand" proverb. Only after 172 seconds did any reply come. During this period the subject was intensely preoccupied with a concrete visual image. Eventually she said, "I could draw the bird . . . it's a beautiful bird, but it doesn't help me to tell you". Sometimes it was hallucinations rather than images which tempted our subjects away from answering the questions asked. It is easier to have imagery than to answer questions. What Silberer said of the concretizations of hypnagogic thinking seems to apply here also: "the tired consciousness, not having available to it the energy necessary . . . switches to an easier mode of mental functioning". Many of the forms of thinking prominent in mescaline intoxication exhibit this quality. On the whole they tend to be easier forms of mental functioning than some more reality-adjusted alternative.

Among other kinds of thinking of interest to psychiatry are those associated with delusion. In this connection I would like to make a distinction between full belief, and something short of this which might be called half-belief. Half-belief types of delusion are very much commoner in mescaline experiments, than those of the full belief kind. As subject in one experiment I interpreted my own inco-ordination and general clumsiness through the distorting haze of the half-belief that I was influenced by new gravitational forces. These operated on me upwards and diagonally towards the corners of the ceiling of the laboratory. Some subjects exhibited half-belief or full belief identifications of themselves with a variety of improbable objects, i.e. a table. These exaggerated forms of empathy with inanimate things occur quite frequently in poetical forms of thought, though some distinction between "I feel as if I were" and "I am" is maintained by poets, as it usually was by our mescaline subjects also. Retention of this "as if" and lack of a tendency to confuse analogy and identification seems to be one of the hallmarks of insight and sanity.

Less insight was apparent in the case of persecutory interpretations of neutral events. Thus during lunch one experimenter turned and spoke to another. The subject interpreted this as a message to her "you get on with your soup". Ideas of self reference and persecution accounted for periods of silence in some cases. Thus afterwards one subject explained a prolonged period of silence by saying that at the time it seemed to him that anything he said, even answering a simple question about the colour of a test object, would have revealed his innermost secrets to the experimenters. So he said nothing. Only later in the day did he regain the ability "to go dumb selectively". Ideas of reference represented only one of the reasons for long silences on the part of the subjects.

I shall now turn to this question of communication more generally. Failures of communication with mescaline subjects, as with psychotic patients, are of two kinds. Either the subjects says nothing, or what he says is liable to misunderstanding. There are a wide variety of psychological processes which may give rise to either. Additional reasons for silences include either absence of associations on the one hand, or too many associations on the other. Alternatively the subject may be preoccupied with fantasy, imagery, and hallucination. He may even think he has communicated about them when in fact he has said nothing. Other sources of difficulty include lapses into mystical forms of communication and (Mr. Aldous Huxley has given us a few specimens) unreasonable dogmatism or literal-mindness, and perseverative reactions of a variety of kinds including labouring the obvious. As in alcoholic intoxication the subject would explain at great length what he is not saying, when his audience would not in any case dream of suspecting he was saying it anyway.

Few of those who have taken mescaline, LSD or other such drugs, have found the experiences easy to communicate. As one of our subjects remarked, she usually meant something quite different from what other people would understand her to mean. Difficulties can arise from the very complexity of the imagery, hallucinations, and other phenomena. In some of the best introspections with which I am acquainted Weir Mitchell (1896) emphasizes the beauty, complexity, and strangeness of typical mescaline imagery. In any case visual experiences are not easy to describe in words. When they are unexpected in their content, highly complex, rapidly changing, and so foreign to one's personality that they hardly seem to be productions of one's own mental life

at all it is not surprising that they have sometimes been interpreted mystically as glimpses of some other world. Nor is it surprising that subjects sometimes have resort to neologisms in their attempts at communication. One of ours declared, "I have drawn on every concept I know, and all have failed me". Another said, "I might as well have been sitting here saying, 'ga, ga, ga' for all I'm managing to get across". It is of some interest to note that Curran and Guttman (1944) say in their textbook that the neologisms of schizophrenia "usually result from the patient's urge to describe his experiences, for which purpose an ordinary vocabulary is inadequate". Neologisms are of two kinds. Some are invented words, thus one of our subjects coined the word "quadrupus" to describe one of her hallucinations. Others are everyday words employed in a peculiar and idiosyncratic way, as when one of our subjects decided to use the word "pink" in place of bright red, and didn't enlighten us about this till afterwards.

Mescaline experiments provide opportunity for observational and introspective study of a wide variety of phenomena of human thinking, both normal and abnormal. Time does not permit me to mention synaesthesia, and the use of mescaline in the investigation of this variant of human thought (Simpson and McKellar, 1955). In these experiments we can study crude all-or-nothing thinking; intrusions of association; preoccupations with inner subjective fantasy, imagery and hallucination. We encounter delusional thinking, animism, peculiarly exaggerated forms of empathy, and even neologisms. The imagery of mescaline intoxication is typically vivid and visual; it may be extremely beautiful and exceedingly difficult to communicate. Failures of communication arise from a wide variety of subjective conditions, and mescaline experiments offer some excellent opportunities to study these.

Much of what I have said may well apply to other hallucinogenic drugs, particularly LSD; and to other situations, for example the hypnagogic state and sensory deprivation experiments (Ardis and McKellar, 1956). I have sought to show that although mescaline experiments perform other functions, we should not neglect their use in the investigation of the phenomena of human thinking.

Summary

This paper is concerned to illustrate the way in which mescaline experiments may be used in studying the phenomena of human thinking, both normal and abnormal:

1. Psychotic, mystical and normal thinking.
2. Deterioration of intellectual standards.
3. Associative thinking.
4. Concretization.
5. Delusions: belief and half-belief. Ideas of reference.
6. Problems of communication.

References

ARDIS, J. A., and MCKELLAR, P., *J. Ment. Sci.*, 1956, **102**, 426.

BLEULER, E., *Dementia Praecox.*, 1911. Internat. Univ. Press, edition 1950.

CHOLDEN, L. (ed.), *Lysergic Acid Diethylamide and Mescaline in Experimental Psychiatry*, 1956. New York and London: Grune and Stratton.

CURRAN, D., and GUTTMANN, E., *Psychological Medicine*, 1944. Edinburgh: Livingstone.
JAMES, W., *The Will to Believe and Other Essays*, 1896. New York: Longmans.
MCKELLAR, P., *Imagination and Thinking: a Psychological Analysis*, 1957. London: Cohen and West.
MITCHELL, S. W., *Brit. Med. J.*, 1896, **11**, 1625.
PRENTISS, D. W., and MORGAN, F. P., *Anhalonium lewinii* (Mescal buttons), *Therap. Gaz.*, 1895, **19**, 577.
RIVERS, W. H. R., *Conflict and Dream*, 1923. London: Kegan Paul.
SILBERER, H., *Report on a Method of Eliciting and Observing Certain Symbolic Hallucination Phenomena*, 1909. Reprinted in RAPAPORT, D. (ed.), *Organization and Pathology of Thought*, 1951, 195–233. New York: Columbia Univ. Press.
SIMPSON, L., and MCKELLAR, P., *J. Ment. Sci.*, 1955, **100**, 422.

THE MODE OF ACTION OF MESCALINE

By J. R. SMYTHIES

THE subject of this paper is the mode of action of mescaline. And the first point to be made is that we know almost nothing about this. A few biochemical tests have been carried out. For instance Quastel and Wheatley (1933) showed that it inhibits the metabolism by the brain of glucose, lactate, pyruvate and glutamate, but not succinate. However phenylethylamine, which as far as I know is not hallucinogenic, and skatole were also active in this way. More recently Lewis and McIlwain (1954) have shown that mescaline at 10^{-3} Molar did not have much effect on the respiration of slices of guinea-pig brain in glucose/saline media but it did inhibit the increment of extra respiration produced by electrical stimulation. Some most interesting experiments have been done by W. and K. Block and Pazig (1952). Using mescaline labelled with radioactive C^{14} they found that only small amounts of the drug ever reached the brain, and the bulk of it went to the liver where a small proportion of it was actually incorporated in liver protein. They suggested that mescaline itself was not the active agent but that this might be some mescaline-protein complex. It is difficult to see however how such a complex could cross the blood-brain barrier. Alternative hypotheses may be made that the mescaline may act via some metabolite, or that it interferes in the liver with the detoxication of some endogenous compound with the resultant production of some abnormal toxic metabolite. However, not much seems to be known about the metabolism of mescaline in the human. In some animals, i.e. dog and rabbit, most of it is turned into trimethoxyphenylacetic acid which must surely be inactive. In humans Stevenson and Makrach (1959) claim to have found this compound as a metabolite. Harley-Mason, Lairds and Smythies (1958) however could not find any. In these experiments 35% of the mescaline was recovered unchanged, and a small proportion was excreted as 3-methoxy-4-5-dioxyphenylethylamine: the rest was unaccounted for.

Another way of investigating the mode of action of a drug is to carry out studies of structure-activity relationships. That is to say one determines the structural features of the molecule that are necessary for its action or actions. It may be expected that mescaline operates by attachment at some receptor site. As Ansell (1959) says, "Drugs may affect cell permeability, enzymic processes or, by virtue of configuration, attach themselves to particular structures, thereby causing interference with a variety of metabolic processes." Thus mescaline may interfere with some enzyme by competing with its natural substrate or it may interfere with the action of some co-enzyme or of some central transmitter substance. The knowledge of the necessary configuration of the mescaline molecule may throw some light on these problems. A study of the literature of the structure-activity relationships of mescaline reveals that very little is known about this either. Luduena (1957) ingested 550 mg. of N-dimethyl mescaline with no apparent effect, in interesting contrast to the hallucinogenic activity of dimethyl tryptamine. Alles (1957) has reported that 3–4 methylenedioxyphenylethylamine is hallucinogenic and Peretz, Smythies and

Gibson (1955) have shown the same for trimethoxyphenylisopropylamine which is trimethoxy amphetamine. More recently Smythies and Levy (1960) have tested some mescaline analogues with a rat-learned behaviour test. The rats were timed to climb up a rope under hunger-drive and the time taken to do so was measured before and after the drug. It was found that the loss of the methoxy group in the 5-position of mescaline reduces the activity of the drug by half. The replacement of the methoxy group in the 4-position by a hydroxyl group abolishes all activity and its replacement by a benzyloxy group increases activity. This problem now needs working out in systematic detail using other such tests as well as tests in the field of biochemistry and neuropharmacology. Most of the work of the action of hallucinogenic drugs on the electrical activity of the brain has been carried out by Purpura, Evarts, Bishop and others using LSD. However some work has been done with mescaline. Earlier results were conflicting. Marazzi and Hart (1953) reported that mescaline inhibits the post-synaptic component of the transcallosal response. On the other hand Rovetta (1956) found that mescaline applied topically to the cortex increased the amplitude of the optic evoked response. More recently we have done some work at the Worcester Foundation (Smythies, *et al.*, 1960) on the effect of mescaline on the optic evoked potential in the cerebral cortex of the unanaesthetized rabbit (Fig.

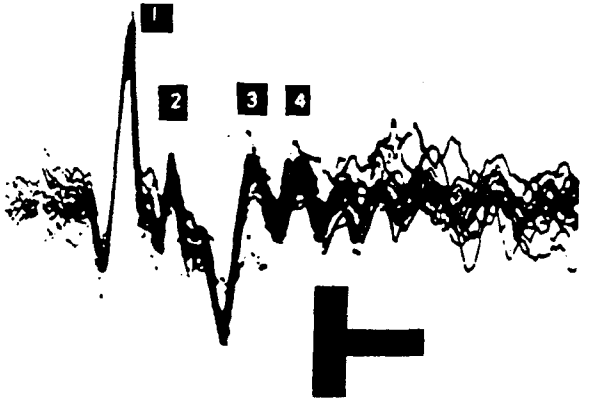


FIG. 1.—The optic evoked potential in the unanaesthetized rabbit. Calibration: 200 μv: 25 m.sec. Negativity upwards.

1). The rabbits were prepared with indwelling silver wire electrodes resting on the optic cortex. The potentials evoked by flashing a light in the eye were amplified and photographed in the usual manner. To start the experiment the optic evoked responses to twenty light flashes (each at six seconds intervals) were photographed. Then the injection was given into an ear vein and the recording was continued for the next thirty sweeps divided at intervals of measurement into three runs of ten sweeps each. Then further runs each of twenty sweeps were photographed every ten minutes for an hour and then half-hourly for another hour. Four doses of mescaline were used 5, 10, 20 and 40 mg. per kg. together with saline controls.

The optic response observed under these conditions (Fig. 1) consists of an initial biphasic wave, first positive then negative, followed by a slow diphasic swing upon which there are superimposed a series of faster waves labelled 2, 3 and 4 in the figure. For the quantitative evaluation of these waves we measured

the peak to peak amplitude and then means and standard deviations were calculated. Each point on the curves represents the result of either 60 or 120 measurements. These scores are expressed as per cent. changes of the mean of the twenty initial control runs.

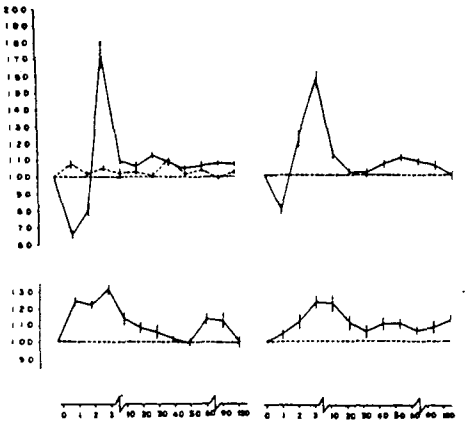


FIG. 2.—Abscissa: time in seconds: ordinates: percentage change in amplitude of potential. Wave 1, upper left: 40 mg./kg. (dotted=saline control). Upper right: 20 mg./kg. Lower left: 10 mg./kg. Lower right: 5 mg./kg. Standard deviations shown.

The effects of the mescaline are different for each wave in the response. The results for wave one are shown (Fig. 2). Doses of 5 and 10 mg./kg. caused a moderate degree of potentiation of the first wave maximal at the third minute after injection, With the 20 mg./kg. dose an initial inhibitory phase appeared lasting for one minute and this was more marked and lasted longer with the 40 mg./kg. dose.

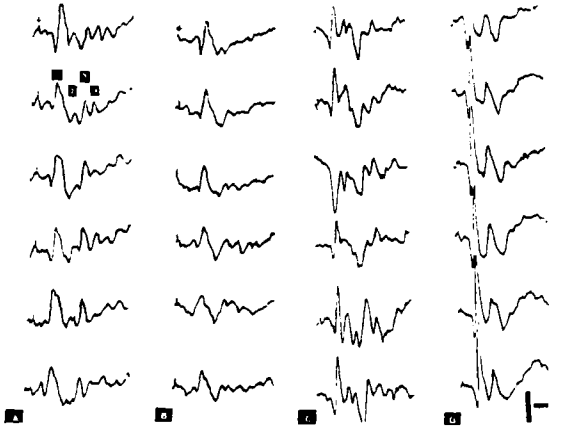


FIG. 3.

Figure 3 shows the individual responses (read from below up). Column A shows the last six runs of the control run immediately before injection. Column B shows the six runs immediately after the end of the injection. This

was a dose of 20 mg./kg. Notice the inhibition of all the waves. Column C shows the control run of another rabbit and column D shows the state of affairs three minutes after the end of the injection. Notice the great potentiation of waves 1 and 2 and the inhibition of waves 3 and 4. Notice further that the great variability in the form of the normal response (seen in this rabbit but not in the first rabbit) has been replaced by waves of very stereotyped form.

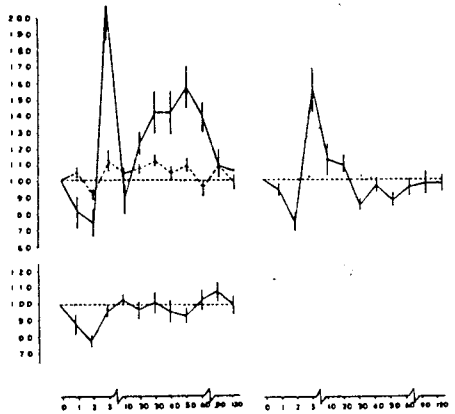


FIG. 4.—As Fig. 2 for wave 2.

Figure 4 shows the reaction of wave 2. This followed the same general pattern as was observed for wave 1. However the threshold dose for the initial inhibition was lower appearing at 10 mg./kg. whereas for wave 1 it only appeared at the 20 mg./kg. level. Furthermore at the 20 mg./kg. level it lasted for two minutes as compared with only one for the first wave. The subsequent potentiation had on the other hand a higher threshold since it did not appear at all at 10 mg./kg.

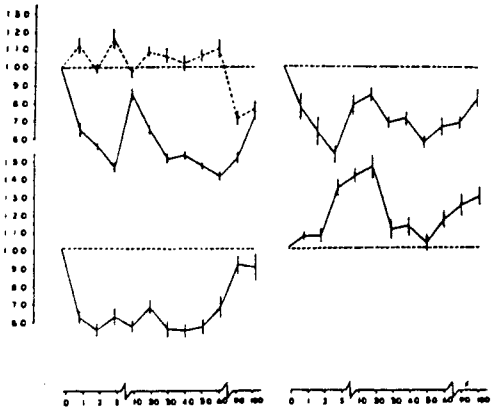


FIG. 5.—As Fig. 2 for waves 3 and 4.

Figure 5 shows the results for waves 3 and 4. As these waves always responded in the same way their measurements were pooled. These waves continued the same trend as was noticed when we compared waves 1 and 2, i.e.

the inhibitory component becomes progressively dominant. A possible potentiating component appeared between ten and twenty minutes after injection but it was not powerful enough to overcome the general inhibitory trend and appears merely as a hump in the downward curve.

One object of this study has been to find a suitable measure of the neurophysiological effects of mescaline that may be used as a base line in the structure-activity relationships of its analogues. Figure 6 shows the dose-response curve and suggests that the potentiation of the surface negative wave of the primary response during the third minute after injection, i.e. during its maximal period, offers a suitable way of doing this since we get a good straight line.

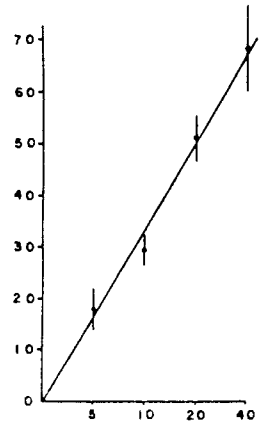


FIG. 6.—Abscissa: dose of drug in mg. Ordinate: mean increase of amplitude of wave 1 during 3rd minute after injection of drug.

To summarize, large doses of mescaline cause an initial inhibition of the responses and an increase in latency followed by a facilitation and decreased latency. The relative proportion of the two effects and the dosage level of the change-over point are different for the different waves of the complex response. In general the later waves are progressively more susceptible to the inhibitory effect and less susceptible to the facilitatory one. Waves 2 and 4 may represent successive cycles around a reverberating pathway, for example, through the reticular formation, and/or the effect of impulses arriving over different pathways. Accordingly the inhibitory effect of mescaline may fall more heavily on multisynaptic pathways or it may preferentially affect the pathways responsible for the later responses. However little is known about the physiological mechanisms responsible for these late waves so speculation as to the site or mode of action of mescaline would not be fruitful at this stage.

Figures 1–6 are reproduced by kind permission from the *Journal of Pharmacology and Experimental Therapeutics*, 1960, **129**, 462.

REFERENCES

ALLES, G., in: *Neuropharmacology*. "Transactions of the Fourth Conference", 1957. New York: Josiah Macy, Jr. Foundation.

ANSELL, G. B., in: *Neuro-psychopharmacology* (eds. Bradley, P. B., Deniker, P., and Radouco-Thomas, C.), 1959. Amsterdam: Elsevier.

BLOCK, W., BLOCK, K., and PAZIG, H., *Hoppe-Seyl. Z.*, 1952, **290**, 230: **291**, 119.
HARLEY-MASON, J., LAIRDS, A., and SMYTHIES, J. R., *Confin. Neurol.*, 1958, **18**, 152.
LEWIS, J. L., and MCILWAIN, H., *Biochem. J.*, 1954, **57**, 680.
LUDUENA (quoted by ALLES, G.).
MARAZZI, A. S., and HART, E. R., *EEG Clin. Neurophysiol*, 1953, **5**, 317.
PERETZ, D., SMYTHIES, J. R., and GIBSON, W. C., *J. Ment. Sci.*, 1955, **101**, 317.
QUASTEL, J. H., and WHEATLEY, A. H. M., *Biochem. J.*, 1933, **27**, 1609.
ROVETTA, R., *EEG Clin. Neurophysiol*, 1956, **8**, 15.
SMYTHIES, J. R., and LEVY, C. K., *J. Ment. Sci.*, 1960, **106**, 531.
STEVENSON, J., and MAKRACH, L. C., *J. Nerv. Ment. Dis.*, 1959, **129**, 177.

DISCUSSION

Openers: E. Marley and G. Leyton

Dr. E. MARLEY (London): Dr. Cerletti opened tonight with a synopsis of certain developments within the field of hallucinogenic drugs. It is salutary to remember that two substances, both sympathomimetic amines and of importance to psychiatry, namely adrenaline and mescaline, were isolated and identified before the turn of the century. This was before Barger and Dale's classical paper on the chemical structure and sympathomimetic action of amines (Barger and Dale, 1910). Although Barger and Dale tested a large number of amines they did not study mescaline nor for that matter any of the methoxy derivatives of phenylethylamine. At the time, Laidlaw, a colleague of Dale's, published an account of the physiological action of indolethylamine or tryptamine (Laidlaw, 1912) mentioning some of its effects on the central nervous system. Barger's monograph on "Ergot and Ergotism" appeared in 1931 and included descriptions of the mental phenomena associated with ergotism. Ergot contains a large number of alkaloids all of which are polypeptide derivatives of lysergic acid. Rothlin in his review of the pharmacology of the lysergic acid derivatives (Rothlin, 1957) tells of the pharmacological examination of the diethyl amide derivative (LSD) in 1936. However, its effect on mental function went undetected until 1943, when Hofmann inadvertently ingested a minute quantity. Two different chemical types of hallucinogen were therefore known. Interest had been re-awakened in the tryptamines, intermediate structurally between the phenylethylamines and lysergic acid, and the hallucinogenic effect of a third type of substance a tryptamine analogue, bufotenine (N-dimethyl 5-hydroxy-tryptamine) was noted by Fabing in 1956, and of the dimethyl and diethyl tryptamine homologues by Szára in 1957.

The structure of these three types of compound is shown (Figure 1). Mescaline has methoxy groups in the 3-, 4-, 5-positions on the aromatic ring of phenylethylamine (Figure 1A). Tryptamine (Figure 1B) differs from the phenyl-ethylamines by the intrusion of the pyrrole ring between the benzene nucleus and the ethylamine side-chain, and lysergic acid (Figure 1C) has the indole nucleus together with an N-methyl quinoline super-structure. With LSD, an N-diethyl substituent replaces the acidic moiety.

Mescaline is perhaps the most curious of the phenylethylamines. Almost all the sympathomimetic amines either by an indirect or a direct action produce a rise in blood pressure. Isoprenaline is an exception in that it is hypotensive. Mescaline in some species has no effect on the blood pressure; in others, it causes a reflex fall of blood pressure. Its effect on electrocortical activity also differs from that of the other phenylethylamines, all of which in the absence of –OH substituents on the side-chain or nucleus produce electrocortical and behavioural alerting in the species so far tested from birth or soon afterwards (Key and Marley, 1961). In the important paper by Bradley and Elkes (1957) on the action of some drugs on the electrical activity of the brain, mescaline was shown to produce not alerting, but rhythmic 4–6 c./sec. high voltage activity in the electrocorticogram associated with a stuporous behavioural state in which the animals did not respond to customary sensory stimuli. The effect of methoxamine (methoxy-substituents in the 2-, 5-positions on the benzene ring) differed from that of mescaline but was similar to that of other phenyl-

ethylamines (E. Marley and B. J. Key, unpublished). However, the mescaline effects on behaviour and electrocortical activity were similar to those of a number of tryptamine homologues examined (P. B. Bradley and E. Marley, unpublished) and a similar but much lower voltage type of rhythmic activity has been found in the electroencephalograms of men given N,N-diethyltryptamine (Böszörményi, *et. al.*, 1959).

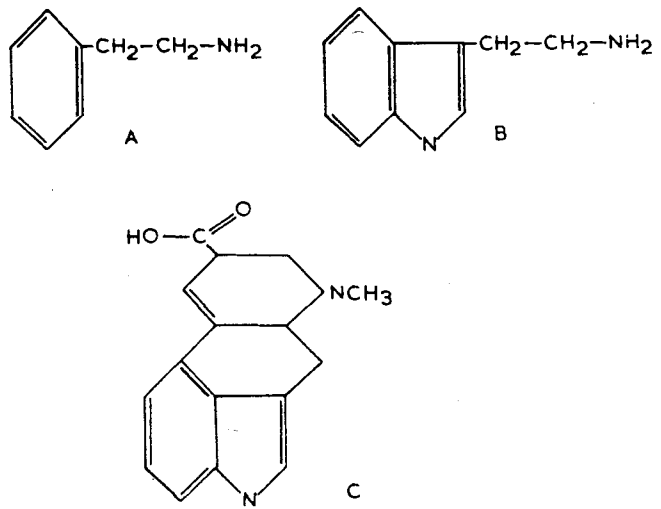


FIG. 1

Dr. Bradley has mentioned experiments that he and Dr. Key have performed in an attempt to differentiate the site of and mode of action of LSD. Particularly pleasing was the development from the general theme (that amphetamine acts directly on the reticular formation whereas the effects of LSD were more closely related to the influence of afferent impulses entering the reticular formation through collaterals from the sensory pathways) to its present form that LSD interferes selectively with processes concerned in habituation or negative learning, and the relation of this to the changed significance of the stimulus to the animal. It must be very satisfying to see work translate from the cellular to the behavioural level. If I were to hazard a guess, I should say that mescaline may prove closer in its action to LSD in such sort of tests than to its much nearer chemical congener, amphetamine. At the moment it would seem that the mechanism of action of the tryptamines is not similar to that for LSD, for the tryptamines have a direct action on the brain-stem, and in contrast to LSD elevate the threshold for electrocortical arousal elicited by electrical stimulation of the brain-stem reticular formation. There is an important proviso with regard to the application of such data derived from animals to man. That is that for adult animals at least, generalizations of drug action can be made from species to species as to the effects of the sympathomimetic amines (and this includes man) but similar application may be erroneous for the indole substances.

Dr. Smythies discussed experiments with mescaline. He rightly points to the importance of structure-activity studies, a stricture that is particularly important if it is hoped to incriminate some hallucinogen that might occur in the body. The relevance of this approach is put tersely by Barger and Dale (1910) who say, "the distinction drawn between the action of a hormone and that of a compound foreign to the body, but producing similar effects, breaks down inevitably when a continuous series (of compounds) is available (for testing)". Dr. Smythies (Smythies and Levy, 1960) also points to the anomalous neglect of the structure-activity relations of mescaline. This is all the more odd when it is recollected how long mescaline has excited interest. Smythies and Levy found with the test they used that there was a 50 per cent. loss of activity if the methoxy group in the 5-position on the mescaline molecule was removed. The replacement of the 4-methoxy group by a hydroxyl group eliminated activity, and replacement by a benzyloxy group increased activity. Reti (1950) has stated that the "slightest structural changes destroy the typical effects of mescaline".

It seems vital to appraise the significance of the various substituted indoles, a task that has been to a large extent accomplished for the phenylethylamines. I was intrigued to hear from Dr. Cerletti of the importance of the 4-position with the indoles for the possession of hallucinogenic properties. 5-Hydroxytryptamine is well known, although its importance as a substance gaining access to the central nervous system has probably been exaggerated. If, as is believed, the lipoid solubility of a substance is an essential determinant for its access to the central nervous system, it would be expedient to remember that 5-hydroxytryptamine (5-HT) has one-twentieth of the lipoid solubility of tryptamine (Vane, 1959). This is due to the presence of the un-ionized ring hydroxyl in the 5-position, for another 5-substituted indole (5-methoxy α-methyl tryptamine) was the most potent of a series of indoles tested on spinal reflexes in the cat (E. Marley and J. R. Vane, unpublished). Central potency and hallucinogenic properties may not of course parallel one another.

Dr. McKellar has talked in coruscating detail, emphasizing the effect of mescaline on thought rather than its hallucinogenic properties. The effect of a drug in man is the final and most important arbiter to the clinician. While there is no molecular specificity for drugs that produce toxic psychoses and hallucinations, there is specificity thus far anyway for those substances that produce the so-called "model psychoses". The disturbance in mental functioning produced by mescaline is very similar to that seen with LSD, and from the work of Böszörményi *et al.*, 1959, would appear to be similar to that caused by N,N-dimethyl and N,N-diethyl tryptamine.

This then is a paraphrasis of what we have heard tonight, with some of my own embellishments. If one might plagiarize the sentiments of Queen Elizabeth I when in prison, "Much suspected, nothing proved", the same situation exists with regard to a molecule about to be arraigned as a suspected causal agent of psychosis. It may be said in their extenuation that mescaline and LSD are plant products and that near chemical relatives which might reside in the body have never been demonstrated. Tryptamine and 5-hydroxytryptamine occur normally in the body but their action is brief. Their metabolic pathway does not bring them so far as it is known within range of producing any indole variant yet found to be a hallucinogen. It could be that some quirk of the indole molecule might precipitate and even produce psychoses in genetically disposed individuals, but the facts while they dispose to speculation do not warrant any general, let alone specific indictment.

References

Barger, D., and Dale, H. H., *J. Physiol.*, 1910, **41**, 19.
Bószörményi, Z., Dér, P., and Nagy, T., *J. Ment. Sci.*, 1959, **105**, 171.
Bradley, P. B., and Elkes, J., *Brain*, 1957, **80**, 77.
Fabing, H. D., *Amer. J. Psychiat.*, 1956, **113**, 409.
Key, B. J., and Marley, E., *J. Physiol.*, 1961, **153**, 39.
Laidlaw, P., *Biochem. J.*, 1912, **6**, 141.
Reti, L., *Fortschr. Chem. Org. Naturstoffe*, 1950, **6**, 242.
Rothlin, E., *J. Pharm. Pharmacol.*, 1957, **9**, 569.
Smythies, J. R., and Levy, C. K., *J. Ment. Sci.*, 1960, **106**, 531.
Szára, S., in: *Psychotropic Drugs*, 1957, 460. Amsterdam: Elsevier Publishing Co.
Vane, J. R., *Brit. J. Pharmacol.*, 1959, **14**, 87.

Dr. G. Leyton (Birmingham): We have heard so much that is of profound interest tonight that I find it difficult to comment quickly, but there are a few questions I would like to ask of the original speakers. I was particularly interested in Dr. Cerletti's proposition that the four position was extremely important in the production of hallucinations, because he produced what appeared to be very good evidence for this and, if that evidence is true, and there is really good reason to believe it is, it is difficult to see how a ring closure on mescaline could result in a four substitution on the indole nucleus.

I would also like to ask Dr. Bradley how his theory of the effect of LSD can be brought into line with the work of Baldwin *et al.* (1959), who, I believe, showed that in young monkeys the removal of temporal lobes, or a lateral temporal ablation, produced complete insensitivity to the effects of LSD, while sections of frontal lobes or any other portion did not result in this at all. In fact, removal of frontal lobes, if anything, appeared to accentuate the effect of LSD. I am particularly interested also in Dr. Smythies' statement about the very small changes necessary in the structure of the mescaline molecule to eliminate its hallucinatory powers, and I wonder, in fact, whether he has any information about the position of ethoxy or benoxy groups in other positions on the phenylethylamine nucleus.

Lastly I should just like to say that I have, during the last three or four years, tried very hard to show that large doses of mescaline given to experimental animals alter their indole excretion. However, I have completely failed to show any change in the excretion of indoles even after giving rabbits up to a gramme of mescaline. For a time I have liked the idea of ring closure and the production of an indole as the hallucinogenic agent, but then why is so much mescaline, compared to any other of the indole hallucinogens, required to produce any results?

Reference

Baldwin, M., Lewis, S. A., and Bach, S. A., *Neurol.*, 1959, **9**, 469.

Dr. R. A. Sandison (Worcester): I rather hesitate to make this contribution, but it is based on something Dr. McKellar said, and we may not have another opportunity to introduce this particular topic. I was interested to hear Dr. McKellar say that thinking was interrupted in his subjects whereas there was an inability to inhibit the side associations. Just in passing, it occurs to me that the side associations to which Dr. McKellar refers are among the material which the psychotherapist is making use of in the treatment of patients with hallucinogenic drugs. Now, this is a conference where we are considering psychotherapy, and I wondered whether this might be an appropriate moment to draw attention to the considerable differences between the responses to

hallucinogens in volunteer subjects and self-experiments, compared with patients in the therapeutic situation. We had an example of this at our hospital recently when we ran a small post-graduate course in treatment with LSD. We found that for the first few days the effect of other doctors coming in to the treatment situation was to make the patients more paranoid, more aggressive, and, in fact, to show very many of the manifestations which Dr. McKellar has told us about. I can just give very briefly one example of this. I was sitting with a patient and Dr. Hick from the Cambridge Psychological Laboratory was sitting in with us and the patient was reliving severe deprivation anxiety from childhood. Pointing to Dr. Hick, she said, "I am convinced that he is taking it all down". Now she didn't think that I, the therapist, was writing it down and it was of interest that the paranoid projection was on him and not on the therapist.

I wanted to draw attention to these differences because they may afford some clue and possibly provide a basis whereby the experimental situations and the therapeutic situations can be drawn together and I wondered whether Dr. McKellar had any comments to make upon this.

Dr. Cerletti: I would like to summarize my opinion concerning the specific importance of the four substitution in these indole derivatives. If indoles like bufotenin or dimethyltryptamine are considered to be hallucinogens, the notion of specificity of these effects has to be discussed. I have no personal experience with bufotenin but if you look at the reports, and there are only very few, I am quite convinced that besides the effects observed in the field of mental processes and psychological actions, there have been profound alterations of the circulatory system. Bufotenin is also from the point of view of the pharmacologist a potent peripheral vaso-constrictor and a compound with an active effect on the cardiovascular system. In humans there have been described symptoms like "purple face", changes of heart rate, blood pressure rise and so on. Besides specificity you have also to look at the dose range, and it is obvious that for bufotenin and for dimethyltryptamine, doses in the range of 20 to 50 mg. have to be injected. If you now proceed from these unsubstituted indole derivatives, or at least 5-substituted derivatives, to the 4-oxy-derivatives, like psilocybine or psylocin, you immediately step down to a ten times lower dose level of only a few milligrammes orally (2 to 5 mg,) and you observe quite full syndromes comprising psychological alteration without prominent effects on the cardiovascular, respiratory or on the autonomic system, except some rather regular concomitant features like pupillary dilatation and certain other signs of sympathetic excitation.

The elucidation of the structural formulae of psilocybine and psilocin was not so surprising by virtue of the fact of the indole complex being present in a psychotropic drug, as much as by the finding of the 4-substitution. Except for the lysergic acid derivatives no other naturally occurring indoles are known to possess this feature.

And now the latest surprise has been that lysergic acid, which has always been considered an exclusive product of this specific *Claviceps purpurea*, is suddenly found to be present in other plant material. Ololiuqui has been discussed now for many, many years. Apparently some investigators have not had authentic material, for whereas Osmond described definite effects with raw ololiuqui material, Kinross Wright could not find anything similar. The ololiuqui seeds we obtained with the help of Mr. Wasson, the discoverer of the mushrooms

in the Sierra Mazateca, were active in our hands, even when used in the form of the raw material, The discovery by Hofmann of the presence of lysergic acid derivatives has cleared up the picture in an unexpected way and could represent a further contribution to the hypothesis that the 4-position of the indole ring is important, since besides the two isomeric forms of lysergic acid amide, lysergol, elymoclavin and chanoclavin were also found in ololiuqui. The last compound is chemically interesting, since it represents an intermediate type of structure between simple 4-substituted indoles and lysergic acid. We do not yet know the action of chanoclavin and of lysergol, the corresponding alcohol to lysergic acid, but studies on both compounds should be worthwhile. Lysergic acid amide, however, has already been studied under the designation LA 111 a number of years ago by the Swiss psychiatrist Dr. Solms (1953). It is a remarkable fact that a substance like LA 111 was first artificially produced and studied in animals and man, and showed up several years later as one main constituent in a very old psychotropic drug. If you remember Solms's paper, he has given some very interesting comparisons between the simple amide (LA) and the mono-ethyl derivative called LAE and the di-ethyl derivative LSD. Besides quantitative differences among these three compounds there is also a certain different pattern of psychopharmacological effect in the human being. With the ethyl group more excitatory elements enter into the picture whereas the non-substituted amide without ethyl groups has a certain tranquillizing effect, which accompanies the phenomena which can be called hallucinogenic.

With regard to the very stimulating hypothesis that mescaline could be converted to an indole, I would like to add one remark. The minimum effective dose of LSD is about one ten-thousandth of the minimum effective dose of mescaline. It is undoubtedly a difficult job to find the small percentage, perhaps even less than 1 per cent. of mescaline, which is modified into an indole. I wonder, therefore, whether it would not be interesting also from this point of view to synthesize more derivatives of mescaline. I am not sufficiently expert in chemistry to predict whether substitution at the point which would correspond to the 4-position of indole could perhaps provide crucial evidence concerning the idea that if from mescaline an indole is formed, an additional oxidation in this 4-position could be the explanation why perhaps only a few microgrammes of the several hundred milligrammes originally introduced are sufficient to produce the effect which is so well known.

I think that is more or less what I would add to this comparative study of old Aztec drugs with modern semisynthetic derivatives like LSD. The repeated finding in all instances of at least some kind of indole structure seems more than a pure coincidence and could possibly be responsible for the peculiar activity of this group of drugs.

Reference

Solms, H., *Schweiz. Med. Wochenschr.*, 1953, **83**, 356.

Dr. Bradley: Dr. Leyton asks how we reconcile our hypothesis of the action of LSD with the experiments of Baldwin on the temporal lobe. I remember the paper, but I can't remember precisely what the effects were which they observed with LSD. But what I would say is this, that in studying these drugs, of course, in animals one can often see some variation in the effects produced by the drug, we chose the alerting effects of LSD on behaviour and electrocortical activity as an effect which we could study, because it seemed to us that it related to some of

the effects we saw in normal human subjects, when we recorded the electroencephalogram and gave this drug. In considering drugs or actions which are related to the diffuse systems of the brain (and the reticular formation, the arousal system, is one of these), one has to be extremely careful how one interprets the effects of removing a particular portion of the brain. We found, for example, that the effects we saw on spontaneous electrical activity in the cat disappeared when we sectioned the spinal cord, and we explained this by suggesting that the removal of the spinal afferents which were feeding and facilitating the reticular formation were related to the action of this drug. So that in removing say, the temporal lobe and reproducing the action of the drug, one must not suggest that the drug is therefore acting on the temporal lobe. It may be that pathways between the temporal lobe and the brain stem and mid-brain having been interrupted, one is producing a loss of facilitation in some such way, so that I think eventually we may be able to correlate all these different findings, but it is a little difficult to do so at the moment.

Dr. McKellar: I have to stick very closely to the behavioural side, but I have been following the structural formulae with interest. Might I make a plea for authors to use them a little bit more in their papers? I've seen one or two that I hadn't seen before, and I think to be able to refer to them would be a great help to those of us who are not very well up on this side.

Of course, in all the things I was saying there was the problem of individual differences which has been apparent right from the classical work of Prentiss and Morgan on mescaline onwards, and I was implying this. Some of the effects one does sometimes not get, and some of these effects one gets much of the time whoever the subject is.

To take up Dr. Sandison's point, undoubtedly the subject and the experimenter are often very much at cross purposes. Obviously what interests the one may not interest the other at all. This is very apparent if you try to test the visual field of a subject under a hallucinogenic drug. There is an excellent technique of interrogation, I am told, to look uninterested in something, and, of course, be making surreptitious notes in your mind at the same time. So I would not be surprised if in this context lots of material which is not otherwise readily available comes to mind. One of our subjects on one occasion—I think this summarizes Dr. Sandison's point very well—said to us, in desperation, "What to you is text, is to me footnotes, and what to me is footnotes is to you text." I think this does describe the kind of interaction between subject and experimenter, much of the time, the likelihood that some valuable information perhaps of therapeutic import may emerge.

Finally, I should be very interested to hear from other workers, if not now, perhaps later in the conference, whether they would, in relation to thinking, substantiate what Mayer-Gross, Slater and Roth say in their textbook, about the sensory side of mescaline and LSD, that the sensory effects are virtually identical. I am interested in whether, particularly, 4-substances, LSD, mescaline, adrenochrome and adrenolutin exhibit similarities or differences on the thinking side which I should like to draw attention to.

And, finally, as this conference settles down to discuss therapy I rather wonder whether perhaps one of the most valuable aspects of the whole exercise will not be the instructional side of these drugs, the way in which it may help people, whether they are therapeutically interested or are research minded about

the subject, to increase their powers of empathy with people who are suffering these very disturbing unnatural things which these drugs attempt in some way or other to model.

Dr. SMYTHIES: In reply to Dr. Leyton's question, I think one thing we have to keep in mind here is the difference between animal work and human work with these drugs. The only compounds that I mentioned with which work has been done on humans were the mescaline di-oxy compound, and the trimethoxy-amphetamine compound, which has been proved to be hallucinogenic in man. All the other investigations I mentioned were really rat tests, and the action on a rat may have nothing to do with hallucinogenic properties in man. The difficulty here is that if we don't know what their action is going to be, it is always rather difficult to give a new compound to human beings. With regard to the second question, there were no other substituted compounds available, so that there is nothing really known about any of their actions, nor (Dr. Cerletti's question), has anybody synthesized mescaline compounds.

I think we should congratulate Dr. McKellar on pointing out the effects of mescaline on thinking. Mescaline has been called an hallucinogenic drug, and complaints have been made about the lack of correlation between the type of hallucination it produces and the schizophrenias. Dr. Bleuler has said that there is not very much correlation between mescaline effects in model psychoses and schizophrenia. I think in terms of hallucinations this is certainly true, but we are on much safer ground, or much more fruitful ground, if we think of the relationships between the effects on thinking and the hallucinogenic drugs as being much the more interesting. There is no word to describe "interference-with-thinking" drugs. This kind of evidence is really extremely important. I think that more attention should be paid to it.

SECOND SESSION

"HALLUCINOGENIC AGENTS AND THEIR GENERAL APPLICATION"

CHAIRMAN: S. T. HAYWARD

CERTAINTY AND UNCERTAINTY IN THE LSD TREATMENT OF PSYCHONEUROSIS

By R. A. SANDISON

I HAVE given my paper this title because it appears to me that sufficient time has now elapsed (eight years in the case of Powick Hospital), for some principles to be formulated about the general question of treatment with LSD on which there is some agreement. At the same time uncertainty still exists on many points and these need to be classified and examined.

It might first be wise to state what it is we understand by the term "treatment with lysergic acid diethylamide". One means a psychotherapeutic relationship between the patient and the therapists during which LSD is administered to the patient. The immediate result of giving the LSD is to produce a deepening of the patient's emotional tone, a change in thinking, sometimes regression to an earlier emotional and intellectual period and the reliving of emotionally charged memories. There may be a release of deeper unconscious material resulting in impersonal experiences manifest as intense dream-like impressions, illusions or hallucinations. This treatment, using small doses of LSD, sometimes reinforced by other drugs and environmental influences, is given to the patient once or twice a week. The therapist and the nurses endeavour to create an environment which is sufficiently permissive to allow adequate "acting out" of the material induced during the treatment, and yet which also offers a framework of security, with the object of preventing the two major dangers of the treatment, suicide and psychosis. The cumulative results of this treatment, carried out once or twice weekly for several weeks or months, are to produce a deepening of insight, a general development of the ego and personality, and a reduction of symptoms. The long term results, in successful cases, are a broadening of the personality, greater resistance to stress and therefore less likelihood of a return of symptoms. The patient is more able to deal with unfavourable elements in his environment and his deepened insight persists and may increase. The full working out of the material from the active treatment period may continue for up to three years and may require the intervention of the therapist in terms of occasional interviews during this time.

It may now be accepted that it is essentially the LSD which brings about these results assisted, no doubt, by the psychotherapy, the immediate environment and other influences which are brought to bear on the patient during the period of active treatment. The evidence for this view is the ever increasing body of opinion concerning the efficacy of LSD in a wide range of psychoneurotic, psychopathic and near-psychotic disorders. Success has been reported from many countries concerning successful treatment of disorders in which there is general agreement that other treatments fail, I refer to the obsessional neuroses, character disorders and psychopaths. Such widely separated observers as Arendsen-Hein (Holland), Leuner (Germany), Martin (Great Britain), Hoffer (Canada), Giberti (Italy) and Peck (U.S.A.), have reported that their most successful cases corresponded with one or more of these diagnostic categories. It may at this point be objected that LSD is a physical treatment and that its

psychic effects play no part in the healing process. All workers with whom I have been in touch agree that the results are bad, or even disastrous, if the patient takes LSD in the absence of a psychotherapeutic environment. Furthermore, LSD is not specific to any one form of illness, although those disorders which most commonly respond to physical methods of treatment, namely depression and psychosis, respond least well to LSD treatment. These two observations may be cited as supporting material to the main thesis that LSD is not a physical treatment.

There is now an increasingly firm body of opinion that the psychological basis of LSD treatment lies in its peculiar property of releasing unconscious material. Earlier discussions and symposia (1955–1957) hinted at this possibility. In 1959 a Macy Foundation Conference considered that there was abundant evidence for this view, whilst the participants at the first European Symposium on LSD therapy held last November in Göttingen were unanimous that this theory was the only satisfactory explanation for the quality of the LSD subjective experience and thus of its healing effects on the individual. This has been my own working hypothesis from the start, and this theory was put forward in the earliest paper prepared by my colleagues and I in 1954. The hypothesis was based originally on the similarity between the phantasies of the LSD state and the results of dream analysis according to Freud and Jung, and there is ample evidence that such productions can occur in unsophisticated and untutored patients. More recent work suggests that unconscious material is released at different levels and performs a different function at each level. It has been observed that unconscious material is sometimes richest in those patients from whom at first sight one might expect it least, that is, the unimaginative, unsophisticated types (Cutner, 1958). The three principal phenomena associated with the release of unconscious material at different levels are abreaction, regression, and archetypal experiences. The first of these is usually associated with the personal unconscious, the second with either personal or impersonal material, and the third exclusively with the collective or racial unconscious. Abreaction brings about the release of emotionally charged complexes which have been bottled up due to faulty attitudes in infancy. Regression to an infantile state enables early experiences which have not been integrated to be brought into consciousness. The archetypal, or deepest experience, which van Rhijn has equated with some of the hallucinatory manifestations of LSD and which he has called "symbolysis", is the most important of all, since it is these archetypes which are the healing symbols. In this region of the psychological experience the patient meets himself, regains hope, and may experience a spiritual rebirth symbolized in the birth experience known to so many LSD therapists. It is thus that insight is gained. This total experience of the unconscious, brought about by the power of LSD to loosen the psyche, has led to a feeling that the hallucinogenic drugs should be renamed the psycholytic drugs. This name, which is free from the many objections attached to the word "hallucinogenic", was first suggested and adopted at Göttingen last year.

The differences between psycholytic therapy and psychoanalytic therapy lie in the greater rapidity with which unconscious material is released and the deeper level, both in personal memory and in the archetypal realm, which can be reached with LSD and which can only be achieved in a few exceptional cases after several years under orthodox analysis. This raises the question of the desirability of breaking down the mind's natural barriers between the external

ego and the unconscious. The attitude of LSD therapists has undergone an interesting change through the years. It was at first thought that the principal dangers of treatment would reside in breaking down resistances too quickly, and this view must to some extent still be sustained. On the other hand it is now recognized that one of the major problems of therapy is the difficulty of overcoming LSD resistance in certain cases. It is becoming increasingly clear that resistance is of two kinds, one of long standing, thickest in the obsessionals, and some psychotics, thinnest in latent psychotics, some psychopaths and in some cases amongst the anxiety states and hysterics. The other type of resistance is variable and is closely related to the transference, and the treatment situation, namely the environment. Thus the patient's own fear and anxiety over producing unconscious material may lead to resistance, just as unfavourable arrangements for treatment can do the same. It may be dangerous to break down resistances in the absence of suitable home conditions or in the presence of an inadequate, insecure, rigid and hostile hospital environment, suicide and psychosis being the principal results. On the other hand it cannot be stressed too much that, on the whole, more disservice is done to patients by overcaution dictated by an unsatisfactory environment than has resulted from the vigorous prosecution of treatment in a carefully designed therapeutic situation. In the U.S.A., LSD has been given to a wide range of patients suffering from almost every conceivable variety of neurosis and psychosis, including pregnant women and children, without much apparent damage, and one must attribute the low rate of complications and suicides recorded by Cohen (1960) who collected material from many clinics, to the peculiar understanding which the therapists had of the needs of the patient in the LSD treatment situation.

There is general agreement amongst workers in many countries as to the method which constitutes psycholytic therapy. It is generally agreed that each treatment session should last at least four hours and probably not more than eight hours, and that the treatment should be attenuated or stopped with drugs of the barbiturate or phenothiazine class. These treatment sessions should take place once or twice a week and should be continued for eight weeks to several months on the average, and the dose employed may vary between 50 and 1500 μg., marked individual differences being a feature. An average dose will probably be between 50 and 200 μg. The effects of LSD may be reinforced by other drugs, of which the most common are Ritalin and Methedrine. The environment may also be manipulated to evoke increased or particular responses, amongst which darkening of the room, music, confrontation with tape recordings from previous sessions, animal toys, human dummy figures and paper for tearing up are frequently used. Once again the importance of the environment should be stressed, including the need for the careful training of doctors and nurses. A building or department specially designed or set aside for the purpose is most important, and every chance should be given for the patient to abreact in a secure and permissive environment. Consideration should also be given to the presence or absence of the relatives (especially wives or husbands, occasionally mothers or fathers) during treatment. The home conditions must also be studied as on these depends whether the patient should go home after treatment, stay overnight, or be admitted to hospital. Opinion now tends more and more towards including the home environment in the treatment situation and to trying to avoid admitting the patient to hospital.

To conclude the catalogue of relative certainty it appears to be established

that the essential practical result of LSD is deepened insight by the patient into his problems. It would be true to say that when the patient comes for treatment he is a problem to other people. During its course he becomes a problem to himself. It is only after a period of integration that resolution of the neurosis may take place, and long term follow-up studies suggest that this may continue for months or even years after the conclusion of treatment.

Despite an increasing certainty amongst therapists that psycholytic therapy, having evolved a theory of action and a method, is of value in the management of mental illness, much uncertainty still exists. It may be that the favourable clinical impressions and figures for improvement quoted by an increasing body of therapists are not due to LSD at all, but arise out of spontaneous cure, suggestion, or are the psychological results of the environment. As yet no controlled trials or statistically valid figures have been published and it may be that they never will be. In mitigation of this uncertainty two things may be said; that no controlled studies of psychoanalytical treatment which are not open to objections have been published, and that the difficulties of designing an LSD trial appear almost insuperable. Other uncertainties concern the psychological situation. We do not know the manner in which LSD releases unconscious material, the extent to which it affects ego function nor the mechanism by which the personality undergoes the maturation so commonly observed during and after LSD treatment.

Finally, religious and ethical considerations may lead to uncertainties through arousing emotional and biased attitudes in others, more particularly those whose experience of psycholytic drugs has only been from outside or in the experimental situation. We would do well to clear our minds of any unduly mystical or ritualistic approach to this treatment. To do so at once leads to comparisons with other systems of thought and belief which confuses the proposition that LSD, as used by the psychiatrist, is intended to lay bare the origins of the neurosis and thus, assisted by the natural healing powers of the unconscious thus revealed, cures the patient. If one might conclude by meeting a challenge sometimes offered by theologians, that work and suffering are essential ingredients for salvation, I would suggest that successful psycholytic therapy involves a great deal of work on the part of the patient, sometimes accompanied by suffering. But the will to work is derived from the same source as that of healing, from the unconscious.

References

ARENDSEN-HEIN, G. W. Paper read to 1st European Symposium on Hallucinogenic Drugs. Göttingen, November 1960.

EISNER, B. G., and COHEN, S., *J. Nerv. and Ment. Dis.*, 1958, **127**, 528.

GIBERTI, F., and GREGNELTI, L., *Arch. and Psicol. Neurol. and Psichiat.*, 1958, **9**, and other papers.

MARTIN, A. J., *Int. Journ. Soc. Psychiat.*, 1953, **3**, 3.

LEUNER, H., *Wien. Med. Wochenschr.*, 1958, **108**, 1091.

PECK, T. T., The Use of LSD in Psychotherapy, *The Josiah Macy Jr. Foundation*, p. 181, New York, 1960.

THE THERAPEUTIC IMPLICATIONS OF PSILOCYBINE

By J. DELAY, P. PICHOT and T. LEMPÉRIÈRE

PSILOCYBINE is one of the active principles of the hallucinogenic fungi of Mexico. It was first isolated from *Psilocybe mexicana* (Heim) in 1958 by Hofmann, who subsequently effected its synthesis. It is the first phosphorylated indole compound to have been found in nature, but this phosphorylation of the indole nucleus probably plays no part in its psychodysleptic activity; thus, psilocine, which is derived from psilocybine by dephosphorylation, has the same psychodysleptic properties. There is an evident analogy of structure between psilocybine and lysergic acid diethylamide (LSD), both compounds having an indole nucleus substituted in position four. Isbell has shown the existence of a cross-tolerance between these two drugs.

Pharmacological Study

On isolated organs psilocybine has no action in concentrations of up to 10^{-5}. No specific antagonism for adrenaline, acetylcholine or histamine has been demonstrated. However, there is an inhibitory effect for serotonin, an effect which is never more than 80 to 100 times lower than that of LSD.

In contrast to this low activity *in vitro*, there is *in vivo* a complex neuro-vegetative stimulating action, resulting in mydriasis, pilo-erection, tachycardia, tachypnoea, rise of temperature and of blood pressure, and hyperglycaemia. For Cerletti, "most of these effects seem to be related to a central stimulation, particularly of the sympathetic system". For Monnier, electro-physiological study of the brain in rabbits shows that the stimulating effect depends not so much on an activation of the reticular arousal system as on depression of the antagonistic mediothalamic system. Such an action would place psilocybine closer to caffeine in its pharmacological properties.

A comprehensive study of the action of psilocybine and of LAE and LSD on both normal and I.D.P.N. mice was carried out in our unit in collaboration with J. Thuillier and H. Nakajima. Psilocybine is found to bring about modifications of behaviour analogous to those produced by the above-mentioned drugs, but its action is more immediately upon the motor component, whose total activity is reduced, and much less marked on the neurovegetative system. The apparent sedation corresponds in fact to a special excitation, with an actual increase in wakefulness, and this can be demonstrated by the haptographic method after nociceptive stimulation of the animal.

Clinical Study

Our clinical study has been conducted since July 1958. Partial results have already been published. The experimentations included 137 individuals, of whom some were given the drug more than once, so that we have a total of 153 protocols divided as follows:

Normal subjects	47 (52 protocols)
Mental patients	90 (101 protocols)

Normal subjects were given a 10 mg. dose by mouth; in a few cases with only a minimal reaction, a second trial was carried out with a higher dose, never more than 14 mg. With the mental patients we administered a 9 mg. dose intramuscularly on eighty-three occasions, a 10 mg. dose by mouth on twelve occasions, and a 6 or 8 mg. dose by mouth on six occasions.

A. *Somatic and Physiological Effects*

The action on the neurovegetative system is very marked. Mydriasis is almost constant. Changes in the pulse rate are usual; bradycardia is found in two-thirds of the normal subjects and in one half of the mental patients; in the others the rate is increased or varies. Instability of blood pressure is frequently seen, but isolated hypertension and hypotension are about equally common. 70 per cent. of cases show increased tendon reflexes.

Normal subjects present subjective complaints more often than do mental patients. They are in decreasing order: asthenia, somnolence, vertigo, sensations of cold or heat, headache, nausea, 'pins and needles'. Somatic manifestations last from two to four hours, except for mydriasis, which can persist for a whole day. Some subjects report a severe asthenia on the day after the experiment, others say they feel in very good form.

The frequency of bradycardia and hypotension should be emphasized, since the other psychodysleptic drugs, mescaline and LSD, usually have a hypertensive effect and accelerate the heart rate.

Laboratory tests on four psychotic subjects revealed hypoglycaemia, with a curve passing through two low points, the first thirty minutes, the second two hours after the injection; there was also an early and persistent lowering of the blood potassium level, and a very low eosinophile count. An EEG study carried out by C. and I. Verdeaux showed only minimal changes, not easy to systematize.

B. *Psychic Effects on Normal Subjects*

No difference of importance was noted between the sexes (thirty-one males, sixteen females). Of the forty-seven volunteers, thirty-five were doctors, and the others engineers, newspapermen, schoolteachers or technicians. The non-medical subjects reacted in much the same way as the doctors, though they verbalized their reactions differently.

Experimental intoxication with psilocybine produces a cycle lasting four hours, with a maximum of symptoms around the second hour. This is much shorter than with mescaline or lysergic acid. There is no close relationship between the intensity of the mental symptoms and the severity of the neurovegetative ones.

The first sign to appear, after about half an hour, is a modification of mood and activity. Next come disturbances of perception, distortions, illusions and even hallucinations. The subject's personality at first succeeds in maintaining a certain detachment from these phenomena, but gradually allows itself to be submerged. The dissolution of consciousness, together with a somato-psychic depersonalization and disorganization of the sense of space and time, brings about a liberation of phantasy material and of psychological automatism, with projection of fantasies on a sensory level. Some subjects reconstruct, or relive in an intense emotional framework, experiences from their childhood. Others discover, in a state of ecstatic contemplation, the world of fundamental truths

and of pure beauty. Paranoid or pure dysphoric reactions are rare. But gradually parasitic elements fade and mental activity is reorganized according to logical ways of thinking and is no longer governed by instinctive-affective dynamisms. Not without a certain amount of nostalgia, the individual emerges from his dream-like state, of which, however, he retains a precise and pleasant memory.

Certain elements of the subjects' experiences deserve more detailed study:

1. *Alterations in mood and affectivity.* These are seen almost constantly: euphoria is prominent, either from the very beginning, or following a period of anxiety. Sometimes we see a hypomanic exaltation, with self-satisfaction and disappearance of concern over external circumstances and personal well-being and autistic withdrawal. Sometimes its intensity is such that the individual savours it as the happiest moment of his life. But it is a very precarious state, for external stimuli can bring it to an abrupt end. Dysphoria by itself is exceptional, but periods of anxiety or perplexity with poverty of ideas may alternate with bursts of euphoria. Emotions are often of such violence as to astonish the individual, who finds himself unable to master them: thus he may show inappropriate laughter or weeping, or may utter exclamations of wonder.

2. *Alterations of consciousness.* Sometimes there is total blankness in the mind, sometimes an acceleration in the stream of thought, with increase in awareness. True confusional states may be observed. In the one individual oscillations in consciousness are frequent and rapid during the experiment. These alterations depend to a great extent on external stimuli, such as noises, changes in posture, questions from the examiner. These gross alterations in consciousness favour the occurrence of dream-like revivals of past traumatic events or childhood memories.

3. *Disorders of perception and psychosensory phenomena.* These are seldom absent, but are really intense in only half the cases. They include alterations of space, of perspective and of the relations between background and foreground, expansion or contraction of shapes, intensified contrasts and shades; visual illusions with modifications of angles and outlines, changes in persons' faces, impressions of objects being in motion; also true hallucinations, seen especially when the eyes are closed—these are described as mobile and evanescent and of fascinating vividness and beauty. Certain elements intervene in the formation and linking of visions: variations in the lighting of the room, modifications in posture of the subject, synaesthesias of auditory or coenaesthetic origin. Verbalization itself contributes towards creating and enriching the image—a veritable illustration of how thought is coloured with affective or aesthetic qualities by the subject's mood.

   Coenaesthesia itself can be modified at the peak of the experience: there may be a dislocation of the body image, a sensation of lightness, of levitation, of withdrawal of life. Depersonalization is frequent and may go as far as doubling of personality or the appearance of autoscopic hallucinations.

4. *Contact with reality; delusional constructions.* Sometimes the subject withdraws from reality into autistic contemplation or becomes absorbed in ineffable visions. External events, such as the actions of the experimenter, which the subject finds hard to place in their temporal and social context, become the source of delusional interpretations of influence, suggestion or

persecution. At times the whole environment acquires special meanings, either hostile or benevolent. Cosmological or metaphysical constructions are exceptional and seem to be related to past preoccupations.

A large number of subjects retain throughout the experiment a very close relationship to the experimenter, who serves as a support in their efforts to keep a link with reality and is able to reassure them as to the meaning of their symptoms. At the end of the test it is usual for the subject to feel a need to communicate, to share, to talk about the experience and to integrate it with his past life, and this may be useful therapeutically.

C. *Psilocybine in Mental Patients; its therapeutic implications.*

Psilocybine can be used as a diagnostic procedure.

The outline of the underlying psychosis or neurosis is revealed or exaggerated as in a caricature by the induced psychological alterations, thus facilitating its identification. In hebephrenics one can note an atypical excitement or a cataleptic state without any emotional sign other than an exaggeration of inappropriate laughter. In paranoid and chronic delusional states one may observe experiences of depersonalization or derealization similar to those seen in the initial phases of the disease, also oneiroid episodes, with revival of events concerned in the delusions, an increased affectivity with anxiety, with diminution of reticence and opposition. In psychoneurosis, the mental manifestations are constant, often of the nature of anxiety or dysphoria. The neurotic gets involved more fully in the experiment than the normal individual and usually centres his attention on the traumatic and conflictual situations of his past, evoking or reliving them in a spectacular emotional abreaction. The type of neurosis itself has an influence on the mode of reaction. In the hysteric one sees a theatrical reaction, with exaggerated expressions of emotion, a regression to infantile attitudes, projection of phantasies on a visual hallucinatory level, with an obvious symbolic sexual content. In the phobic patient, anxiety dominates, with feelings of guilt and contamination; visual hallucinations are rare. In the obsessive, coenaesthetic alterations, depersonalization and clouding of consciousness are intense, and accompanied by anxiety. Later, guilt feelings come to the surface, together with an aggressivity which the patient first expresses, then tries to annihilate; visual phenomena are very rare.

This oneiranalysis is particularly helpful in investigating different cases, such as character neuroses, atypical depressions and schizoneuroses. For instance, in a case of anorexia nervosa in which the symptomatology showed nothing unusual, but which failed to respond to isolation treatment, psylocybine provoked a typical hebephrenic reaction and the diagnosis was quickly confirmed by the spectacular effect of treatment with a phenothiazine derivative. In a case of atypical depression of a year's duration, a marked melancholic reaction appeared under the influence of the drug, and cure by E.C.T. confirmed the diagnosis.

The therapeutic effect of psilocybine can be conceived in a double perspective; first, a direct biological action of the drug on the organism, especially a stimulating effect on mood and awareness; this is particularly marked in some neurotics with a prominent asthenic component and in some depressed patients who present a true thymic inversion.

Secondly, there is a psychological action through the utilization of material brought up in the course of the experiment, and through alterations in the

doctor/patient relationship. The special character of oneiranalysis resides in the fact that the patient can follow lucidly the progress of the experiment and remain to a certain extent detached from it; his heightened capacity for self-analysis allows him to perceive the rich symbolism of his phantasy and his hallucinatory reactions and their emotional implications. The emergence of childhood memories or unpleasant conflictual situations produces intense emotional reactions of cathartic value. Remembering well what has occurred during the experiment the patient can give a detailed report of it. It is in fact in the hours or days following the experiment that the most fruitful processes of association and interpretation continue, in which the patient readily links what he has just lived through with his past experiences. Again, the modifications of mood and affect bring about a change in the doctor/patient relationship. A transference relationship is established, which can be used therapeutically, since it allows the patient an easier externalization of his emotional needs and a better grasp of the meaning of the material brought up during the experiment.

Bibliography

DELAY, J., PICHOT, P., and NICOLAS-CHARLES, P., "Premiers Essais de la Psylocybine en Psychiatrie", Première Réunion Internationale de Neuro-psychopharmacologie, Rome, 8–13 Sept., 1958. *Neuro-Psychopharmacology*, 528–531. Amsterdam: Elzevier.

DELAY, J., PICHOT, P., LEMPÉRIÈRE, T., and NICOLAS-CHARLES, P., "Effects Psycho-Physiologiques de la Psilocybine", *C.R. Acad. Sci.*, 1958, **247**, 1235–1238.

DELAY, J., PICHOT, P., LEMPÉRIÈRE, T., NICOLAS-CHARLES, P., and QUETIN, A. M., "Etude Psychophysiologique et Clinique de la Psilocybine", in: *Les Champignons Hallucinogènes du Mexique* (eds. R. Heim et R. G. Wasson). Editions du Muséum d'Histoire Naturelle de Paris, 1958, 287–309.

DELAY, J., PICHOT, P., LEMPÉRIÈRE, T., NICOLAS-CHARLES, P., and QUETIN, A. M., "Les Effets Somatiques de la Psilocybine", *Ann. méd.-psychol.*, 1959, **117** *i*, 891–899.

DELAY, J., PICHOT, P., LEMPÉRIÈRE, T., NICOLAS-CHARLES, P., and QUETIN, A. M., "Les Effets Psychiques de la Psilocybine et les Perspectives Thérapeutiques", *Ann. méd.-psychol.*, 1959, **117** *i*, 899–906.

DELAY, J., PICHOT, P., LEMPÉRIÈRE, T., and QUETIN, A. M., "Effets Thérapeutiques de la Psilocybine sur une Névrose Compulsive", *Ann. méd.-psychol.*, 1959, **117** *ii*, 509–515.

PHENCYCLIDINE: ITS USE IN PSYCHIATRY

By Brian M. Davies

The search for an efficient intravenous anaesthetic has led to the synthesis and study of a series of cyclohexylamine derivatives, The first of these to be studied was an experimental compound CI-395,* now with the approved name, phencyclidine, and it is about this drug, and its interesting actions that I shall speak today.

Phencyclidine is a synthetic compound, quite unlike any normal body constituent. Its chemical structure is, in fact, related to pethidine and not to drugs like LSD or mescaline (Figure 1).

When phencyclidine is given intravenously in appropriate amounts it produces a state of profound analgesia without loss of consciousness and without any significant cardiac or respiratory disturbances. Animal experiments showed that when 10 mg./kg. body-weight was given to monkeys a state of analgesia resulted and it was possible for laparotomies to be performed, without additional anaesthesia. During these operations, the animals had their eyes open, and, it is said, looked about unconcernedly.

Phencyclidine was then given, as the main anaesthetic agent to sixty-four patients in Detroit. A dosage of 0·25 mg./kg. body-weight was found to produce a satisfactory state of analgesia and in thirty of these patients operations were carried out that ranged in extent from simple biopsies to gastrectomies without additional anaesthesia. Other patients required muscle relaxants or nitrous oxide. The patients recalled the initial venepuncture, then there was amnesia until several hours after the operation when most of the patients were euphoric and slightly disorientated in time and place. Unfortunately, ten of the sixty-four patients presented very difficult nursing problems after the operation. In these patients severe agitation was present, abreactions occurred and it appeared that some of the patients were hallucinated.

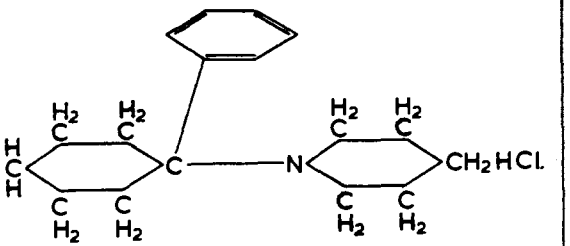
Johnstone and his colleagues in Manchester have confirmed these findings on phencyclidine as an anaesthetic agent. They concluded that phencyclidine is the most potent general analgesic agent yet used in clinical medicine, and it can be safely used in elderly people because it does not depress cardiac or respiratory functions. Its usefulness is, however, limited by the psychiatric complications that frequently occur after the operation. Other drugs of the cyclohexylamine series are being studied by the anaesthetists, but, I understand, that, so far, psychiatric complications are still a problem.

What have been troublesome side effects to anaesthetists have been of great interest to psychiatrists. These were first studied, from the psychiatric point of view, in Detroit, when phencyclidine at a dose of 0·1 mg./kg. body-weight was given to normal volunteers. I have repeated these observations on twelve normal volunteers, and I will first outline what happens.

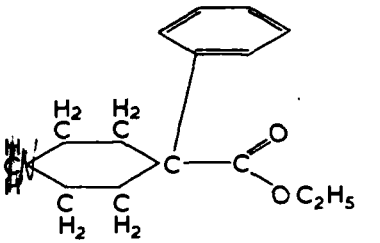
The drug, given intravenously, acts at once, and the subject generally feels that he is going under an anaesthetic or dropping off to sleep. Background noises appear to get louder and vertigo appears in various degrees of severity.

* Messrs. Parke Davis and Company Ltd. Phencyclidine was formerly known as 'Sernyl', but this trade name has now been discontinued (Editors).

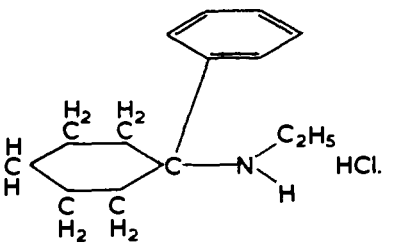
PHENCYCLIDINE



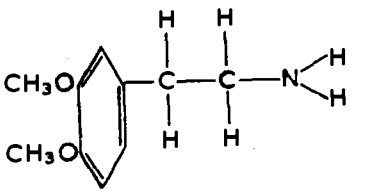
PETHIDINE



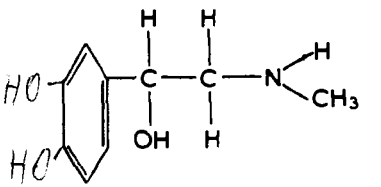
CYCLOHEXAMINE



MESCALINE



ADRENALINE



L.S.D

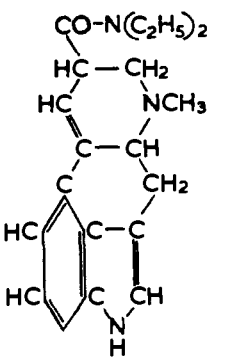


Fig. 1

The lips and face feel numb, and the subjects say that it is like having a local anaesthetic for dental extraction. Then the hands feel numb and often feel very large or very small and sometimes these two sensations alternate rapidly. The subject's feet feel a long way away and sometimes his body and the objects in the room seem to become flattened and lose their normal 3-dimensional shape. For example one subject said, "I feel to be floating away—it's unreal—; you seem so far away and I seem to be whizzing around, and around, my hands look distorted and not real, I feel detached and not real, it seems as if everything is flat as if cut out of cardboard."

The subject is generally euphoric and may compare this feeling to that produced by alcohol. Occasionally anxiety becomes marked, usually as profound feelings of bodily change, or thinking difficulties, occur. Another mood change that occurs is a lack of feeling and a loss of empathy with others, and this sometimes persists for several hours.

At the dosage used no hallucinations occur, the subject does not lose touch with his surroundings, and is always correctly orientated to place though his appreciation of time is affected. Thought processes are disturbed. It becomes difficult to follow a line of thought, phrases and words are often repeated several times, as are questions that are asked. Proverb interpretation is usually very poor, many of the answers showing a "concrete" attitude to the stimulus. This was a marked change, as the subjects were normally above average in ability to interpret proverbs. All the subjects found it difficult to describe the changes in feeling and thinking that the drug produced. Powers of self-observation were not increased as is usual with LSD.

Catatonia occurred in one subject and lasted for twenty minutes.

At the height of the reaction neurological signs are present, namely nystagmus and ataxia, and there is a diminution in the appreciation of all sensory stimuli.

The acute symptoms subside after 45–60 minutes, though the subject remains unsteady, listless and perhaps nauseated for another hour or two.

Luby and his colleagues in Detroit (1958) commented, after observing these changes, that phencyclidine acts selectively on the sensory cortex, thalamus and mid-brain, producing a syndrome of sensory deprivation that produces symptoms similar, on the one hand, to the primary symptoms of schizophrenia, and on the other, to those symptoms that have been produced by external sensory deprivation by Bexton, Heron and others. These conclusions about the sites of action of phencyclidine were not based on neurophysiological work, and in view of Dr. Bradley's account last evening of the action of LSD similar studies with phencyclidine would be of great interest.

These interesting effects certainly raise several questions and suggest several hypotheses that should be tested. Comparisons could be made between the effects of phencyclidine and other drugs (particularly LSD): the effects of phencyclidine and external sensory deprivation; and the effects of phencyclidine and the primary symptoms of schizophrenia.

To date a few of these suggestions have been tested. The American investigators have given a battery of psychological tests to normal subjects receiving phencyclidine, LSD or amytal. They compared the test findings with results given to the same tests by patients with a schizophrenic illness. They found that when the results were analysed the subjects receiving phencyclidine resembled the schizophrenic patients more than did the subjects receiving LSD or amytal.

At the Maudsley Hospital we have compared the thought disturbance of schizophrenic patients with that produced in twenty normals with phencyclidine and sodium amytal, but were unable to show that phencyclidine produces effects in normals which are similar to those seen in schizophrenic patients who show obvious thought disorder. Other comparisons need to be done, as do neurophysiological studies on animals. Because of its interesting but short-acting effects phencyclidine provides the research worker with a useful tool to use in studying various aspects of psychological functioning.

I shall now describe the way that we have used this drug clinically. Though the number of patients treated has, so far, been small, they have been studied in some detail. It was mentioned that after operations under phencyclidine some of the patients abreacted violently, and we wondered if the drug could be used therapeutically in those psychoneurotic patients who find it difficult to produce emotionally charged material. As it is a short-acting drug it seemed that this might be a practical advantage over LSD, which commonly produces effects that last for twelve to twenty-four hours or even longer.

Six patients at the Bethlem Royal Hospital with long-standing neurotic illnesses were first studied (Table I). After a full psychiatric history had been obtained patients were seen for three one-hour psychotherapeutic sessions each week. They were first given sodium amytal intravenously on two occasions in order that they should become used to drug-assisted psychotherapy. Phencyclidine was then given twice a week by slow intravenous injection. 1 mg. was given at first and the dose then increased by 0·5 mg. on each succeeding occasion to a maximum of 5 mg. Optimal dosage seemed to be between 3–5 mg. given over three to five minutes. After each treatment patients were asked to write down their experiences under the drug and later these were discussed with the patient in a normal psychotherapy interview. While the symptoms previously mentioned occurred in every patient, marked abreactions occurred on one or more occasions, as significant episodes in the past were remembered. The patients talked readily throughout the interview, but the repetition of words and phrases was common. Often the feelings of bodily change were followed by a description of childhood phantasies.

TABLE I

Details of Patients given intravenous Phencyclidine
(2–6 mg.)

Patient	Sex	Age	Diagnosis	Length of Illness	Number of Phencyclidine Interviews	Abreaction
1	F	31	Mixed neurotic disorder	3 years	12	+
2	F	34	Mixed neurotic disorder	6 years	9	−
3	F	33	Obsessional disorder	12 years	16	+
4	F	21	Anorexia nervosa, Obsessional personality	9 months	15	+
5	M	40	Obsessional disorder	10 years	8	−
6	M	30	Mixed neurotic disorder	15 years	6	−

It is of interest to say a little more about one of the patients with a severe obsessive state who received both LSD and phencyclidine. The LSD was given intravenously and produced a most unpleasant affective change with vivid visual hallucinations of his sadistic phantasies. It was, as he said, "like a kaleidoscope of bleeding corpses". After he had received phencyclidine (given without his being aware of the drug change) he said, "there was no unpleasant feeling today

and no horrible images—I seem to have talked a lot—I cannot remember what I have said. I seem to have been in another world, but my memory is hazy, not clear like before". He felt he obtained more benefit from the eight phencyclidine interviews than from the fourteen LSD interviews.

Three of the six patients had an obsessional illness and they noticed, as did observers, that, on the day of the treatment there was a definite diminution in their obsessional rituals for several hours after the injection. This is quite unlike LSD, which usually increases compulsive behaviour on the day of the treatment. This form of intensive treatment produces many difficulties, in particular, difficult transference problems arise. However, phencyclidine does seem to be a useful and safe drug to use in this way in carefully selected patients. I would suggest that great care should be taken if this drug is given to schizophrenic patients. The American workers found that schizophrenics given the drug became extremely disturbed and this disturbance is said to have lasted some eight weeks in one case.

Phencyclidine then became available in tablet form and in view of the changes noticed in the three obsessional patients the value of oral phencyclidine in obsessional states was investigated. So far, eight patients have been studied. Phencyclidine was given by mouth one hour before interview. 5 mg. was given first then increased at subsequent interviews, if necessary, to 7·5 or 10 mg. Symptoms that occur are similar, but less intense than those previously described (Table II).

TABLE II

Details of Patients given oral Phencyclidine
(5–15 mg.)

Patient	Sex	Age	Length of Illness	Number of Phencyclidine Interviews
1	M	30	7 years	20
2	F	21	4 years	20
3	F	24	2 years	10
4	M	36	2 years	13
5	M	28	4 years	10
6	F	31	5 years	9
7	M	30	15 years	20
8	F	48	3 years	2

It was found that in six of the patients, the drug was helpful in promoting a free flow of emotionally charged material and the drug effects were not severe nor long lasting. In two of the patients the drug produced marked thought block, clinically very like that seen in schizophrenia. These two patients were quite unable to talk freely under the drug. Some relief from obsessions was noticed, but this finding was not as marked as with intravenous phencyclidine. One of the patients' obsessional ruminations were eased by the drug and he was discharged from hospital on half a tablet two or three times a day. Abreactions often took place in some of these patients as feelings of bodily change occurred. Five of these patients recalled childhood "memories" and this was often associated with a release of emotionally charged material. We have heard from Dr. Sandison the significance he attaches to these experiences, but here they are mentioned to show that they do occur when phencyclidine is given in this psychotherapeutic setting.

As no controls were used it is impossible to assess the value of this treatment. It is possible, however, to give clinical impressions based on a three to six months follow-up (Table III). All the patients initially presented difficult therapeutic problems and all but the two who developed thought blocking seemed to be helped by the treatment. It certainly seems that further studies by other investigators are warranted.

TABLE III

Effects of Oral Phencyclidine

Patient	Facilitated Talking	Abreaction	Severe Disturbance	Thought Blocking	Early "Memories" Evoked
1	+	+	0	0	+
2	+	+	0	0	+
3	+	+	+	0	+
4	+	0	0	0	0
5	0	0	0	+	0
6	+	+	0	0	+
7	+	+	+	0	+
8	0	0	0	+	0

REFERENCES

GREIFFENSTEIN, F. E., DE VAULT, M., YOSHITAKE, J., and GAJEWSKI, J. F., *Anaesthesia and Analgesia*, 1958, **37**, 283–294.
LEAR, E., SUNTAY, R., PALLIN, I. M., and CHIRON, A. E., *Anaesthesiology*, 1959, **20**, 330–335.
LUBY, E. D., COHEN, B. D., ROSENBAUM, G., and GOTTLIEB, J. S., *A.M.A. Arch. Neurol. Psychiat.*, 1959, **81**, 363–368.
MEYER, J. S., GREIFFENSTEIN, F. E., and DE VAULT, M., *J. Nerv. Ment. Dis.*, 1959, **129**, 54–61.
SANDISON, R. A., SPENCER, A. M., and WHITELAW, J. D. A., *J. Ment. Sci.*, 1954, **100**, 491.
STOLL, W. A., *Schweiz. Arch. Neurol. Psychiat.*, 1947, **60**, 279–364.
STOCKINGS, G. T., *J. Ment. Sci.*, 1940, **84**, 29–47.

Discussion

Openers: W. Linford Rees and Professor Martin Roth

Dr. Linford Rees (London): We have heard three very interesting papers about three very interesting chemical compounds which have been used in psychiatric investigation and treatment, and it seems to me that we might learn most of all about their value and effects if we try to ascertain in what ways they resemble and differ from each other. From the chemical point of view, we have heard today that two of these compounds, lysergic acid diethylamide and psilocybine are similar in possessing the indole nucleus with substitutions at the fourth position. They are also similar in some of their pharmacological effects, and they produce changes involving autonomic effects, predominantly sympathomimetic in action, the evidence suggesting effects on some of the higher centres controlling sympathetic actions. Now the other drug—phencyclidine—is quite different chemically; it has not got an indole nucleus, and its chemical structure is unlike any naturally occurring chemical compound known to play any role in the normal metabolism of the body, but it is linked up with drugs used to produce analgesia for operations. In spite of this difference one finds that there are similarities in effects, in that they are all psychotomimetic agents, or psycholytic agents—the new designation which has been applied to them. They mimic in various ways and with different degrees of similarity remote suggestions of schizophrenia, but I don't think that is a profitable point for us to dwell on this morning. In therapy they have all been used for the treatment of various types of conditions, obsessional states, other forms of neurosis and disturbances linked up with disturbance of personality make-up and psychopathy.

Now, the duration of action of these drugs is markedly different. With lysergic acid, which is a highly potent drug and which has a much longer duration of action than the chemically similar psilocybine, which is shorter, lysergic acid is also many times stronger than psilocybine. The duration of action is longest with lysergic acid, intermediate with psilocybine, and very much shorter with phencyclidine, so that the duration of action has very important practical implications; what its pharmacological or its physiological implications are remains to be seen.

Although it is fairly obvious that phencyclidine, from what we have heard, produces manifestations which can be related to sensory deprivation, it is also fairly clear, from the evidence we heard last night, that many of the manifestations of the lysergic acid experience also have a close link-up with some aspects of sensory deprivation. I would like to pose now a number of questions to the speakers relating to these similarities and differences. One finds from what Dr. Sandison said that the effects of lysergic acid, and I presume psilocybine, can be augmented by other drugs—he mentioned Ritalin and some of the amphetamines—and we also know that there are similarities between the effects of these drugs and the effects of mono-amine oxidase inhibitors which also tend to produce states of increased alertness, increased reactivity, and responsiveness to sensory stimuli. These are similar effects, and they have been related, according to Hess's conception of the ergotropic system. These drugs are ergotropic in their effect, although they produce their ergotropic effects by quite different chemical processes. Lysergic acid is an antagonist of serotonin, whereas the mono-amine oxidase inhibiting drugs produce their effects by

action on the enzyme mono-amine oxidase. I would like to ask whether the speakers consider it justifiable to regard lysergic acid and psilocybine as ergotropic; and I would like to ask Dr. Davies whether he has observed any effects with phencyclidine which link up with this possibility. Also, I would like to ask the speakers what they consider is the role of sensory deprivation, which again seems to be brought about by quite different mechanisms in phencyclidine compared with LSD, in the production of symptoms and their manipulation of the change in the therapeutic situation.

Dr. Sandison mentioned that in the United States lysergic acid had been tried in a large number of conditions, that it had been used in women during pregnancy, and that no untoward effects resulted, and I think this is an important practical point, since here we have a drug which is of extreme potency, which exerts profound actions on enzyme systems in the brain, and which one might expect to have quite severe effects on the growing foetus. I would like to ask him how far and how thoroughly these cases were followed up, particularly the fate of the offspring, so that we might feel more satisfied about the safety of using the drug, if it is indicated in the treatment of pregnant women.

It also seems to be fairly clear from what all of the three speakers have described that there are very marked individual variations to the same dose of drugs, even when it is standardized per kilogram body-weight, and I would like to ask them if they know of any work which provides any elucidation of the individual factors which determine these very marked and important individual reactions to the same drug.

Chairman: I'll ask Professor Martin Roth to continue the discussion.

Professor Martin Roth (Newcastle-on-Tyne): My first point relates to the affective changes that are observed in the course of treatment or experiment with these hallucinogenic substances. There is a tendency to stress the perceptual changes, the depersonalization, the hallucinations, the similarities to schizophrenia; and I am particularly glad that the affective changes have received such emphasis this morning. They were stressed very early in the literature on the subject in the early papers of Prentiss and Morgan, and I think that there are at least as many phenomena to justify comparison with affective psychoses, the manic and depressive features, as there are to justify any comparisons valid to the schizophrenic state. I think that the phenomena that are observed by means of the hallucinogenic drugs, if my statement here is valid, need to be related to a class of phenomena, a marginal group of disorders into which I would place the alcoholic hallucinoses, the dextro-amphetamine and Preludin psychoses, the psychoses of patients with brain injuries, certain puerperal psychoses cases, the psychogenic psychoses, which have been so well described by Pergamun, and the epileptic psychoses, in all of which one does get a blend of features; and I think that this whole controversy as to whether in these hallucinogenic psychoses one is dealing with a schizophrenic-like or organic state could be profitably related to this whole group of disorders.

The next point relates to this very interesting phenomenon of the sense of objectivity, detachment, the Olympian experience, that many of the observers have described in the patients who have been given these hallucinogenic drugs. In the most unexpected types of patient, alcoholics and psychopaths we see manifest attitudes of self-criticism and remorse, and detached self-appraisal which is very surprising; and the attitudes that are recorded by the different

workers, which we have had commented on this morning, strongly suggest themselves as important components, at any rate, of the effects of these drugs, and deserve detailed and systematic examination. I should just like to quote one description by a very intelligent sexual pervert, who was given LSD by Dr. Ball in our department. He said, after a very long and interesting description of his experiences (incidentally, the most inhibited people, lacking in spontaneity, produce the most extraordinarily interesting documents; this I have found a very surprising thing), "Shortly afterwards I was shocked at my own Olympian attitude to most people, especially to my in-laws, neighbours and so on. Perhaps now that I really have been on Olympus I shall have no need to behave as though I am up there all the time. What call is there for vanity when one has so much to be really humble about? The last insight came about 7.45. Teachers, it is often said, should teach children, not subjects. I have always taught subjects, not children. But again I saw a double meaning. I have treated children as subjects, and I have been the king of the classroom."

I believe that there is a great need for more classification and description of the effects, particularly with patients with different types of disorder, in an attempt to define consistencies in the pattern of reaction.

My third point is a note of caution. A great many writers (we had references to this this morning), have described psychoses as occurring in the course of treatment. There is a tendency to attribute these psychoses to a predisposition, and this sound suspiciously like wisdom after the event. I believe that it is essential that we should know the exact and precise hazard involved in the administration of these drugs, in relation to the psychoses, the precise frequency with which they occur, and the long term outcome in these patients before we undertake exploration with LSD or other drugs, irrespective of diagnosis. At the same time, we need not assume, as is often done, that when a transient psychotic illness occurs in neurotic patients, the illness is necessarily a schizophrenic one. Each of the major forms of neurosis is characterized in a minority of sufferers from psychological or biochemical stresses by its own form of psychotic reaction, reversible and benign, I believe, in a majority of instances —paranoid states in the obsessional cases, hallucinatory delusional states with some clouding of consciousness in anxiety states, and catatonic-like, quasi-catatonic stupors, organic states with psychotic features, in the hysterics.

Fourthly, a brief word about the results we have had reported. My first introduction to the treatment in alcoholics was at a certain university in North America, where I was assured by one of the therapists that it was essential for the therapist to take the drug himself—otherwise, he was totally incapable of empathizing with the patient. We began studies in our department, with certain modifications, and, shall I say, a certain scepticism. We have treated a total of only twenty-four patients, and, briefly, there have been, immediately after a course of treatment in three of seven alcoholics, remission, as also in two out of four cases of malignant hypochondriasis and in one fetishist, one frotteur, and one of two transvestists, who were the only ones of eighteen patients studied in the department who would accept any form of treatment aimed at converting their sexual identification. Of course, it remains to be seen how long these remissions last. They may be very transient, or they may be more prolonged. Whether they are due to new insights into unconscious mechanisms, to suggestion, to pharmacological effects, or to combinations of these, the effects, the phenomena with their sudden and striking transformations of

attitudes, are of very great interest, and deserve careful scientific enquiry. Any treatment, whether suggestion or otherwise, that produces even a three months' remission in a chronic alcoholic who is insightless, and in whom treatment has failed in the past, clearly does deserve very careful examination. From a scientific viewpoint, on the other hand, it is essential to carry out control studies; this is especially necessary in any treatment that is time-consuming, in which observations have to be conducted each time for several hours. As Dr. Sandison said, really stringent trials might be difficult, and perhaps impossible. On the other hand, an evaluation of the results of treatment such as LSD as against psychotherapy, drug and supportive treatment, should not be too difficult, carried out by independent observers. We should then get some objective evaluation of how and what these treatments can achieve in relation to other treatments.

The therapeutic enthusiasm and exhilaration that tends to be produced by treatments of this kind, with their sudden dramatic effects, is very difficult to resist. This tendency to cast a blind eye on uncertainties, failures and hazards, which is a very natural tendency of all of us when treatments of this sort comes into our hands, reminds me of a comment made by Mr. Harold Macmillan when an honorary degree was conferred upon him at the University of Durham last year. He referred to his career as a politician in the North-east of England and said, "I have fought six elections in the North-east, three I won and three I lost. What a tribute to the balanced judgement of the people of the North-east!" Where is this profound, though perhaps hyperbolic, remark more manifest than in the field of psychiatry, that human beings may be divided into those who espouse enthusiasms, and those who are unaffected by them. The latter are the experts. They frequently begin by telling us that it has all been done before, or said before, by Esquirol or Pinel. Or they behave like Ford's experts, and you remember that Ford said that an expert was a man who said 'it cannot be done'. On the other hand, they may behave at the opposite end, the enthusiast rather like the calculating genius of Vermont. You remember this was a calculating prodigy in his 'teens, and it is claimed that he was pressed and pressed and pressed to explain how he did it. In exasperation in the end he said, "God put it into my head, but I can't put it into yours." And I think many of us have been guilty of one or another of these sins, or possibly both. But I think the future of psychiatry, particularly of scientific research in psychiatry, depends upon an integration of these two attitudes into scientific enquiry.

CHAIRMAN: The meeting is now open for discussion and Dr. Spencer Paterson wishes to make a contribution.

DR. A. SPENCER PATERSON (London) here described an experiment on psilocybine in a young normal subject, using a series of slides to illustrate his remarks. 6 mg. were given by mouth. Subjective sensations were correlated with clinical symptoms and EEG, psychogalvanic reflex, heart rate and respiration. The patient had been conditioned to react by fear to a particular tone.

The main findings were: *Subjective sensations:* euphoria, a feeling that everything was very comic, visual hallucination of a multi-coloured cloud two feet above him, elongation and shrinking of the body, lack of insight. There was no hyperamnesia for early or late events in his life, and no interest in the future.

Clinical symptoms: Mydriasis, greatest after two and half hours, as also increase of pulse rate from 70 to 120, hyperhidrosis, hypertonia of muscles, slight restlessness.

Polygraphic findings: Increased muscle potentials tended to interfere with EEG and cardiotachymetric records, but one and a half hours after the injection, the heart rate and the P.G.R. failed to respond either to the conditional or unconditional stimulus, although the respiration responded more markedly.

Conclusion: The patient's euphoria and hallucinations were accompanied by marked activity of the autonomic nervous system (mostly sympatheticotonic) and conditioning appeared to shift from the autonomic to the voluntary muscular system.

The experiment was terminated by an injection of Largactil after four hours. Symptoms had reached their maximum between two and three hours.

Dr. J. BIERER (London): Dr. Sandison, if I understand him rightly, said that lysergic acid is a personal relationship. I would have thought that lysergic acid is a drug, which causes a change of orientation, time and place, a change of emotions, intellectual attitude, and in which the personal relationship might play a great part. I just wonder if he could put me right on that point. The second point I'd like to bring up is that I'd like to join Professor Martin Roth, in sounding some caution. After the short experience I have had, three years, I'd like to say that though I consider lysergic acid a very important drug, and I wouldn't like to be misunderstood, but I feel that we have to be cautious and not fall into the mistake of going from one fashion to another. I'm just reminding you of insulin.

And, third, we have to consider more carefully our personal attitude. I know of a psychiatrist, a first class man, but who I believe has been most inhibited in his personal relationships; therefore for him the giving of lysergic acid is a tremendous personal experience, because there he has a chance really to relax for the first time perhaps in his personal treatment relationship. Therefore he is apt to see his results. I believe, with rose coloured lenses, and I think we have to be all very careful on that point.

The next point I'd like to raise is that Dr. Martin and I treated a number of cases of homosexuality, and we had some very good results with lysergic acid. The homosexuals, and the people with sexual difficulties, get tremendously excited under lysergic acid, to a point I haven't seen with other cases, to the point that some of them have to masturbate throughout the whole session. I'd like to ask other people if they've had the same experience.

Dr. J. T. ROBINSON (Horsham): I am very glad indeed that Dr. Roth has emphasized this problem of a control in the use of LSD. Dr. Sandison has given us, from his very vast experience, an appreciation of how widely this drug is used in a variety of neurotic problems, character disorders and psychopathic personalities. He has also indicated that no controls have been attempted, and the difficulties that have been met with in trying to carry out these controls.

We have just tried to do this at Roffey Park, and we have been doing this for a year, and we have taken the advice of Dr. Sainsbury in the method by which this should be done. We have had all our patients between the ages of eighteen and fifty-five who suffer from tension states, put into the project, and we have now completed eighty-seven patients altogether, and we are now waiting for a three months follow-up, which is almost complete, and then we are going to follow-up them for six months.

It might interest the conference to see what we in fact have found. We have compared the LSD results with standard treatment and what we recognize as

standard psychotherapy. This utilizes the relationship between the psychiatrist and the patient in the normal interview session, and the interpretation of the here-and-now situation, suggestion and everything else. We are also using another abreactive drug, and we are using this against LSD. I don't want to go into any further details on the methodology, but we have to realize, of course, that the whole treatment is being carried out in a therapeutic environment peculiar, possibly, to Roffey Park itself.

The interesting fact that comes out—we only have immediate results—the interesting fact that comes out overwhelmingly is that standard treatment is better by 10 per cent., statistically, definitely better than either of the two abreactive techniques.

Now, of course, it's very difficult to judge this problem of immediate results and I don't think it's a very useful thing. All of us who have used this drug—and this has been brought out again and again—are tremendously impressed by the odd, dramatic reaction the patient has, with the immediate results that follow, and we tend to think that this is a panacea for everything; and it's not. All of us who are really thinking about this problem recognize that we have in our hands an extremely valuable tool. But those of us who have read the *Sunday Pictorial* must have been completely shocked at the general impression given of the value of LSD in the treatment of homosexuals.

I am not impressed by this. We have used it in homosexuals; some may do well, some may not do well. But we haven't enough evidence. But following this article which came out, I had a female patient who was given it for something quite different, and she said to me, "Doctor, please don't, I don't want to have the drug. I understand it's only given to homosexuals". This is dangerous, and I feel this kind of publicity should be avoided.

I have a feeling that LSD itself is a very important drug, and of value in the neuroses, and I think it is going to prove very valuable particularly in phobic anxieties. But I don't think we can make any definite assessment about it until we see how it is going to compare with other techniques, and other treatments over a long period.

Dr. ASTLEY COOPER (Liverpool): I should like to ask Dr. Sandison, particularly, whether he has found that there is a difference between the experimental situation and the treatment situation. I find that, in the first instance, hallucinations, patterns on the walls, and so on, are common, but that at a later date they tend to fade out and resolve themselves into regressions which explain them. In the same way, extreme regression, such as a return to early childhood experiences, and living them out, seems only to come at the end of a long period of treatment. And this would be rather against the theory of a model psychosis. It seems to me that the patient gets into better relation to reality as the treatment goes on. I would like to express a warning about the interpretation of symptoms occurring during treatment, as being due to the drug itself. For example, nausea occurs fairly frequently. But in at least one instance, the patient explained it afterwards as being an almost conscious resistance mechanism.

Finally, I should like to ask what experience others have had with facilitation of epilepsy with these drugs. It has occurred in at least two cases in my experience, and is a potential danger, which I feel I have to protect myself against.

CHAIRMAN: I think that I'll ask Dr. Sandison to start his reply, and if we have time we may come back again if there are any more speakers. So, Dr. Sandison, would you like to reply? Look, I do hope that any other speakers on the panel will join in at any moment that they feel that they want to, if they're in disagreement or agreement, with the person who happens to be leading the reply at the moment.

Dr. SANDISON: Mr. Chairman, there are a number of questions which have been asked, and I think many of them must remain subjects for further discussion and experiment. Dr. Linford Rees has drawn attention to the difficulties of correlating biochemical or chemical physiological theory with the observed clinical effects of these drugs. One can't say anything definite about this, but perhaps in return I might pose further questions to him on this very point. You see, we know that LSD antagonizes serotonin. Yet on the other hand there are grave doubts as to whether the serotonin theory of schizophrenia or psychosis is any longer valid. Therefore it seems that, although there may be some eventual discovery of disorders in the metabolism of the catechol amines which may explain schizophrenia, I don't think we ought to jump to conclusions that because there is some similarity of action this explains the possibility of the LSD state being a model psychosis.

The same kind of difficulty arises with the mono-amine oxidase inhibitors. Here we have a series of drugs that all have one thing in common—they inhibit the mono-amine oxidases. Therefore we're inclined to say that their action in depression is because they have this particular effect on body chemistry. But I think it still remains to be proved that this really is the case.

We therefore have to take the same kind of analogy in wondering whether there is any common factor to be found in these drugs in connection with increasing sensory deprivation. The problem we're up against here is that LSD appears to be the most active of the three drugs we've considered this morning —I think the other speakers will probably agree with that—and yet there seems to be the least evidence that sensory deprivation, in the sense that we understand it in the case of phencyclidine, occurs with LSD.

You see, what we're looking for, really, is some common mode of action; and if the theory is right that LSD produces an activation of the unconscious by dissociating ego values then one would expect that these drugs, if they're all therapeutically active, would in every case produce activity of the unconscious, and therefore there would be some common features in the psychological manifestations of these drugs.

Professor Martin Roth has explained that there are differences between the affective response to these drugs and the hallucinogenic manifestations. It seems to me that the hallucinogenic, that is the image-forming, manifestations are the things that these drugs have in common. Where they differ is in the effect they have on the patients. I think we had a notion of this from Dr. Brian Davies's observations that of patients who are given both LSD and phencyclidine, those who took the latter showed less anxiety. This kind of observation has been made to distinguish between the different hallucinogenic drugs. The one factor which seems to be of the greatest importance is the one that Dr. Bradley drew our attention to last night, and that is that LSD does have this clearly marked effect in experimental animals on the sensory collaterals to the reticulo-excitatory system.

It seems to me that research along these lines should now be extended to the other members of the hallucinogenic series we have considered this morning, which may therefore throw further useful light on this question.

Dr. Linford Rees asked about the question of the use of LSD in pregnant women. I really brought this question into my paper to draw attention to the importance of environment, and to show that if the environment is suitably arranged, offering the maximum degree of emotional security, a much wider range of conditions can be treated. I think what Dr. Linford Rees had in mind, though, was the possibility of damage to the foetus through some physiological or physio-chemical agency, and, as far as I know, there is no information about this. The work on the pregnant women is in the report of the Macy Foundation Conference. As far as I know there are no sufficiently long term follow-ups to know anything about the resulting states of mind of these "LSD babies".

The individual variations due to the drug appear to be something to do with differing personalities. We know that obsessionals respond quite differently to anxiety states, and, as we've already heard this morning that hysterics respond to psilocybine in a different manner to those with other conditions, and patients who have had leucotomies respond differently to those who have not had leucotomy, so it does seem that it is the personality, and possibly interference with brain structure, which is the factor which affects individual variation.

We must also bear in mind that the environment and the state of mind in which the patient approaches the experiment may in itself cause great individual differences.

Professor Roth asked about the dangers of psychosis—what its frequency was, and the long-term outcome. In nearly 500 cases treated at Powick we have a clear record that only one patient became psychotic, and that patient is, after five years of being in and out of another psychiatric hospital, at this moment in hospital; and it does seem—I was in touch with the hospital recently in doing a follow-up—that some of the material which this patient is now producing in the course of his psychosis is similar to that which he showed during the treatment with LSD, and it may be that in this one particular case there is some definite connection between the psychosis and the treatment. I cannot think of any other patients in whom the long-term result has been so unfavourable.

I'd just like to clear up a small misconception with Dr. Bierer over the question of what LSD treatment is. I think he may have misunderstood what I said about this. I said that the giving of LSD involves a psychotherapeutic relationship between the patient and the therapist. It seems to me that every treatment of this kind must be considered as a relationship between two people, the patient and therapist.

I was rather surprised to learn that such marked sexual excitement occurred in patients with sexual neurosis, although it is clear that if this is the patient's main problem one would naturally expect that sexual material would be produced in some abundance during the abreaction.

Dr. Astley Cooper's remarks—I really wish we could have heard more of his experience, because I do know that he has been treating patients with LSD for some four years, and it would have been nice to have heard a little more about his material—I do entirely agree with him that there are these very interesting differences between the administration of LSD to patients in the experimental situation and in the treatment situation. It seems that we should perhaps stress

these differences rather more, because different investigators are working in these two different ways. It's unusual to find the same person giving LSD to patients in the experimental situation, and also carrying out an extensive treatment programme. Therefore those who are working in the experimental situation may find it difficult to appreciate just how we clinicians are working. As I think Dr. McKellar said last night, his is the text, and we are the footnotes, and we would perhaps think that we are the text and he is the footnote, but this illustrates, I think, the physician's approach, and the difficulty we have in bringing the results of the experimental situation and the treatment situation together. I entirely agree, Dr. Astley Cooper, with your views on this point.

CHAIRMAN: Thank you. Professor Pichot?

Professor PICHOT: I will just say a few words, in answer to Dr. Linford Rees. He asked if there were any possibilities in predicting the outcome of the administration of the drug. In normal persons, if one controls the body-weight, we don't have definitive results. Dr. Lempérière is now working systematically in this field, and she's accumulating experiments, but we can only give some preliminary clues. Our impression is that, of course, they probably can be predicted, in the way that sensitivity to the drug is probably related to a large extent to the type of personality. It seems that the reactivity is highest when the patient's personality is of the anxious type or shows lability. Patients with the hysterical type of personality, show normal sensitivity. And on the other side, the more resistant patients are those who exhibit some obsessional features, that is they have the obsessional or anancastic type of personality with a difference in their type of verbalization and the use of language as a defence mechanism.

A second point is an answer I would give to Dr. Cooper on the specific questions on the relations between the effects of this drug and epilepsy. We didn't produce any epileptic seizures in any patient who didn't have epileptic seizures previously, but we gave the drug to two patients who were epileptics and who had, previously, generalized seizures on one side, and psychic seizure of the temporal type; and we reproduced under psilocybine the psychic seizures, with the psychic aura, and so on.

Finally, I would say a word about what Dr. Brian Davies said about testing these drugs. I didn't refer in my paper to an experiment on testing which we did on normal patients under psilocybine. We used a group of patients, twenty patients, whom we tested before, after and during the action of the drug, using a Holzman test, which is a variation of the Rorschach Test, but which is much more suitable for such experiments since it has psychometric properties. The striking fact was that there were practically no changes, because if you test a patient under the effect of these drugs the concentration he is asked to give to the test makes all the abnormalities of perception disappear. In fact, the means of the different results didn't differ significantly between the normal state and the abnormal state, and the correlations between the normal state and abnormal state were extremely high—I mean the test has a high validity, but it remains under the influence of the drug. The only differences we found were in the answers related to the so-called colour responses, where the correlation dropped. The mean remained the same, but the correlation dropped, so it seems that there had been changes, some of the subjects having more colour responses under the influence of the drug, others having less, the mean remaining

the same for the total group, but coming from different individuals. The other types of answer didn't show any significant change. I think it's a very difficult technical problem, because if you ask the patient to do something under the influence he has to pull himself together, and everything disappears.

We had the same difficulties in one experiment we are doing now with painters. We have a very large number of French painters (twenty-seven in all), of different kinds—so-called figurative, and non-figurative, abstract painters—all working under psilocybine. In the beginning it was impossible to obtain anything, because, during the experiment with the drug they refused to do anything—they couldn't start. We devised a special technique; we asked them to begin before the experiment, and then they took the drug and continued on the same painting, and we took a picture at intervals. When they had started before they found it possible to continue, and there were some extremely striking changes, which will be published later, in the sense that the paintings took on an expressionistic style. This point was extremely interesting. But it was the same problem, that the patient, during the experiment, had great difficulties in doing something when asked to do it, and when he was able to do it he came back to a practically normal state. So I think it's a very great difficulty in all control experiments using tests or similar methods, during those tests; and if one doesn't obtain any significant difference it doesn't mean that people are not different, but that the testing situation is so abnormal that it brings them back to a practically normal state during the experiment.

CHAIRMAN: It remains for me to thank on your behalf all the speakers in the usual way.

THIRD SESSION

"TECHNIQUES AND METHODOLOGY"

CHAIRMAN: W. LINFORD REES

PERMISSIVE GROUP THERAPY WITH LSD*

By A. M. SPENCER

THIS paper describes an experiment in the use of lysergic acid carried out at Powick Hospital between March 1958 and July 1959. The theoretical basis of the experiment was that as lysergic acid enables the patient to relive so vividly traumatic childhood experiences it would seem reasonable that the best results from the treatment would be achieved by the patient reliving these traumatic childhood experiences in a setting of emotional security and in conditions approaching as closely as possible to a family group. The therapeutic family group would lack those elements present in a normal family which are conducive to the development of neurotic reactions and in particular it would provide the patient with opportunities of working out his infantile conflicts in a non-authoritarian, non-critical atmosphere. Just as the individual analyst accepts the patient's infantile conflicts without criticism, so the family group would accept the words and actions resulting from these conflicts also without criticism. An essential feature of the family group would, therefore, be that it would be entirely permissive as far as the patient's behaviour was concerned.

In order to reproduce the conditions of childhood a room was taken and furnished somewhat along the lines of a child guidance play therapy room. I was assisted by a female nurse who was prepared to play the role of mother to the group. Two days each week were set aside for the treatment and from 9 a.m. to 5 p.m. the nurse and I were continually with the group, which consisted of ten women patients, half of whom were in-patients and the other half out-patients of the hospital. At 5 p.m. the in-patients returned to their wards and the out-patients to their homes. At the beginning of the experiment it was, of course, quite unknown how long it would be necessary for the group to continue, but it was assumed that it would take at least a year for the patients to rid themselves of the defence habits which they had acquired over the years and to develop a permanent feeling of security from their relationship with the new permissive non-critical father and mother surrogates.

I will now deal in greater detail with the three features of the group I have mentioned—(1) The room and equipment provided. (2) The selection of the patients for the group. (3) What we found to be the nature of the treatment as time went on, and (4) The results of the treatment.

(1) *Room and its Equipment*

The room was approximately 12 metres by 6 metres in size with adjacent toilets and bathroom. It led off a long wide corridor in which a number of surplus chairs were housed. The equipment provided in the room was along the following lines: At one end of the room there were two rows of three low beds on which the patients could rest if they wished. Between the two rows of beds was a refectory type dining table at which we all sat for the midday meal. At the other end of the room around the fireplace were a number of settees and easy chairs on which we could sit, but the total number of seats available was slightly less than the number of patients and staff so that it was necessary for patients and

* Part of a longer paper published in the *British Journal of Psychiatry*, Jan., 1963.

staff to sit in close proximity to each other. In various parts of the room there were a number of isolated chairs for patients who felt unable to join in the group around the fire.

Other equipment provided included a plastic paddling pool, and sand tray (size 1½ metres square), modelling clay, a fully furnished dolls' house, animal figures comprising a miniature zoo; a piano, drawing and painting equipment, dartboard, skittles, blackboard and easel, and the whole of the lower half of one wall was painted as a blackboard; and as it turned out most importantly, a large number of soft toys such as teddy bears, poodle dogs, rabbits, pandas, etc., and a number of fully dressed tailors' dummies—an adult male, an adult female, two girls and a boy. It was felt that treatment would be easier if the patient's good mother and father and bad mother and father surrogates were separated, thus avoiding the need for ambivalent attitudes on the part of the patient which would result if the good and bad parents were combined in one surrogate; it was hoped that the tailors' dummies would act as bad mother and father surrogates while the doctor and nurse would be regarded as the good surrogates. Fortunately, events proved this hope to be justified. Lastly, a record player was provided and also a tape recorder on which the conversation during the day was recorded.

Meals provided. These consisted of coffee and biscuits at 11 a.m., lunch at 1 p.m. and tea and biscuits at 4 p.m.

(2) *Patients selected for the Group*

As the effect of LSD in a permissive group was unknown, it was decided to select patients of bad, if not hopeless, prognosis who had failed to respond to all other treatments. Frank psychotic patients were excluded; most of the patients were either clear cut psychopathic patients or belonging to the group in which psychopathy, hysteria and schizophrenia shade almost imperceptibly into one another. All the patients had been ill for a number of years, some for many years, and most were middle-aged women, but in order to distribute the age range as in a family group some younger women were included. The bad prognosis of these cases needs to be emphasized in view of the results of the treatment.

(3) *Nature of Treatment*

The lysergic acid was given to the patients immediately they arrived at the treatment room at 9 a.m. and the time interval between the giving of the drug and the emergence of symptoms seemed to be the same as in individual LSD therapy. I would emphasize that I was most fortunate in having available as a mother figure a nurse of stable and equable temperament, a married woman with two children of her own who remained entirely calm and unruffled during the stormy vicissitudes which the treatment was later to pass through. On the first day of the treatment all patients received 1 c.c. of lysergic acid = 100 μg.

I regarded as important the establishment of a positive transference between the patients and the doctor and nurse and on the first day of treatment it became apparent that, with one or two exceptions, the positive transference would develop with complete ease. This might well be, of course, a function of the time the two therapists (the doctor and nurse) spent with the patients, but my own impression was that the establishment of the transference was very clearly facilitated by the LSD and in all cases, except one, it had been established by the end of the second day's treatment.

At the beginning a fairly typical day's treatment would run somewhat as follows: about twenty minutes to a half-hour after they had received LSD some patients would complain that they were feeling hot but generally they would become increasingly absorbed in their own thoughts and feelings and patients sitting close to each other or to the therapists might remain for a couple of hours without saying a word; some patients might walk around the room restlessly, one or two might busy themselves with tidying the room, some would play distractedly with the clay modelling, write on the blackboard or play with the dolls' house. One patient would wrap herself in blankets and hide herself between one of the beds and the wall and remain there for several hours occasionally running out to bathe herself in the adjacent bathroom. This quiet, withdrawn phase was usually succeeded after about four hours by a much more outwardly directed phase in which the patients would talk and argue with each other and as time went on become increasingly aggressive. Gradually this phase would subside, and about six hours after the treatment, if we were not engaged in some group activity such as dancing, the patients would gather around the fire and talk about the experiences of the day. This general pattern was, of course, marked by many individual variations, some of which I will describe in a moment or so, but I would like to say a word now about the permissive character of the treatment.

It has since become obvious that a great deal of the patients' early difficulties had been associated with the frustrating character of their childhood's insecure environment and that one of their greatest needs was to test the love of the therapists for them by seeing how far they could go and what anti-social acts they could indulge in and still retain the therapists' love. I decided that there was only one answer to this problem and that was to allow the patients to do precisely as they wanted to unless their actions would result in the possibility of serious damage to themselves or others. This is the aspect of the treatment which creates the heaviest responsibility for the therapist but is, in my view, quite essential. To limit the patient's activities is in effect to criticize the patient's freedom to do as he wants to do, and certainly the patients selected for this group needed to have a phase in which they could do exactly as they wanted to do and still retain the therapists' love before they could pass on to a more mature phase of accepting the demands of society upon them. One of the difficulties in carrying out the treatment was the fact that the in-patients had to adjust themselves to the relatively more disciplined life of the hospital ward in spite of the fact that the nurse who acted as mother surrogate was a member of the ward staff.

The completely permissive character of the treatment first of all expressed itself in the patients' attendance for treatment being entirely voluntary. If a patient did not wish to attend for treatment no pressure was exercised but she was welcomed to the group when she did return; quite a number of treatments were missed for this reason. Patients were also free to leave the room at any time they wished during the day. At different times a number of patients would walk around the hospital grounds either alone or together. Occasionally a patient would leave the room shortly after being given the LSD and would not return until the late afternoon. One patient went, on a few occasions, to a brook, within the hospital grounds but about two kilometres from the hospital, and spent the whole day in the nude, either in the brook or sitting on the bank. Some patients, to the despair of the hospital gardener, would go out and pick

large bunches of flowers from the hospital flower borders and would return with these as gifts either for the therapists or for the other patients.

Inside the group therapy room the permissiveness was also complete and during the first weeks of the treatment it became apparent that the patients would use this permissiveness to express their infantile conflicts, mainly in an aggressive manner, particularly in the more outwardly directed phase which followed the initial phase of withdrawal after administration of the drug. The patients' aggressiveness became directed towards nearly all the objects in the room. They would tip over the tables or disturb the bedclothes, and sometimes the room became rather like a shambles. The centre of the patients' aggressiveness, however, were the tailors' dummies, representing father, mother, brother and sisters, and in particular father. Initially the aggressive acts did not do actual physical damage to the figure. One patient carried out the father figure and stuck him head downwards in the w.c. pan of the adjacent toilet. Another patient, early on, carried out the father figure and took him to an entirely different part of the hospital. On her return she said, "Now I've got rid of the old b— I can go and bring him back", which she promptly did. Gradually as the weeks went by the attacks upon the father figure became more violent, the patients would throw the figure to the ground and jump and stamp upon him. His clothes were torn to shreds and in the end his arms and legs were violently removed. It was impossible to replace him with another tailor's dummy and it was interesting to see that the patients' reactions to the dismembered dummy, who was but a shadow of his former self, were quite as violent as they had been when he represented quite a good looking man. The mother figure dummy did not come in for anything like the same attention. One or two patients would revile her and in due course she became a little battered, but in general she was treated much more kindly and the patients' treatment of the two figures generally corresponded with their treatment of the male and female therapists.

Throughout the treatment, the nurse/mother surrogate was always sought as a source of comfort and reassurance by the patients who never on any occasion exhibited any hostility towards her. Towards the doctor the patients' reactions were much more ambivalent. Usually, they sought reassurance from me also, and only on three occasions was actual physical aggression used, fortunately not in a serious form. Usually the more psychotic the patient the greater was the tendency to physical assault upon the therapist. The patients' aggressiveness included breaking the windows. As the treatment progressed, the broken glass was replaced by perspex but the patients said that they did not find pushing out the perspex panes nearly as satisfying as they had found the breaking of the glass. The record-player, for some reason, escaped attention except on one occasion when a patient swept it off its table.

Apart from the overt aggressiveness of the patients towards the dummies, these figures were sometimes used by the patients symbolically as a source of comfort when they took the dummies actually into bed with them, and the hysterical patients especially would conduct monologues with the dummies in which the male dummy in particular was obviously identified with the patient's father. The boy and girl dummies came in for very little attention. The girls were practically ignored and only in one case was the boy, who was identified with the patient's brother, assaulted.

The record-player proved to be a very valuable piece of equipment; about a dozen long-playing records of lightish classical music were used and these were

played over and over. The patients never seemed to weary of them and indeed they seemed to find a measure of security in hearing what became familiar pieces of music played over and over again. Only on one occasion was there any dispute between two patients as to which record should be played. On one occasion I tried playing a record of factory noises but this was found to be so unbearable to the patients that I did not repeat the experiment.

It was found inadvisable to use the tape recorder for the conversations during the day because when these were played back the patients very strongly objected, one remarking, "It's like hearing what's going on in one's soul".

The soft toys were another much favoured class of equipment, as they undoubtedly helped to form a link in a chain through which the patients first formed personal relationships with these inanimate objects which they were gradually able to extend to people whom they knew. One patient in particular, for the whole of the first two days of treatment gazed at a teddy bear which was lying on a bed and on the third day she was able to touch the bear. Gradually it became her inseparable companion and, in fact, an idealized father figure. Another patient, in this case an out-patient, became firmly attached to a large rabbit whom she identified with her estranged husband, and for some months she insisted on taking this rabbit home after each treatment and bringing him back on the following treatment day in the public omnibus, to the surprise of her fellow passengers.

In between the treatments the patients were asked to describe in writing what had happened to them during the treatment, but as the months went by more and more patients found this a difficult task and the habit gradually dropped off except in one or two cases. As the group progressed it became apparent that most of the patients felt little wish to discuss their difficulties and for many of them the greatest value of the group was its entire permissiveness. I am sure that to obtain the best results it would be necessary to see the patients individually on a third day of the week in order to help them to sort out their problems which had become apparent during the group sessions.

A word about the doctor as therapist. I did not seek in any way actively to initiate explanations of psychological mechanisms except in so far as patients' questions and so on made it necessary. My role was entirely supportive, encouraging and non-critical. In this connection physical contact between the therapist and the patient seemed to be essential, particularly during the late afternoons. Patients would come and sit on my knees or on those of the nurse/mother. Frequently they would cry and need a great deal of reassurance. I felt that these patients' basic need was a period of emotional support while they were initially dealing with their infantile conflicts and this is all I sought to give them.

(4) *Finally, a word as to the Results*

As I mentioned at the beginning, all the patients were regarded as being of hopeless prognosis. Of the ten patients, three improved sufficiently to require no further psychiatric help; three patients remained unimproved; the remaining four were helped to a fairly definite degree. One patient has since been on twice-weekly individual LSD, and is at last showing signs of an almost complete recovery towards which she says the Group LSD has made an essential contribution.

In view of the very unpromising material of which the group was composed, I consider the results worth while. The next step will be the organization of a ten-bedded unit, in which the patients will be able to spend the whole of their time on a permissive basis, and in which they will receive LSD as a group on two days a week, while a third will be devoted to individual interviews, and the remainder of the week will be filled with such activities as the patients may wish.

PSYCHOTHERAPY WITH HALLUCINOGENS

A CLINICAL REPORT WITH SPECIAL REFERENCE TO THE REVIVAL OF EMOTIONAL PHASES OF CHILDHOOD*

By H. LEUNER

THE clinical experiences in the psychotherapy of neurosis by the aid of hallucinogens which are the subject of the following report were gained within the scope of a research programme of the Hospital for Mental Diseases at Göttingen University, Germany. We made use of LSD and psilocybine and also of mescaline. In our method of treatment we followed the experiences gained by Drs. Sandison, Spencer and Whitelaw in 1954. Our experience corresponds as a whole to those described by those authors and by Dr. Eisner. Our case material as well as the therapeutic results are illustrated in the following table:

	Recovered	Greatly Improved	Moderately or not Improved	Stopped Treatment Early	Total
Schizophrenic borderline cases	3	2	3	—	8
Obsessional neurosis	1	—	1	—	2
Puberty neuroses	3	1	1	—	5
Neurotic depression	2	1	—	—	3
Anxiety neurosis	2	6	3	4	15
Character neurosis	7	3	2	—	12
Sexual neurosis	—	2	2	1	5
Conversion hysteria	1	2	3	—	6
Self-experiments by doctors ...	—	—	—	—	4
Infantile personality	—	—	2	—	2
Impediment of speech	—	—	1	1	2
	19	17	18	6	64
		36	—	—	—
Total number of cases		64	—	—	—
Self-experiments		4	—	—	—
Stopped treatment early ...		6	—	—	—
		54	—	—	—

Patients completing treatment—63 per cent. recovered or greatly improved.

Out of sixty-four patients treated ten should be disregarded, as their treatments were either stopped too early or they were treatments carried out by my co-workers in training. The remaining number of cases consisted of serious and chronic neuroses and psychogenic psychoses. Twenty-two of these cases had already undergone psychoanalytic treatment, E.C.T. or continuous narcosis without success. Nineteen cases out of fifty-four either recovered or were greatly improved; seventeen cases showed a good improvement. By comparing these numbers with the eighteen showing slight improvement or no improvement at all we obtain the proportion of thirty-six to eighteen, a success quotient of about 63 per cent.

* With a grant from the "Deutsche Forschungsgemeinschaft".

Anxiety neuroses and phobias, partly with hypochondria, form the largest group, comprising fifteen patients. In eight of these cases good results were obtained. The next group in size is formed by the character neuroses: twelve cases, out of which ten improved. These two groups, as well as some schizophrenic borderline cases, puberty neuroses, and reactive depressions, have responded most favourably to treatment. On the other side few satisfying successes were seen in the cases of sexual neurosis (including homosexuality), conversion hysteria, and infantile personality, but so far the number of these cases has been small. An approximately similar distribution in about 500 cases is given in the summarized statistics of the first European symposium on psychotherapy with LSD, held at Göttingen, Germany in November 1960. We are under the impression that there is far-reaching agreement as to the essential therapeutic factors in psycholytic therapy. Each of us is familiar with the lowering of defence mechanisms, the recapitulation of traumatic childhood experiences, the abreaction, and the symbolic manifestations of unconscious problems. I refer, for instance, to symbolic death and rebirth. The constituent part of hallucinatory archetypal symbols has always suggested an interpretation in accordance with that of C. G. Jung, whereas the typical repetition of traumatic childhood experiences points to cathartic acting out as first shown by Breuer and Freud in the early days of psychoanalysis.

There is another therapeutic factor which I should like to point out. It could be called the "revival of emotional phases of childhood". If we give consideration to this, new insights into the dynamics of the therapeutic process can be gained. It allows more direct therapy and is very helpful in overcoming resistances, with the aim of shortening the treatment. The following observations were the cause of research being instituted into the field of revival of emotional phases of childhood. During the intoxication with LSD a great number of our patients had experiences well understood from the psychotherapy of children, that is to say, from play-therapy. As is well known, the treatment of children under ten is carried out through freely playing with dolls, animals, and objects. The child is granted the greatest possible freedom in the "acting out". This method of treatment was developed by Melanie Klein; later on it was further elaborated by Zullinger, Berna, von Staabs and by others. During the course of the play-therapy the child develops for himself, often with a surprising experimental certainty, a way of behaviour, a predilection for certain games, and imagination which point to the fact that the child is once more undergoing typical emotional phases of development. They are described by the psychoanalytic and neo-psychoanalytic schools as the oral, the anal, the aggressive, and the oedipal phases (the latter with phantasies of castration etc.). Though I am no adherent of the psychoanalytic school, I had the opportunity of seeing this strange revival of emotional phases when I was working in the field of child psychiatry. According to Axline, Berna, and Zullinger, the essence of play-therapy with children lies in the fact that the child actively moves along lines of imaginary experience and thinking which are normal to him. There is an immediate expression of conflict through play. The emotional acting out in play-therapy very often leads to a dissolution of symptoms. The experience of adults during the course of the LSD intoxication also has an emotional shading and follows the rules of dynamic psychology. Lienert, in his psychological tests under LSD, discovered the predominance of an infantile way of thinking, incapable of abstraction. There is a corroborative view in the research of the

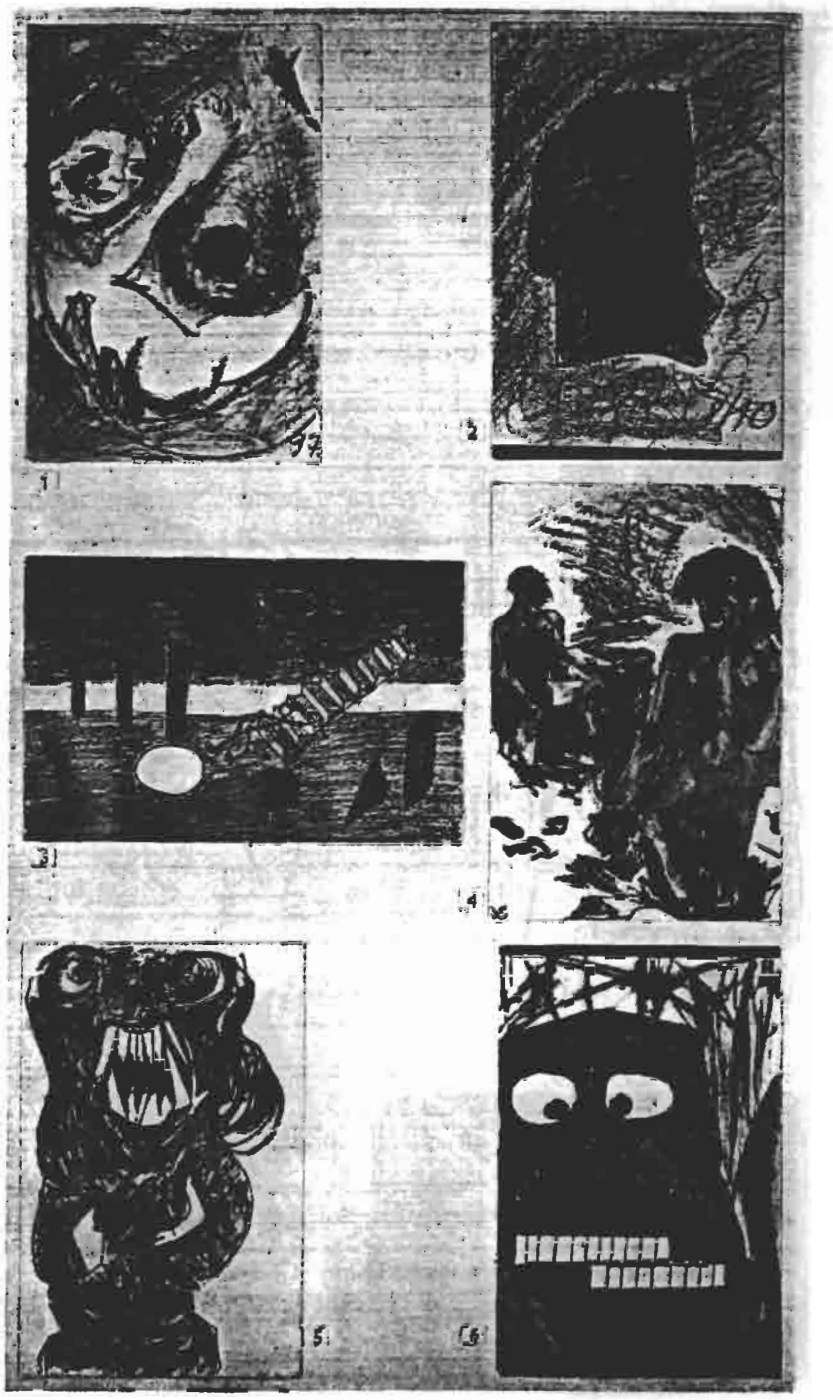


FIG. 1

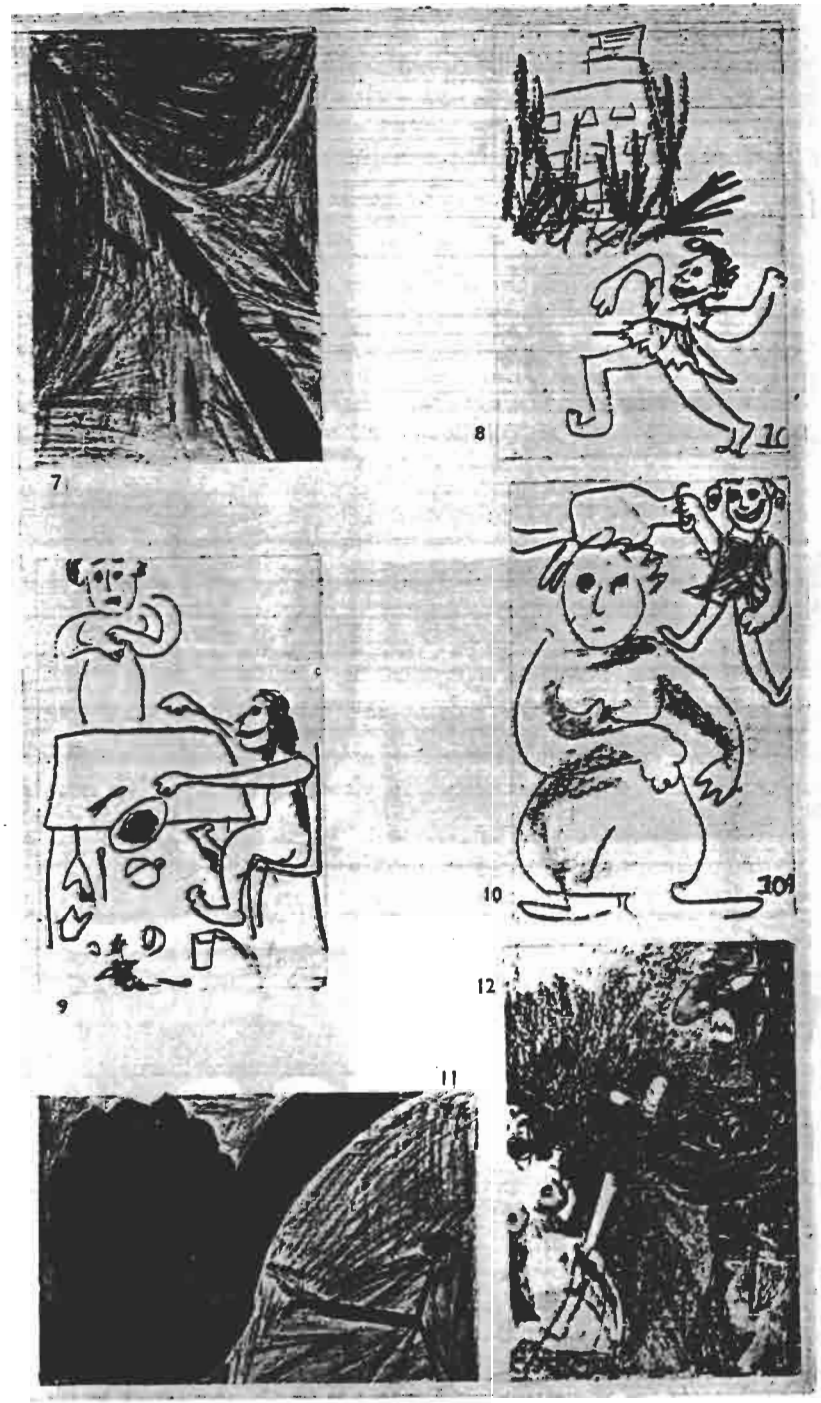


FIG. 2

French psychiatrist Henri Ey as well as in that of the German Conrad. Both show that a regression takes place during the intoxication and also in the course of every symptomatic psychosis concerning cerebral functions and especially consciousness. That is to say: during the course of intoxication not only does the well-known recapitulation of clear-cut childhood experiences happen, but all mental functions as a whole operate at a regressive level. These findings easily explain how it is possible for adults during the course of intoxication to show motor reactions and the kind of imagination which are analogous to those of children undergoing play psychotherapy, with the revival of earlier emotional phases of development. In our treatment these apparently form the emotional background, lasting for fairly long periods and expressing themselves in typically symbolic representations or day-dreaming images. If we fail to pick them up, they can remain hidden for a long time.

FIG. 3, picture 13.

Some examples may serve to illustrate this:

We often find the following hallucinations to be symbolic of oral experiences; the patient feels himself to be a suckling baby and he believes he sees a large mother's breast over him (Figure 1, picture 1). He is subject to impulses which force him to suck, for instance, at the doctor's or nurse's fingers, and to impulses which give him the feeling of being compelled to creep into the doctor in order to find shelter (the experience of cavity, according to René Spitz). There are extraordinary horrible symbols of oral themes, when an unsatisfied emotional hunger, which apparently seems unappeasable, occurs, or even a desire to gorge a man or animal figures. These symbols literally seem to represent the scene of oral frustration as in a self-portrait. Figure 1, picture 2. Anal themes come out pretty often as an expression of the repetition of that phase normally passed through during the second year of life. These pictures, which are no doubt not at all aesthetic, represent hallucinations which are often accompanied by a feeling of nausea (Figure 1, pictures 3 and 4). The recapitulation of the aggressive phase is often of special therapeutic importance. There are different

constituent parts represented in it, with oral, anal, or even sexual, contents. The patients have hallucinations of faces and grimaces; for instance, a caricature of the mother's face or the image of a witch with pointed teeth (Figure 1, pictures 5 and 6). Figure 2, picture 7 shows general and sexually aggressive tendencies. A later stage of aggression is shown by the imagination realizing typical childlike wishes; for instance, that the school is burning down (Figure 2, picture 8); that the odious spinach lunch is thrown down from the table (picture 9), and the little child shows his despair over always getting his milk too hot by smashing the bottle on the nurse's head (picture 10). Without any doubt these experiences which develop from visions into actions have a striking likeness to the play-therapy of children. It is also not rare to see oedipal images in which love for the parent of the opposite sex or castration anxiety in the Freudian sense is experienced in a realistic way. Picture 11 shows the hallucinations of an unconscious oedipal situation; picture 12 the castration of a girl by her father.

We must attach great importance to symptoms of revival of the emotional phases of early childhood. Therapy can be promoted considerably by recognizing these contents and permitting the corresponding reactions, which means encouraging the patient to give way to them. In our existential communication with the patient we are prepared to satisfy certain frustrated impulses, especially in the oral phase, before we start to interpret their meaning. We have important precedents for this method of treatment, for instance the "réalization symbolique" of Mme. Sèchehaye (similar to Benedetti), and of other psychiatrists who have used active psychotherapy in cases of schizophrenia.

During imaginary experiences in these cases an apple given to the patient during the reliving of the oral phase is experienced as the mother's breast—and even as the mother's breast itself and not just as a symbol for it. Therefore we do not shirk the trouble of feeding the patients at these times and of giving them something to drink during the oral phase of psycholytic treatment. During the anal phase the patients are allowed to paint and to smear with paste and paint the walls of an appropriate room. If aggressive impulses emerge, patients are offered the opportunity of giving these free play by acting-out. They tear large quantities of newspapers and they throw cardboard boxes, tins and bottles at hallucinatory figures which they have painted on the walls of a room specially adapted for acting-out (Figure 3, picture 13). It should always be taken for granted that these impulses may arise in the patients. Even if our material is not yet capable of being statistically compared, we feel that fostering the revival of emotional phases of childhood may be an extraordinary aid to therapy. Especially in difficult cases of neuroses (those more nearly approaching psychoses. for instance severe obsessional neurosis) or borderline schizophrenic cases, this method of dealing with suppressed psychodynamic material seems on the whole to be the key to successful treatment.

References

BENEDETTI, B., *Psyche*, 1955–56, **IX**, 23.
BERNA, J., *Psyche*, 1955–56, **IX**, 610.
CONRAD, K., *Fortschr. Neur.*, 1957, **25**, 56.
EY, H., *Fortschr. Neur.*, 1952, **20**, 195.
KLEIN, M., *The Psycho-Analytic Treatment of Children*. London: Imago Publishing, 1959.
LIENERT, G. A., *Ber. XX. Kongr. Deutsch. Ges. Psychol.*, 1956.
SANDISON, R. A., SPENCER, A. M., and WHITELAW, J. D. A., *J. ment. Sci.*, 1954, **100**, 491.

SECHEHAYE, M., *Internat. Symposium Psychoth. d. Schizophrenie*, 1957. Basel–New York: Karger.
STAABS, B. V., *Psyche*, 1951–52, V, 688.
SPITZ, R. A., *Die Entstehung der ersten Objektbeziehungen*, 1960. Stuttgart: Klett.
ZULLIGER, H., *Heilende Kräfte im kindlichen Spiel*, 1952. Stuttgart: Klett.

A set of Dr. Leuner's colour transparencies is in the library of the Royal Medico-Psychological Association, 11 Chandos Street, London, W.1, and is available on loan—(Editors).

ABREACTION AND BRAIN WASHING

By the late H. M. SHORVON

IN the course of treatment with LSD, abreactions may occur spontaneously or can be easily induced. But to my mind something also often goes on, something that I would identify as brain washing. My purpose in this paper is to discuss briefly some of the principles of abreaction and brain washing, with particular reference to the use of drugs.

During and soon after the last war considerable interest was shown in abreactive techniques, as they were found to be of value in releasing the emotional component of recent traumatic incidents and ideas. This was often followed by rapid symptomatic relief. In the uneasy years of the cold war that followed, with its induced fears of destruction and annihilation, reinforced by threats and spy trials, so-called brain washing techniques were evolved, mainly as an extension of the methods and psychological principles underlying abreaction. Modern abreactive methods were introduced as therapeutic aids, often in the course of psychotherapy, but brain washing methods have unfortunately become the weapon, not only of physicians but of politicians, police states and dictators. To alter patterns of behaviour and ideas in the mind, and to indoctrinate with new beliefs, holds out such possibilities for good or evil that psychiatrists must continue their research into the mechanisms involved, either physiological or psychological, if they are to help patients and be in a position to advise on ways of combating the misuse of these techniques. Drugs have been made use of for some time to facilitate abreaction, and also play a part in some brain washing techniques. New drugs of this kind must therefore be carefully examined, and that is one of the purposes of this conference.

No single individual today has done more to stimulate interest in, and attempt to explain some of the mechanisms involved in abreaction and brain washing, than William Sargant. His book, *Battle for the Mind*, is familiar to us all and is the textbook on the subject under discussion. Because of this I will not go into the Pavlovian explanation of the mechanisms and results, as they are fully covered in Sargant's work. What I would like to examine is how and where this knowledge can be applied to our work as psychiatrists.

Abreactions may and do occur spontaneously in the course of psychotherapy or psychoanalysis, during free association or under hypnosis. "Drug abreactions" often facilitate this emotional release and relief of tension. The techniques involved in the use of intravenous sodium amytal or pentothal, ether on an open mask, methedrine or carbon dioxide, alone or in various combinations, have been fully described in previous papers (Shorvon, 1953). They may lead, in suitable cases, to a lessening of tension, the breaking up of newly acquired abnormal patterns of response such as a tic, tremor, aphonia, stammer or other manifestations of "traumatic" hysterical syndromes, the uncovering of repressed or forgotten material and resolution of amnesias, the facilitation of transference in psychotherapy by allowing the inhibited patient to open up and feel less embarrassed when discussing intimate details and events, and the removal of resistances during a torpid stage of analysis (Shorvon). In addition

therefore to relief of specific symptoms, successful abreactions at the right time may be of help in systematic psychotherapy. The most important physiological consideration is the encouragement of brain excitation so that the patient re-lives past experiences with intensity, preferably to the point of exhaustion or complete inhibition. Clinically this results in a release of tension and, if successful, recently acquired neurotic patterns resulting from stress may be broken up.

The intensity of the abreaction may be more important than the accuracy of the abreacted material, and distortions of the true facts may be deliberately introduced to encourage greater emotional response and release. One usually encounters alternating states of fear, anger, resentment or grief during the course of an abreaction. If possible, one should encourage the patient to display anger as the predominant emotion before terminating the abreaction, even if this necessitates deliberate goading and falsification of facts. In general, I do most of my abreactions with the aid of intravenous methedrine or ether on an open mask. If a preliminary exploration is deemed desirable, intravenous sodium amytal is useful and the ensuing abreaction may then be enhanced by ether. I have almost discontinued the use of a carbon dioxide mixture as this causes too much discomfort and is the vehicle most liable to cause increased tension instead of relief. Although the hysterical patient with a reasonably good personality is the type most helped by abreaction, the obsessional patient may also benefit, but if the abreaction fails the patient may become even more tense. Repeated mild abreactions with small doses of intravenous methedrine are preferable in such cases.

Apart from the traumatic neuroses met with in civilian practice and hysterical conversion states, I find phobic anxiety states may be helped by abreactions combined with psychotherapy. To quote an example of making use of aggression to break up an acquired pattern, a patient aged thirty-seven was seen by me in the out-patients department of St. Thomas's Hospital complaining of a dreadful fear of the weather in general and of gales and thunderstorms in particular. This first began during a pregnancy three years before, when she was living in a lonely house on the Isle of Wight and watched plane trees moving in the wind. She was Italian and married an English soldier in 1947. Under methedrine and ether it appeared that one could link the noise of gales and thunder with some terrifying bombing experiences that she had experienced in Trieste during the war. Aggressive abreactions directed towards the bombers, followed by release of anger against the dull English husband whom she despised, resulted in a loss of fear about future bad weather and thunderstorms, plus an improvement in home conditions. Another recent example, and an interesting one, was a man of forty-five who was seen by Dr. Hugh Webb and myself as an out-patient, complaining of impotence of three years' duration. Briefly, he is happily married and has three children. His wife after the birth of the youngest child discouraged all physical relationship for some years, and when she eventually wanted to resume a normal state of affairs, he found himself impotent. It was evident that his impotence was due to an emotional block centring on his resentment of her original rejection of him. He was a gentle person who hated upsetting his wife in any way, but when we managed to get him to release his anger over this rejection and he was driven into a crescendo of excitement, his impotence disappeared, and he has been quite normal since.

Abreactions may occur during brain washing and may be a necessary part

of the procedure, but they are subordinate to the main concern, which is to implant new ideas and beliefs. In the process of brain washing strong emotional reactions may be encouraged to cause disruption of previous beliefs or patterns of behaviour, but advantage is also taken during this period of heightened suggestibility to implant new or opposite beliefs or ideas. In most brain washing techniques the mind is deliberately confused by contradictory attitudes and stimuli, anxiety is fomented, sensitive events of the past are over-emphasized, with accompanying guilt, and during this chaotic state and period of debility new ideas are suggested and if the brain washing is successful are often eagerly accepted. Sargant (1960), in a letter to *The Times*, clearly demonstrated how a stream of conflicting stimuli (blowing hot and cold) imposed on peoples by Moscow may result in a form of conditioning which leads to neurotic patterns and even to the acceptance of beliefs opposed to previous fixed ideas.

From the therapeutic point of view brain washing opens up a wide field but present-day methods still fail to produce a useful result where it is theoretically possible to do so. I suppose one of the commonest successes of brain washing is the treatment of alcoholism by so-called aversion methods. Alcoholics tend to be suggestible and this suggestibility is heightened during the period of dehydration, vomiting and debility produced, and fomented, during treatment. Fear is also aroused by constant references to physical decay and death, and when the patient, in a state of acute anxiety and guilt, is crying out for relief and salvation he is repeatedly indoctrinated with the dangers of the single drink and offered a way out by permanent abstinence. Should a conversion result, he is then re-built physically and advised to join Alcoholics Anonymous, and to attend as an out-patient regularly so that one can continue to preserve the new process of conditioning.

We have in the past attempted to disrupt severe obsessive compulsions or ruminations by first debilitating the patient with a very low calorie reducing diet and then indoctrinating him during the deconditioning process. The difficulty here, and the lack of success, is probably due to the fact that one is attempting to destroy a belief rather than, as in brain washing, to alter it: and the patient is already only too well aware, intellectually, of its absurdity. The process, however, is very similar to the destruction of old beliefs which takes place in brain washing. This method, like so many other methods, fails with the obsessive patient whose nervous system, in Pavlovian terminology, is strongly excitatory.

Theoretically brain washing might be used for the removal of delusions, but the psychotic is hardly amenable. Nothing short of a leucotomy operation is often the answer. We have, for example, in hospital at the present time a woman of thirty-two who was admitted with a six year history of washing obsessions that had failed to yield to psychotherapy and all the usual forms of physical treatment. At first she felt dirty whenever she touched anything belonging to her mother, but later this extended to anything "contaminated" by anybody. Her life became one of abject misery. It is of interest that in 1959 an attempt was made elsewhere to decondition her by daily injections of apomorphine over a period of six weeks. During the vomiting she was forced to hold and handle things belonging to her mother. This had no effect on her symptoms. She had a modified leucotomy recently and this was a striking success. Successful instances of brain washing in the cure of fetishism have been reported in the literature and

attempts have been made to employ such techniques in the treatment of homosexuality, but again with little or no success.

Much work has been done and much written about the use of hallucinogenic drugs, particularly LSD, as abreactive and brain washing media. The claim is that LSD brings vividly into clear consciousness repressed memories of childhood and is therefore a valuable aid to psychotherapy. There is heightened emotionality after the administration of LSD followed by a psychotic state with vivid hallucinations and feelings of unreality and isolation. During this phase the patient is very suggestible and can easily be abreacted or encouraged to pour out accounts of past experiences. Some are even said to relive their own births, taking up appropriate positions and reacting to the pains. Another important claim is that the obsessional neurotic is helped by this treatment, in other words the most difficult neurotic to treat. Sandison, Spencer and Whitelaw (1954) claim that the action of pentothal and methedrine are not comparable to LSD, which is said to "produce a specific activation of the unconscious responsible for the disturbance of the conscious mind", whereas methedrine disturbs the psyche at a superficial level only. They also emphasize that the drug is not a physical treatment but a psychotherapeutic weapon to be used only by skilled psychotherapists. This can be done individually or in groups.

My experience and that of some of my colleagues in the use of LSD is limited, but I think we have seen enough to question the more grandiose claims advanced by some. I have used the drug for abreactive purposes, but do not think it was quite as effective as abreactions obtained under methedrine and ether. Moreover, I find it difficult to see why one should create a psychotic state prior to abreaction as is the case with LSD, when the same abreaction can be produced by other drugs in ordinary doses which do not result at any time in a psychosis. I realize that most claims about LSD concern its value as an aid in psychotherapy, particularly by the revival of childhood experiences. I feel that the almost uncanny way in which this is said to arise is often due to suggestion and leading questions by the therapist during the period of heightened suggestibility produced by the drug. It seems that the patient supplies the therapist with material which supports the therapist's preconceived ideas about the origins of the neurosis. This is what I have already referred to as brain washing, namely, the patient is first excited by the drug, a state of anxiety and unreality follows with suggestibility, and it is at that stage that beliefs can be introduced or altered. More experimental work on the effect of hallucinogenic drugs on animals might help in confirming or refuting some of the claims made about the effect of the drugs on man. For instance, it would be interesting to know whether monkeys take up the foetal position after injection with LSD. The other day we saw a girl in the out-patient department who had been given LSD elsewhere. One of her complaints was that she could not mix with others and was afraid of men. After the injection she was very frightened and then heard footsteps. She was asked what this reminded her of and she said somebody was going to assault her. This was followed by a hallucination of a tarpaulin with an old man sitting on it. She then said that she remembered this man as one who had assaulted her at the age of six, and so on. As mentioned by Sandison and Whitelaw (1957) in a paper on the therapeutic value of LSD, when patients produce a great deal of material which they write down and have only a minimum of "supervision" by the therapist, the results are poor. One wonders how much indoctrination is included in "supervision". Brain washing may, of course, be desirable

in treatment, but one must, I suggest, realize that it is going on and to what extent.

References

SANDISON, R. A., SPENCER, A. M., and WHITELAW, J. D. A., *J. Ment. Sci.*, 1954, **100**, 491.
SANDISON, R. A., and WHITELAW, J. D. A., *J. Ment. Sci.*, 1957, **103**, 332.
SARGANT, W., *Battle for the Mind: A Physiology of Conversion and Brain Washing*. London: Heinemann Ltd., 1957.
SARGANT, W., "A Lesson from Pavlov: Soviet Pattern of Propaganda", Letter to the Editor of *The Times*, 17 May, 1960.
SHORVON, H. J., *Proc. Roy. Soc. Med.*, 1953, **46**, 158.
SHORVON, H. J., *Abreaction Therapy of Psychosomatic Disorders:* in *Modern Trends in Psychosomatic Medicine*. (Edited by D. F. O'Neill.) London: Butterworth & Co. (Publishers) Ltd., 1955.

TECHNIQUE IN THE USE OF PHENCYCLIDINE

By CARL LAMBERT

Dr. BRIAN DAVIES outlined to you this morning, in a very clear and stimulating paper, the functions and properties of a new drug called phencyclidine, a cyclohexylamine derivative.

I should like to make some clinical observations on a group of ten patients, all of whom are suffering from neurosis of long standing, and whom I have treated with phencyclidine given by intravenous injections.

I want to discuss the administration of the drug, the handling of the treatment and post-treatment situation, the dosage and effect of phencyclidine and the precautions to be taken. My experience during the war as psychiatrist at Mill Hill Neurosis Centre and my present work in private practice has kept me increasingly interested in the use of "abreactive" drugs as a technical aid to diagnosis and help in shortening the course of psychotherapy.

The type of private patient I have is mostly intelligent, with an excellent social façade, also a good vocabulary which, however, does not necessarily mean that he enjoys face to face confessions. He finds intravenous sodium amytal injections easily acceptable as a form of medical treatment in the traditional sense, is obviously more relaxed under them and finds personal disclosures less embarrassing, and subsequently easier to forget.

Over the last fifteen years I have seen more than half my neurotic cases for some interviews under intravenous sodium amytal. It is a method of choice for releasing recent traumatic experiences and difficulties in order of their emotional importance but often fails to bring back deeply repressed material dating back to early years of childhood. Deep hypnosis in exceptional cases may achieve this, but the number of complicated neurotics, particularly obsessionals, who can be deeply hypnotized, appears to be less than two out of ten.

Intravenous methedrine releases the flow of conversation, has an abreactive effect in certain patients, but fails in some and is contra-indicated in others.

I had mescaline on several occasions by intramuscular injection for experimental purposes some twenty-five years ago, and this may have prejudiced me against the use of LSD which in many respects seems to have similar effects. Also the fact that the action of LSD often extends from twelve to twenty-four hours makes it unsuitable for out-patient treatment. My own limited experience with it, also the accounts of some of my patients who have been treated with it in the United States and discussions I have had with psychiatrists who have been using it a great deal, have kept me reluctant to use it. Although its ability to bring to the fore deeply repressed early experiences always sounds tempting, this advantage often appears to be offset by difficulties in distinguishing between true memories and the toxic effect of the drug.

Dr. Linford Rees told me of phencyclidine, which Dr. Brian Davies had used at the Bethlem Royal on a group of neurotic patients with considerable success. From his description it seemed that phencyclidine might well be useful (if given intravenously) for the type of patient for whom intravenous sodium

amytal or methedrine had proved inadequate and in cases where for different reasons deep hypnosis or psychoanalysis was unsuitable. The effects of the drug seem to wear off in reasonable time without sudden recurrence of toxic action and it is therefore safe to give without hospitalization.

The particular group of ten patients, six women and four men (ages between thirty and fifty-five), were all patients whom I knew well, whom I had seen for six months to a year and all of whom had had many therapeutic interviews, and numerous sessions under sodium amytal. All had experienced relief of tension, but neither their neurotic state nor their symptoms had improved sufficiently. The group included patients with specific obsessional rituals, obsessional personalities, anxiety states with depressive mood swings and phobias of various descriptions.

All the patients were accustomed to intravenous injections. Dr. Davies has already stressed the need of familiarizing the patient with intravenous injections by sessions under sodium amytal. I can only underline this and add at this stage that phencyclidine should not be given for diagnostic purposes, but only as a therapeutic aid when other less potent drugs have failed.

Dosage

1 c.c. (equal to 5 mg.) of phencyclidine is mixed with 9 c.c. of sterile water. Of this mixture (10 c.c. in all) half is given to the patient slowly intravenously at the first session. He has therefore received the equivalent of 2·5 mg. of phencyclidine. This dosage is increased every two sessions by 1 c.c. or slightly more of the mixture, so that by the tenth session up to 5 mg. phencyclidine has been slowly administered. This is the largest dose I have ever given. The duration of the injection should be between five and ten minutes. The rate of increase or necessary decrease must depend on observation of the patient. I reduce the dose if the patient complains at a subsequent interview that he has been worried and restless during the session or if the period of silence and preoccupation with the changing body image, which marks the acutely effective phase of the drug, has proved unduly prolonged, i.e. exceeding forty minutes.

The effect of phencyclidine is best described by considering four fairly distinct phases through which the patient goes while under the drug.

For want of better names, one might call these:

(*a*) The acute phase

(*b*) The communicative phase

(*c*) The euphoric relaxed phase

(*d*) The depressed irritable phase

This last phase is not experienced by every patient, nor at every session.

(a) *The Acute Phase*

This starts immediately after phencyclidine has been injected, and is covered by the very graphic description which Dr. Davies gave you in his paper this morning. There seems frequently an apprehension about the passing of time. Also sensitivity to noise and changing body image, the feeling of changing length and size of limbs appears very frequently. The patient frequently opens his eyes to check the surroundings. As one patient reported: "His (the doctor's) face changed so extraordinarily, like in a hall of mirrors. I also find I want to

touch my own face. I used to try to touch his to feel how different it was, and that he was really there. My own nose and cheek all felt as if made of thick, rather smooth wood, rather a nice feeling."

You can see that at this acute stage, confidence in and transference to the psychiatrist is very important, otherwise the initial stage could be very frightening. One patient appeared completely detached, describing himself as two people, one observing the other. He was observing himself, a man of fifty, as a boy aged five, sitting crying outside the house having been told by his mother to choose if he wanted to stay with her or his father.

The acute stage in a neurotic patient fades out after some twenty to forty minutes, but during this time it definitely resembles the experience of a schizophrenic episode.

It is relevant here to note the findings of Dr. Gottleib and his colleagues at the Lafayette Clinic, Detroit, who have used phencyclidine as a research tool for producing model psychoses. Dr. Gottleib has definitely established that phencyclidine given to chronic schizophrenics in large doses (twice the dose I mentioned) makes their illness more acute and has a greater disturbing effect on them than, for instance, LSD.

(b) *The Communicative Phase*

The acute phase passes off rather rapidly. As one patient remarked: "Each time, today included, all these peculiar feelings (by this he means the acute stage) leave me rather suddenly, for I can't feel the transition. I still can't see Dr. G. very well. He still looks rather like a squashed tomato to me. I feel calm, rather sleepy and now capable of talking."

Until the acute phase has passed, there is no point in talking to the patient beyond occasional comments which would allow the patient to start talking if he feels ready. The patient must not, however, be left alone and may even require the reassurance of having his hand held.

After the acute stage one should start the psychiatric interview in much the same way as an ordinary or intravenous sodium amytal interview, using perhaps as a starting point material which the earlier interview had shown to be linked to repressed childhood experiences. As one woman patient wrote: "I seem to be talking of things I have been conscious of. But it matters in some way that I can't quite explain of course, Dr. G. also becomes easier, sort of reacting to the situation. Again what he says does not matter, except in so far as he makes me feel that everything is all right. I talked about a penis, inverted, a lot of which I can remember and which seemed very important and still is—I hadn't read about it, because I really haven't read anything on the subject—it seems to be true, this half man half woman business."

The patient stressed it was not so much that she said anything new, but that somehow there was a quality to it which was different. This is also how it appeared to the psychiatrist.

I should like to comment on this patient's remark that the psychiatrist also becomes easier and reacts to the situation. This is very true. The failure of contact is broken through, and to some extent the psychiatrist responds to the communicative and subsequently relaxed phase with a certain amount of relief of his own.

It is now time to remember that at this stage we may find ourselves fifty to sixty minutes after the beginning of the phencyclidine session, and in fact two hours are generally necessary for a complete session. The ritual that patients should communicate always within fifty to sixty minutes is, of course, no more reasonable than that the daily newspaper should always have the same number of pages, irrespective of what happens in the world. The patient by now is feeling very much less strange, and is usually euphoric and expansive.

(c) *The Euphoric Relaxed Phase*

The patient may use expressions such as: "Why, the stuff is for me so great is that it peels off some invisible skin between myself and other people. This has gone largely. When one is shy and insecure, one can either huddle inside one's shyness or develop the kind of façade I had. I can now say things without feeling too embarrassed. I now have confidence that people will like me."

This confidence may temporarily fade and give way to some mild depression and irritability which brings us to the after-care stage. This should include the warning that the patient should not drive a car and not go home unaccompanied. For this stage one feels sensitive to rejection and as one patient put it: "one does not want to be left alone when things are so magnificent."

(d) *The After-care Stage*

Two of my patients pointed out that the effect of the phencyclidine injection was very much more marked if given at the time of their period. There is also no doubt that in women phencyclidine very often has a marked combined emotional and aphrodisiac effect.

This may raise the problem of transference difficulties, which Dr. Davies also mentioned in his paper. A patient's statement is perhaps relevant. He says: "A nervous or inexperienced psychiatrist, one not at home with the nebulous land between real and unreal, should, I believe, not give phencyclidine".

In fact this means that if the psychiatrist inspires complete confidence and is a satisfactory father figure it will not matter greatly if he gives phencyclidine, hypnotizes, gives intravenous sodium amytal, or in an orthodox analytical fashion sits behind the patient and pretends that he is not there.

There are two other patients I would just like to quote, because it raises the question of the aphrodisiac effect of phencyclidine on men (which two of my male patients independently and without encouragement volunteered). One very obsessional patient with marked homosexual tendencies managed, during the time of his treatment, to project his sexual impulses more definitely towards the opposite sex. This was a great step forward, as he wanted to get married.

Another very conscientious, meticulous company director aged fifty-five resumed sexual associations (after a lapse of six months) with his wife after each phencyclidine session. She commented on this favourably. Questioning him about this more closely, I was not under the impression that he experienced stronger sexual drive, but acted out of a spirit of generosity which followed the considerable release of aggression and guilt which had previously been relieved by the phencyclidine session.

In the group of ten patients which I treated, the average duration of treatment extended over approximately three months and the average number of

phencyclidine injections which each patient received was eight. The optimum number might be more probably twelve. In some of the cases my absence from this country brought about the suspension of treatment. The follow-up has been on an average three months but I have the impression that for some of these patients a further number of phencyclidine treatments might be indicated. There has been no rejection or aversion to the treatment in any of these cases. On the contrary, in two of the cases the demand for continuation seemed rather pressing. Two of the patients, one man, one woman, did not appear to experience any lasting benefit. The other eight all expressed at least considerable amelioration of their symptoms.

One of the patients, a highly intelligent mathematician whom I saw in conjunction with Dr. Edward Glover, appeared to have done particularly well. Her obsessional procrastinations had much improved. She had gained confidence in herself and particularly in public speaking, having lost the fear that her message might be boring.

Dr. Glover remarked about this patient: "It makes one inclined to think that the experience of an altered and freed ego reaction breaks up a fixed ego inhibition."

This appeared to apply to the relief which four patients experienced of their obsessional restrictions. Not only the relief of the acute loneliness of the obsessional personality was remarkable, but also the elation shown by two patients who for the first time felt released, if only temporarily, from the corset of obsessional restriction. One feels that even the change of outlook over a few weeks must have some effect on the future prognosis.

This is in accord with Dr. Brian Davies' paper (1961), relating to five obsessional patients whom he treated with oral phencyclidine. He found that three had a temporary break from their obsessional rituals which probably otherwise could only have been achieved with leucotomy.

At present the practical use of phencyclidine in psychiatry appears to be restricted to the field of neurosis, but clinical investigations in a large number of patients in a great variety of neurotic affections would be necessary to define its application more accurately. Anxiety states with obsessional and depressive features, obsessional personalities and phobias, probably stammerers, perhaps certain states of anorexia nervosa should be the subject of further investigation.

Not only was I impressed with the fact that in the majority of my patients under phencyclidine new material was produced which had not been forthcoming under a great number of sodium amytal and methedrine injections, but I found even more significant the way in which patients under phencyclidine relived traumata of early childhood, apparently with the same degree of grief experienced at the time of the incident. This allowed one to assess much more accurately the importance of their traumatic experience. Perhaps the fact that patients are able to relive their traumas and abreact, but now safe and not alone, has some curative value.

Perhaps, however, there is some truth in what one patient of mine said: "It doesn't matter at all what you say, but just having the phencyclidine helps you to be reborn."

It just seems possible to me that phencyclidine presents an additional safe abreacting agent, not only complementary to sodium amytal and methedrine, but in some ways more effective.

It is also in line with what I believe to be the future policy in psychiatric treatment, namely that we must place our faith in more prolonged and accurate assessment of the patient with the help of all available technical aids in the hope that this will lead to shorter periods of treatment.

Reference

Luby, E. D., Cohen, B. D., Rosenbaum, G., Gottlieb, J. S., and Kelley, R., "Study of a New Schizophrenomimetic Drug—Phencyclidine". Reprinted from the *A.M.A. Archives of Neurology and Psychiatry*, March 1959, **81**, 363–369. Copyright 1959, by American Medical Association.

Discussion

Openers: F. J. Letemendia and Stephen Black

Dr. Linford Rees (Chairman): We have had a series of interesting papers describing different techniques and expressing different viewpoints, and I am sure this is going to lead to a lively discussion. I should like to call on Dr. Letemendia to start the discussion of the papers.

Dr. Letemendia: Dr. Sandison this morning expressed pessimism about the possibility of conducting a more rigorous assessment of the effects of LSD. This afternoon Dr. Spencer has given us some hope when he told us about the way LSD could be used in group treatment. One advantage of the group situation is that it may permit the introduction of an observer and therefore some possibility of simple measurement of some of the variables involved. Dr. Spencer referred to some similarities between the effects of LSD in individuals and in group treatment. For instance, he mentioned that the latent period between administration of the drug and the appearance of the effects is approximately the same in individuals as in groups. This is an interesting observation and accurate measurement should be possible. Equally, the form of response with an introverted phase followed by an extraverted one and its timing, both in individuals and in groups, could be accurately determined. Comparisons between individual and group effects may, however, show some dissimilarity, i.e. factors that may be specific to either situation. The possibility of modification of response to LSD by contagion in a social setting has to be watched for in group treatment. For example, in a chlorpromazine trial which Dr. A. D. Harris and I conducted in a group of schizophrenic patients, we became interested in weight changes. We had a control and a treatment group and we observed that when chlorpromazine was administered the weight, as expected, increased in the treatment group. The remarkable thing, however, was that there was also an increase in weight in the control group. A possible explanation of this effect could be that feeding habits had been modified by the drugs in some members of the treated group and that this effect had extended to the controls. Social modification of effects may occur in LSD group treatment and this point could be clarified by the use of controls.

Another problem of interest in the comparison between individual and group effects is that of dosage. Chance (1946) studied the toxicity of sympathomimetic amines because reports of the LD 50 for amphetamine in mice had shown widely discrepant results. He found that the LD 50 was nearly ten times greater for solitary than for groups of ten mice. He also found similar differences in dosage with other stimulant drugs. It would be of interest to know, in view of this experience, whether Dr. Spencer found any differences in the LSD dosage levels needed to produce the same effect in individuals and in groups.

The question of the specificity of the LSD effect is far from being satisfactorily answered. With Dr. Shorvon I think that many of the observations reported under LSD are very similar to those noted with the stimulants used in abreaction. There is also a similarity in the effects of stimulants and LSD in the psychoses. Elkes and Elkes (1954) reported the effects of LSD, amphet-

amine and amylobarbitone in nine catatonic patients. In an experiment in collaboration with Drs. P. M. Jeavons and A. D. Harris, we gave the same patient methylphenidate (Ritalin), a central nervous stimulant and we found that the response could be described in exactly the same terms as those used by Elkes for the LSD effect. The patients gave a display of emotion, "unmotivated laughter and crying, bizarre uncontrolled behaviour, and an apparent activation of hallucinatory and delusional material". Further support for the similarity of effects of LSD and the stimulant drugs is the production of psychotomimetic effects by amphetamine. It is well known that high doses of amphetamine can produce a psychosis which is very similar, if not indistinguishable, from schizophrenia, and when the intoxication is not suspected this diagnosis is often made, as Connell (1958) has shown. Controlled comparisons between the effects of stimulants and those of LSD are still needed.

Other more complicated effects of LSD described by Dr. Spencer would be more difficult to assess. It is hard to see how a reliving of childhood traumatic experience could be assessed, but if defined, it should be possible to know how many patients had had the experience and whether it was related to the results of therapy. It would be equally difficult to estimate the degree of permissiveness, although from Dr. Spencer's description, he seems to have reached the maximum in the hospital setting! The results of treatment are hard to assess, as no controls were used and the number of patients treated was very small. However, it should be borne in mind that Dr. Spencer selected his patients in terms of bad prognosis. Even so, the increased attention and general supportive psychotherapy given by Dr. Spencer over a period of sixteen months may have produced some improvement which is not necessarily attributable to LSD. Here again a control group could be of help in separating the effects due to the drug. I should like to ask Dr. Spencer what practical difficulties would be encountered by the introduction of a control group.

As regards phencyclidine, has Dr. Lambert noticed any disturbance of consciousness in his patients? In the American experiments we are told that when patients had received phencyclidine for anaesthetic purposes, they revealed a gross amnestic syndrome. I wonder whether a minor amnestic syndrome appears with phencyclidine in smaller doses: this would place the action of this drug in a different category to that of the psychotomimetic drugs and the stimulants.

References

Chance, M. R. A., "Aggregation as a Factor Influencing the Toxicity of Sympathomimetic Amines in Mice", *J. Pharmacol.*, 1946, **87**, 214.

Connell, P. H., *Amphetamine Psychosis* (Maudsley Monograph 5), 1958. London: Chapman and Hall.

Elkes, J., Elkes, C., and Bradley, P. B., "The Effects of Some Drugs on the Electrical Activity of the Brain and on Behaviour", *J. Ment. Sci.*, 1954, **100**, 125-128.

Chairman: I think I will ask Dr. Spencer and Dr. Lambert to answer their questions now, before calling on the next person for discussion.

Dr. Spencer: With regard to the point raised by Dr. Letemendia, concerning the similarity of dosage in group and individual LSD, I'm afraid we haven't any figures which we can compare on a statistical basis. The group went on for some sixteen months, and we did find that the patients developed some sort of

tolerance to the drug, and we ended up by giving doses of the order of 900, 1200 and 1400 μg. Occasionally, in order to obtain a response we had to zigzag the dose, giving 100 μg. one day of treatment and 1500 μg. the next day of treatment. With regard to the importance of childhood memories, the whole subject is, of course, full of hypothesis and feelings which have little validity at present, but my own feeling is that the patients who did best were those who were able to produce repressed childhood memories. We had one patient who utterly failed to produce any unconscious material at all, and her position at the end of treatment was exactly the same as it was at the beginning. The question of control is, of course, always in one's mind; and I am not sure that having a group in which half the patients received saline and half received LSD, would be satisfactory, because those patients having saline, assuming that was having little effect on them, would be interacting with the patients who are receiving the LSD. If it were possible to have two groups of randomly selected patients taken by two randomly selected psychiatrists, one group being given LSD and the other being given nothing, then over the months some sort of effective control might arise. The problem of control is, I think, extremely difficult, and bedevils the whole question of treatment with hallucinogenic drugs,

Chairman: Dr. Lambert?

Dr. Lambert: Phencyclidine used for the purpose of anaesthesia does not produce unconsciousness but some degree of amnesia may occur.

In the treatment of neurosis with phencyclidine a certain amount of amnesia may occur but not to a marked degree, particularly if one waits until the active phase, in which changes of the body image are experienced, has worn off. Considerable release of aggression under phencyclidine in the treatment of neurosis is marked, and if on the following day the previous phencyclidine interview is discussed, one usually finds that most of the incidents of emotional importance are remembered.

Fairly large doses of sodium amytal given intravenously (not less than 7½ gr.) may produce a certain amount of amnesia which could be tested at a subsequent interview but as with phencyclidine the reliving of incidents of emotional importance is usually remembered.

Chairman: I'd like now to call on Dr. Stephen Black to continue the discussion of the papers.

Dr. Stephen Black (London): My position in this discussion is itself very much of a control, inasmuch as I work with the Medical Research Council in the Division of Human Physiology, and I therefore, almost by definition, work with normal people.

We are studying the physiology of hypnosis, and working on the use of hypnosis as a research tool in a variety of physiological research, much of which is not relevant to this discussion. But what has interested me greatly in the papers we have heard this afternoon, is the absence of any reference to the degree to which hallucinations are possible without the aid of drugs in perfectly normal individuals—individuals who happen to be what we describe as deep-trance, hypnotic subjects.

Now, this is, in our experience, a very definable group of people. The literature has it that they exist to the extent of 20 per cent. of the population.

Our experience is that if we find five in a hundred we're doing very well. They are capable of experiencing the kind of hallucinations which have been described, in almost every instance, in the papers read this afternoon—and they are capable of doing this without the aid of hallucinogenic drugs.

It could be argued that these hallucinations are suggested—that the hypnotist is producing the hallucination by suggestion—but this, I assure you, is not always the case. It is possible, with these people, to produce a series of hallucinations which seem to be quite spontaneous. The hallucinations are neither anxious-making, nor have any association, or apparent association, with childhood or any previous psychological trauma. Now I would like to know to what extent investigation into the use of hallucinogenic drugs has taken into account that in any random sample of patients being treated in this way, there will always be a certain number—the deep trance subjects—who are capable of producing hallucinations without the aid of drugs? From what I have heard today, these responses are very similar to those obtained with drugs.

This seems to me to be a very essential control. It may also be relevant that we have been quite unable to find any parameters of psychology, intelligence, or personality type or any other physiological trait in the individual, signifying that he or she is going to be a deep trance hypnotic subject. Considering the clear-cut and distinctive nature of the deep trance subject (the amnesia for the period of the hypnotic trance and the ability to regress to childhood, is our definition), this is very remarkable indeed. One would have expected some physiological or psychological trait by which such people could be defined in the waking state.

We have found, after some work on respiration in this field, an indication that in such subjects, when hypnosis is induced, the respiratory mechanism apparently becomes less sensitive to carbon dioxide. I will put it this way: if you increase the percentage of carbon dioxide in the inspired air, it appears that the alveolar ventilation is not as great under hypnosis as it is in the waking state—and not as great by as much as 26 per cent., at 5 per cent. carbon dioxide. This work is being repeated and must be further confirmed, but it does suggest, that here at least there may be one physiological function of the hypnotic state. This is encouraging, but it is after all a somewhat elaborate experiment to be carried out in order to define a deep trance subject in physiological terms (1961).

Now what is interesting here with reference to hallucinogenic drugs, is the question whether this sensitivity of the respiratory mechanism—the cerebral respiratory mechanism—plays a part in the function of the hallucinogenic drug? Whether, for example, blockade of the respiratory centre—if we like to think a "respiratory centre" exists—whether blockade of this cerebral "centre" is part of the mechanism of producing hallucination? It was most significant in our work, that when we took those subjects who were only hypnotizable into a medium trance, not a deep trance—subjects who could be hypnotized, but did not fall within our definition of deep trance and were neither amnesic nor regressable under hypnosis—with such subjects there was not enough fall in the alveolar ventilation to make this statistically significant, although there was a fall. So this is the first indication—and it is only an indication—we have had of any possible connection between hypnosis and a physiological function, or the depth of hypnosis and a physiological function—and I only mention this because I would like to ask whoever is most qualified to answer, to what extent the pharmacological and the physiological mechanisms involved in the use of these drugs are understood? Whether there is any indication that our work with carbon dioxide might have some connection in this field?

Now with regard to brain washing, this word has obvious overtones of political connotation and it is not therefore a word that is at all clearly defined. But one does feel that if suitable subjects were taken and selected in the way that we have to select the subjects for our investigations at Hampstead, it would be possible to achieve a complete process of brain washing without the use of any drugs whatsoever. It does seem that it would be possible to produce, for example, a large cadre—I think that is the word—of individuals, who would respond completely to suggestions without any elaborate process of sensory deprivation, or the use of drugs.

I feel very strongly indeed that our understanding of these things and our increased knowledge of the extent to which individuals can be influenced in this way—and remember that if the figure in the literature be correct, this is 20 per cent., or one in five of the population—I feel this puts a very grave responsibility on the psychiatrist, and on the physiologist and in particular on everyone who is concerned with communication in every sense. This refers to the use of brain washing not only as a political tool, but as a commercial tool. It refers to brain washing as a general means of feeding information to the public. I do not feel that if we want to use this word "brain washing", we should really limit it to Moscow. I feel that when you have read the Sunday papers, you have been, in fact, rather effectively brain washed, and I don't think it is necessary to be hypnotized in order to involve unconscious mechanisms—or that it is necessary to resort to the use of LSD, or anything else to gain this end. We can absorb a lot of information on which we will react at a later date, without knowing why we react, without special treatment of a pharmacological or psychological nature—as Freud explained so well (1914).

Because of my work at Hampstead, I am asked to contribute to a certain extent to clinical work and I would like to agree entirely with the observations already made, that hypnosis is completely useless in the treatment of obsessional states. Indeed I find—and this is contrary to the findings of Charcot and others—that hypnosis is also useless in most hysterical states and hysterical conversion states. I find that the most respectably diagnosed hysteric tends to put on a wonderful act of being hypnotized, but from our experience in the laboratory and from our knowledge of hypnosis in general, this does not appear to be true hypnosis. We work experimentally with normal people—people who are neither trying to collaborate nor have any emotional axe to grind, but are simply doing experiments for us because they get paid for it. But with hysterics it seems to be different and I don't believe that it is possible to hypnotize a genuine hysteric into a deep hypnotic trance. Any therapeutic success with hypnosis in the treatment of the hysteric, would seem largely to depend upon the general psychotherapeutic situation which is created between the hypnotist and the patient—and not on the psychophysiological function of hypnosis *per se*.

References

BLACK, S., and PUGH, L. G. C., *M.R.C.* Unpublished work, 1961.
FREUD, S., *Psychopathology of Everyday Life*, 1914. London: Fisher Unwin.

Dr. SHORVON: I was very interested in Dr. Stephen Black's statement that hallucinations are quite common or can be commonly induced in the

normal population. Anybody with experience of war casualties for instance, came across this a great deal. In other words, many of the patients we saw who were perfectly normal people went into hallucinated states, but this was only during stress. In other words we saw bomb-happy people, and others, developing schizophrenic-like pictures which were not schizophrenia, but were hallucinatory. I presume the brain physiology or the cerebral mechanisms had broken down temporarily, and hallucinations had resulted. I have had no experience in practice of producing hallucinations in a normal population by any other means.

I was also interested in Dr. Black's remarks about brain washing. I think it is important to differentiate between suggestion and brain washing. In suggestion you may accept certain items that you are told, but it does not follow for one moment that these items will stick. That is a common experience with suggestion in any patient. But I think brain washing, at least as I understand it, is something more, in the sense that you are introducing beliefs that are normally foreign to that person, and that person will accept them and adhere to them, and adhere to them just as firmly as they might have adhered to previous ideas that they had on the subject.

I was interested too, in Dr. Stephen Black's remarks about hypnosis and its effects in the obsessional neurotic and in hysterics. In his recent Maudsley Lecture Dr. Eliot Slater pointed out that he considered that hysteria was not a disease—that hysteria was merely a symptom. In other words, it is something that can be found in any condition; and I think in some ways it may help to explain Dr. Stephen Black's dilemma about hypnosis and hysteria—because one isn't exactly treating a disease (if one accepts Dr. Slater's classification), but one is trying to eradicate a symptom, and that symptom presumably is being eradicated by suggestion.

CHAIRMAN: The meeting is now open for further discussion.

Dr. ELIZABETH EISNER (Los Angeles): I want to address my remarks to Dr. Shorvon, but first I should like to make several observations about work with individuals and with groups under LSD.

Point one: we have found that a great deal less LSD is required when a group setting is used—either with one, several, or all of the members (except the therapist) taking LSD. In groups the same results are possible with 25 or 50 gamma which in individual sessions would require a dosage of 100 to 200 gamma. I have also observed that decrease in individual dosage is correlated with familiarity with the group situation as well as familiarity with the particular group itself. In one specific group, LSD-like effects appear to occur without any drug at all. However, this group consists of patients who have all had individual LSD therapy before becoming part of the group. It has also been noted that after a certain point in LSD treatments, less dosage is required.

Point two: working with groups under different conditions, it becomes very clear how much drugs are able to enhance the group therapy situation. I have conducted four group therapy seminars of different composition which were roughly comparable since the participants were drawn from the same parent population; the groups were of similar size and met in the same setting for the same length of time. Most of the participants had not had individual LSD sessions but were experienced in group dynamics. The first two seminars were without drugs; in the third seminar mescaline plus amphetamine was used, alternating every other day with no drug; in the fourth seminar LSD was given one day and mescaline plus amphetamine the next. There is no doubt in my mind, nor in the mind of the participants, that drugs did make a considerable difference in breaking down barriers and speeding the therapeutic process (Eisner).

The main comments I would like to make are with respect to "brain washing". Early this year in San Francisco there was a conference on "Man and Civilization: Control of the Mind" (Conference, 1961). The participants included people from all over the United States and some from Europe—of many different disciplines. There seemed to be general agreement that the mind is a very tough instrument, and that no matter how effective, brain washing doesn't hold unconditionally. One piece of evidence was from Lifton's book which has several chapters on Communist China and its brain washing methods (Lifton, 1961). There appears to have been an all-out effort to brain wash—not only to instil alien and previously untenable ideas into an individual, but also to make him like these new and alien ideas—which is much more difficult. However, Lifton reports that when the brain washers thought that all the Chinese intellectuals had been properly indoctrinated, censorship restrictions were lifted. The Communists were very surprised when criticism of the regime erupted immediately; the brain washing had not been as thorough as it had appeared to be.

Secondly, I feel that it is incorrect to use the term brain washing in connection with LSD. Dr. Black also felt this. Brain washing and LSD are not synonymous at all in my opinion. I should like to ask Dr. Shorvon to comment on his use of the analogy and why he feels that a process under a totalitarian system whereby someone is being instilled with ideas contrary to his beliefs is considered analogous to results from LSD and similar drugs.

Another comment, really Dr. Sandison's: we should like to call attention to the fact that brainwashing techniques failed with obsessives, psychotics and homosexuals. Since LSD works quite well within at least two of these categories, this would seem to be further evidence that brain washing and LSD are not synonymous.

REFERENCES

EISNER, B. G., article on "Use of Drugs and Group Therapy", in press.

LIFTON, R. J., *Thought Information and the Psychology of Totalism*, 1961. New York: W. W. Norton.

"Man and Civilization: Control of the Mind". Continuing Education in Medicine Conference; University of California School of Medicine, San Francisco: 28–30 January, 1961.

Dr. SHORVON: I am using the word brain washing for the want of an accurate word to describe some of the processes that go on in the mind when people are being indoctrinated. What I tried to point out in my paper was that I felt that, in connection with LSD—and I am basing this on reading clinical reports—much which is accepted as evidence of things that have happened in the past may possibly have been suggested by the therapist. What are, to me, incredible interpretations, may be the interpretations by the therapist rather than accurate accounts of the patient's material.

The question of brain washing in a normal population, such as is said to have occurred in China, was also raised. However, I am confining my remarks in this paper to so called brain washing under the effects of drugs. Whether one can brain wash people in the ordinary way, without using drugs, I can't say,

but what I can say is that one can confuse patients under the influence of drugs, particularly hallucinogenic drugs, in such a way that they can believe things have happened, which, in point of fact, have not happened at all.

Dr. J. BIERER (London): I was very interested in all the papers, especially Dr. Spencer's, because for the last three years we have conducted an experiment with ten groups. We wanted to find out if it is really impossible to give LSD to schizophrenics and psychopaths as some people suggest; and secondly we wanted to find out if it is possible to give LSD with some sort of results without having to spend many hours individually with each patient. What we have been able to establish was (*a*) that it is possible to give LSD to schizophrenics and psychopaths—if you have intensive group therapy, but you cannot have a group consisting only of schizophrenics; (*b*) that the LSD produces a very heightened atmosphere—the group becomes extremely intense and that helps to produce one result which Foulkes suggested. Foulkes suggested that one should objectively examine the attendance figures of groups—and if we take Foulkes' suggestion and we compare, then we find that the attendance figure in some of the groups without LSD is sometimes less than 50 per cent.—but in the group with LSD the attendance figure is between 90 and 100 per cent.

Dr. JOYCE MARTIN (London): I would like to say how interested I was in Dr. Spencer's paper, because it seems to me that he is using very effectively the mechanism of transference in LSD treatment. We do know that many speakers have said that LSD causes an increase in affectivity in the individual. They have a desire to express their emotions, which they do not have under ordinary conditions, and this must be a very potent therapeutic factor if we are able to recognize it and use it satisfactorily. It seems to me that Dr. Spencer has used this in that he has allowed the transference, both positive and negative, to take place in the working out of the material from the play objects. He uses this sort of play therapy with his dummies and other material for acting out rather than, as in the ordinary use of LSD for individuals, interpreting the development of an individual transference relationship. But he has not needed to do that because he has provided the means, the media, whereby patients can act out their unconscious in such a way that they come to understand it, and accept it, with their aggressive feeling. They are then able to transfer their positive feelings to the "parent" which it seems to me Dr. Spencer is able to be, through his permissive attitude of interest and attention, and the fact that he is always there. Many people say one doesn't need to stay with the patient the whole time and very often that is so. But I have found that, if it is possible, it may be very economical in the end to do so, because one gets a resolution of the conflict much more quickly. I think this particularly happens in the case of personalities arrested in their early object relationships, such as homosexuals, sexual perverts and psychopaths. Therefore it is interesting to see that this mechanism is being used so effectively by Dr. Spencer, in a group. I think it could be probably used more effectively by many therapists in their individual treatment with LSD. We all have experiences of patients saying, "Why weren't you there?; I could just have told you what I thought of you at that moment, but now it is lost and I'll never get it expressed properly. Tomorrow is no good. To ask me to write out what I am feeling and then tell you about it tomorrow—it will be completely lost. I won't feel it tomorrow, and I certainly won't be able to express it with the same amount of feeling, but if I were allowed to now, then I feel that something would happen and I would feel at peace with myself". I believe, therefore that, for example, if someone else did the experiment that Dr. Spencer has done it might not have the same result, because he might not have the same therapeutic approach in using this positive transference.

Dr. SPENCER: I would just like to say one brief word in regard to what Dr. Martin has said. The whole of my group activities were carried out within the transference situation, but that of course applies to most of our work, and what Dr. Martin has said I think ties up with Dr. Shorvon's position, that there is no transference without anxiety. Now whether that anxiety is produced by traumatic childhood experiences or by alternating sensory impressions during brain washing, is probably irrelevant. I would accept Dr. Shorvon's position completely because what is important is the kind of suggestion which is made to the patient when he is in this anxious state. If the suggestions are of a negative political kind, you have what has happened in Moscow and in China. One would regard it as part of the therapeutic healing process to make positive suggestions regarding the patient's own worthwhileness as a person. That surely is perfectly legitimate and part of the work we are called to do. There is no difference between Dr. Shorvon's attitude, and the attitude that I, myself, and Dr. Sandison have adopted.

CHAIRMAN: There is just time for one more question.

Dr. ALDRIDGE (Liverpool): I have some experience with LSD in a mental hospital setting over about three years, and I especially want, not so much to ask a question of Dr. Shorvon, as to put an opposite point to him. I think perhaps there are cases where there is no brain to wash, as it were, and in cases of this kind, LSD provides a brain which might subsequently be capable of being washed. I could perhaps give an example. Take the so-called aggressive psychopath; your "cocky" psychopath, the fellow with his hat at an angle and swinging a stick, who has got plenty of drive for life. I have used LSD with this type of person to a certain extent. I feel that this sort of person has never been anybody. He has been a psycho-physiological reacting-system, in accordance with environmental pressures both within and without, but he has never actually been "me" or "anybody"—he can't predict what he will do during the next half-hour, certainly not next week, a month hence or three months hence. What one seems to have observed with patients of this kind is that when experience produced by the LSD, comes up from within, utterly and completely their own, a new potential core is found for them to become somebody, and they can even develop anxiety neurosis and all sorts of other features which they didn't have before. They are quite a large, important and difficult group of patients, and I should have thought you couldn't have brain washed them because they just weren't anybody at all.

FOURTH SESSION

"THE USE OF HALLUCINOGENS IN SPECIFIC CONDITIONS"

CHAIRMAN: Professor G. M. CARSTAIRS

THE ROLE OF HALLUCINOGENS IN DEPERSONALIZATION AND ALLIED SYNDROMES

By M. H. DE GROOT

BEFORE considering the value of hallucinogenic drugs in the treatment of depersonalization it would be worthwhile considering what exactly is meant by this condition. The syndrome was first described in 1892 by Krishaber under the name of cerebro-cardiac neurosis and by this term he meant a condition combining a feeling of unreality, accompanied by visceral symptoms. Since then there have been numerous approaches to the problem of this syndrome, the borders of which appear to be ill-defined. Many authors in their descriptions have resorted to giving verbatim the patients' accounts of their symptoms.

In two recent papers Ackner (1954) has clarified the situation considerably and in the preparation of this paper both his definition and classification of this syndrome have been of considerable value. Ackner described the syndrome as a subjective feeling of internal and/or external change experienced as strangeness or unreality that is unpleasant. It is non-delusional and is accompanied by a diminution or loss of affective response.

There are, therefore, four criteria:

(1) a change

(2) the fact that this has an unpleasant quality

(3) that it is non-delusional, and

(4) it is accompanied by an affective loss.

In the past frank delusions have been included by some authors in this syndrome but this practice is best avoided. Nevertheless depersonalization may be present in the early stages of schizophrenia.

In Ackner's classification the condition is sub-divided according to the setting in which the symptoms arise.

He considers seven settings:

(1) Organic

(2) Schizoid

(3) Hysterical

(4) Depressive

(5) "Tension" depersonalization

(6) Multiple depersonalization

(7) Mixed states.

Organic states are those following trauma, fever or the ingestion of certain drugs. Most prominent among these drugs are alcohol and the hallucinogens. The most frequently encountered depersonalization state is a mixed picture usually with evidence of an underlying hysterical personality.

A further form of classification used by Roberts (1960) is based on the type of symptom experienced by the patient. This system has much less value when considering why some patients have responded to treatment while others have not.

The presence of depersonalization as a symptom usually carries with it a poor prognosis. There are however exceptions to this generalization. Uncomplicated tension depersonalization whether it originates from a specific traumatic episode or even if it is part of a chronic tension state has a good prognosis. The value of E.C.T. has been assessed by Ackner and Grant in the treatment of depressive depersonalization states. These patients responded as well as did a series of matched controls suffering from depression alone.

My attention was drawn to the possibility of treating patients in whom depersonalization was a symptom in 1953. This followed the admission of a young female patient who had a six months history of depersonalization. The condition had been precipitated by a difficult pregnancy which she felt she would not survive. Before this time she had never given any evidence of psychiatric disturbance and was stated to be well adjusted in her life.

She had required an anaesthetic for the delivery and when she had recovered from this she still complained of a feeling of unreality related not only to herself but also to her husband and baby. Her return home only served to accentuate her difficulties and eventually she sought psychiatric help. At the first clinic she attended she was given rest and sedation but this brought no relief. She was admitted with a fully established syndrome of depersonalization, derealization and disordered time perception. These had been present for six months.

She was given pentothal and methedrine injections which brought out little fresh material and gave her no relief. A single E.C.T. was then tried on an empirical basis, but this line of therapy was abandoned as it was felt that there was a risk of intensifying the symptoms.

At this stage it was suggested that she should be given an hallucinogenic drug and so she received 4 gr. of cannabis indica followed one hour later by a light carbohydrate meal—which would potentiate the drug's action. Over the course of the next two hours she went through all the motions of parturition and following this went quietly to sleep. On being questioned the following day she reported a great improvement though she still felt some residual symptoms. She was given a further 3 gr. of cannabis indica but this time did not undergo a dramatic abreaction. Following this treatment she reported a complete improvement. She has been followed up for several years and has never relapsed.

It would appear that the drug had brought about in the patient a temporary state of mental and emotional dissociation. While she was in this state she was able to re-enact and come to terms with the stress that had led to her becoming depersonalized initially, in a situation where the stress itself was no longer threatening. The response greatly ressembled a normal abreaction, though it is interesting to note that a similar response had not been obtained with a more orthodox form of treatment. The choice of this particular hallucinogen was made because of its marked euphoriant action.

In the light of this interesting response it was considered to be necessary to review the value of hallucinogenic drugs in the treatment of depersonalization. There is a report from Claude and Ey in 1934 describing a single case of

depersonalization and depression making a full recovery with mescaline in doses of 0·25 and 0·5 g. There is however insufficient detail and it is impossible to draw any far reaching conclusions.

Mescaline was again used in this condition by Guttman and Maclay in 1936, though these authors chose a lower dose, giving 0·1 or 0·2 g. They treated eleven patients most of whom were described as suffering from depersonalization of depressive origin. Of these patients four showed a temporary improvement while the other seven complained of an intensification of symptoms. These investigators considered the value of hallucinogens to be twofold; (1) In assessing the patients for psychotherapy, and (2) In increasing the morale of those patients who responded well so that they felt there was a chance of returning to normal. They did not consider mescaline to be a treatment of value *per se*.

Since May 1953, eight further patients suffering from depersonalization have received treatment with hallucinogenic drugs. This is only a small series but represents about 70 per cent. of patients with this syndrome that have been seen at the York Clinic (annual turnover about 300 patients a year) in a period of seven years.

Of these eight patients only two were male. Seven were under the age of forty and of these four were less than thirty. Like the patient described, two more had short histories with symptoms starting in the puerperium.

These two patients will be considered first: both differed from the first patient in that they showed evidence of depressive depersonalization as well as tension depersonalization: in other words the picture was that of a mixed state. One had two treatments with cannabis indica (2 and 4 gr.), the other had cannabis (4 gr.) followed by two oral doses of lysergic acid (25 and 60 μg.). Neither showed any dramatic response but both reported a subjective improvement. This was neither total nor permanent and both patients also received E.C.T. later. When seen after an interval of one year both still complained of transient bouts of derealization.

The duration of symptoms in the remaining six patients ranged from three to twenty years. It was impossible to classify them into a single group; all presented a very mixed group of symptoms. The most constant feature was an underlying hysterical personality. This was coupled with secondary depression, tension, and in one case schizoid features.

Of these six patients three had cannabis indica alone. The maximum dose used was 10 gr. One patient became much worse after a single dose of 4 gr. and this treatment was discontinued. The other two showed some improvement but still needed further therapy (one had ten E.C.T., the other psychotherapy and active rehabilitation). In the final assessment of both these patients it was felt that the limiting factor in their improvement was the underlying hysterical personality.

The other three patients remained refractory to all forms of treatment. They received hallucinogens in varying combinations and doses. Cannabis indica, lysergic acid diethylamide and an experimental hallucinogen. The LSD was given orally and parenterally in two of the patients and was even tried in combination with E.C.T.

Two of these patients have not benefited from this treatment. The third eventually discharged herself and later, in the face of difficulty, committed suicide.

The first finding of this small series, that was prompted by the result of the patient whose history and treatment has been recorded in some detail, is that this dramatic response has never been repeated. In investigating the cause of this it is noticed that this patient had a "tension" depersonalization state following a particular stressful incident whereas all the other patients had more mixed syndromes. Unfortunately a pure tension depersonalization state is rare, so that it has not been possible to repeat this dramatic cure. The nearest approach was in the treatment of the two other puerperal patients both of whom also showed depressive features. These patients also required E.C.T. and were much improved by the treatment.

In patients who had a long history of depersonalization, results were disappointing. The criticism raised at the findings of Guttman and Maclay—namely that their drug doses were too small—cannot be raised here. In these cases it would appear that the depersonalization is only a superficial symptom but will not respond to therapy unless the underlying cause has been removed. Since this is almost always a lifelong personality disorder which has never responded to therapy, in such cases hallucinogenic drugs have very little to offer.

It is in the cases of more recent origin that hallucinogens do have slightly more to offer. Only very rarely has this form of treatment been the complete answer. More often it would appear that the role of hallucinogens is in conjunction with other forms of therapy. This may be directed towards other pathologies as well as towards the depersonalization itself. As an introductory treatment to psychotherapy, both earlier findings and the present series have shown it to be of value. Earlier authors have also considered hallucinogenic drugs to be of value in assessing the prognosis of the patient.

References

ACKNER, *J. Ment. Sci.*, 1954, **100**, 838.
ACKNER, *J. Ment. Sci.*, 1954, **100**, 854.
ACKNER and GRANT, *J. Neurol. Neuro-surg. Psychiat.*, 1960, **23**, 242.
CLAUDE and EY, *C.R. Soc. de Biol.*, 1934, **115**, 838.
GUTTMAN and MACLAY, *J. Neurol. Psychopath.*, 1936, **16**, 193.
KRISHABER, *Gaz. Sci. Med. Bordeaux.*, 1872.
ROBERTS, *J. Ment. Sci.*, 1960, **116**, 478.
ROLLS and STAFFORD-CLARK, *Guy's Hosp. Reports*, 1954, **103**, 330.

LSD IN THE TREATMENT OF CRIMINAL PSYCHOPATHS

By G. W. ARENDSEN-HEIN

DURING the last eight years I have been working on the psychotherapeutic treatment of mentally disturbed adult recidivists. The type of patient was that of the old clinical entity, the so-called psychopath with a long history of difficulties in the family, at school, in a great variety of jobs. In general the patient had poor relationships with other people, he showed instability and perversion in love and sex affairs, abuse of alcohol, a low tolerance for frustrations and a strong tendency to projecting and acting out of conflicts in the outer world.

In the family history one finds asocial behaviour with such regularity that one has often been inclined to look at these patients as people with weak egos on the basis of a defective constitution with a congenital lack of conscience, willpower, and inhibiting forces. The patient seems to be directed by overpowering drives, etc., and one was inclined to regard their condition as prognostically unfavourable.

Gradually we learned from a multi-disciplinary and psychodynamic approach that indigenous factors were often overestimated and that when the organic states (brain injuries) are excluded, psychic starvation, malnutrition, and chronic traumata in early childhood, offer a good deal of explanation for the asocial conception of the world which is so commonly found among these psychopaths. In other words, we now feel that the human being cannot be described by summing up his set of qualities and deficiencies; that one has to take into account against what emotional background and what circumstances or stress-situations he manifests certain characteristic reactions.

With these considerations in mind, we started a project for the clinical psychotherapeutic treatment of these so-called criminal psychopaths, or severely disturbed neurotic criminals, in a special institution, where prison conditions could be replaced by the conditions of a therapeutic community, an open ward with an outspoken psychotherapeutic tolerant atmosphere.

Socio-therapeutic measures, group and community treatment, individual analysis, abreactive cathartic therapy, endocrinological, and pharmacological therapy were used, sometimes with encouraging results. But there always remained a number of patients who presented the problem of resistance to such a degree that it seemed impossible to break through the shell of impassiveness, indifference, defence-blindness, or active resistance, which made the core of the personality inaccessible to a therapeutic approach.

When, some two years ago, I heard Dr. Leuner report on the results of his work with LSD and had studied the previous papers of Sandison and others, it became a great challenge to me to try the drug in the so called incurable and up to now hopeless cases. These were patients, diagnosed according to the old standards as severe psychopathic personalities, showing moral insanity, pseudologia phantastica, chronic alcoholism, sexual perversions, etc., who had long records of criminal behaviour and at least five to twenty court sentences behind them.

We used the following criteria for selection:

Good physical health and no record of actual psychosis (in its limited meaning) in the patient's own history; average normal intelligence; some awareness of their disturbed mental condition as a causal factor of their criminal behaviour; a sincere wish to get well; failure of other therapeutic measures, due to an incapability of communicating and relating feelings; insurmountable resistances; lack of introspective and integrative powers.

After thorough preparation of the patient as to what he could expect of this treatment and the establishment of a firm positive relationship with the therapist and the nurse, a procedure that might take weeks or even months to develop, LSD was given once a week or once a fortnight, as the patient desired, during ten to twenty weeks, according to his clinical progress and the re-integration of previously repressed material; the dosage of the drug being individually varied, according to the needs of the patient, ranging from 50–450 gamma.

One psychiatrist and one nurse were constantly in attendance on five patients. At regular intervals they paid short visits to them in order to control the situation and to encourage the patient to let himself go along with the emotional stream. Contact with the therapist of longer duration was offered, when desired by the patient. The attitude of the therapist was warmly understanding and protecting or encouraging, according to the emotional needs of the patient, and much more directly personal and mutual than in the usual psychoanalytical situation.

Towards the end of each LSD session, patients were encouraged to express their experiences in free painting. At the end of the day a group therapeutic discussion, in which the experiences as well as the paintings were discussed, was held. A personal report, as soon as possible afterwards, formed the basis of a private talk with the therapist during one of the following days.

Apart from the LSD day, group-therapeutic sessions were held twice weekly, and now and then an individual talk as the necessity arose. It proved advisable to terminate the influence of the drug by chlorpromazine after the group session, otherwise too much strain was laid upon the nursing personnel, who had to be in constant attendance to supervise untoward reactions, which now and then take place, especially in psychopathic patients.

The valuable therapeutic effects of the drug on our patients were:

1. A very notable reduction of resistances.
2. Intensive abreaction of repressed emotional material.
3. Allegoric and symbolic presentation of conflicts with illustrative examples to facilitate insight and understanding of the underlying motives.
4. A strong inclination towards introspection, to investigate and realize faulty conceptions, together with a constant urge to be fully alive to the significance of the relived experiences.
5. A lucid insight into hitherto misunderstood or unknown attitudes in the present as related to experiences in the past.
6. Recognition and confession of having misled oneself on confrontation with one's real motives.
7. Reorganization of the scale of values.

8. Liberation of creative, auto-regulative and integrative powers of the ego, resulting in reinforcement of ego-strength, sometimes connected with cosmic-religious experiences and accompanied by a feeling of great enrichment, increased self-confidence and confidence in the therapist.
9. Marked improvement of behaviour.
10. Intensification of interhuman contact, which meant a new state of being to the patient, assuming that the therapist can enter such a relationship with his total personality, and show love and willingness to help.

The following example may serve as an illustration:

A patient with repressed guilt-feelings and self-destroying tendencies complained of stomach aches under certain emotional conditions. He experienced this pain also while under LSD, when he feared that he was going to lose control of himself. At the same time, he saw a long rope with a knot in it and attached to the knot was a label showing the word "anxiety".

Then, he said, it was as if I was looking through a long tube, suspended over a water-surface, through which I saw my own face reflected as in a mirror. Looking down, I saw my face with friendly regular features in a pleasant blue colour. I called that face, "The *inner* man".

At the same time I could look upwards through the tube, seeing my face with grim distorted features in an unpleasant greenish colour. I called that face, "the *outer* man".

There was a space in between, and the inner man and the outer man did not form a whole, so that the two men were speaking with each other, as it were.

The inner man said, for instance, "I see more than you do, I know everything"; to which the outer man answered, "I don't know it and I don't want to know it."

When the inner man said about something that happened, "That's dreadful", then the outer man would say, "Don't react, don't you feel anything". Then the inner man would speak again and say, "You wait a moment then, I shall let you feel it", and suddenly the stomach ache began.

From during the war he relived an experience, when he served as a gunner on a cargo boat. Aeroplanes were approaching to bomb the ship and there was a panic on board. The inner man said, "This is going to be the end", but the outer man said, "Come on, show them how to be brave, keep a stiff upper lip", and suddenly the stomach ache began.

On another occasion, he came across a tank that had completely exploded, the disintegrated bodies of the crew being scattered all over the place. "That's miserable" said the inner man, but the outer man replied, "Don't be sentimental, it's fine to see these enemies dead."

After the treatment was over, he said, "I believe that I have painted myself in such black colours and wanted to do away with myself, because I had reduced myself to the outer man. Now the inner man, of whose existence I have now become aware, has won the struggle and has been restored to his rights. I don't feel so guilty and afraid of myself any more, because I realize with how much reluctance the inner man consented to the acts of war that I committed, as a necessity. At first, these acts, as seen through the eyes of the outer man, seemed

unacceptable, but through the eyes of the inner man, they are still horrible, but according to the circumstances acceptable."

To share the intense emotional experiences of the LSD world with a safe, trustworthy companion means a deeper human relationship than the patient has ever experienced before. Unleashed and being able to express his feelings more freely than under normal conditions, the regressed patient can enter into an affective contact, hitherto unknown to him, and the therapist has then an opportunity to provide some emotional compensation for the affective starvation that the patient suffered from in the past.

The patient becomes enriched with a new quality of communication. He, usually a lonely individual, experiences a new dimension of being, when finding a fellow man so close to him. Then he may transcend his former boundaries and step into a new reality, in a healthy atmosphere of life, as it was meant to be.

From an analytical point of view one could raise objections against a procedure that breaks through the barrier of repression, which is generally regarded as a safety-mechanism to protect the ego from being flooded by unbearable feelings, from disintegration, or at the worst, psychosis.

One might ask, will the patient be able to digest emotional material, that is artificially brought to the surface, perhaps prematurely. This would especially apply to the psychopathic patient, who is considered to possess weak inhibiting powers and little capacity for integration.

Our experience seems to indicate, however, that, according to the auto-regulative forces of the ego, the quantity of emotional material presented to the conscious by the unconscious seems in a subtle way more or less adapted to the capacity for integration at a given moment, provided that no overdose of the drug is given and that the ego-functions have remained sufficiently intact. Reinforced by the existential relationship towards the therapist, the ego usually succeeds in working through and accepting previously repressed material, sometimes at first indirectly in symbolic forms but later on realizing more directly the full significance. Fractional reviving of memories, as seen in normal psychoanalysis, occurs in the LSD state as well, and one is surprised to see how the acting-out patient is acting-in, facing his problems, and how the patient who was supposed to have poor integrative powers, shows a remarkable capacity for autosynthesis.

Intensive after-care of the criminal patient who has received LSD treatment is an absolute necessity. This applies especially to the first half or one year.

It has to be kept clearly in mind, that LSD treatment can provide certain corrective emotional experiences and insight, and may be even a restitution of faith in life, God, and self. But this newly acquired set of values has yet to be learned and put into practice. This is a process of development and maturation, which needs time, and entails many troubles, insecurities and failures.

The patient might be compared to an infant who begins to learn to walk. He must have some assistance and support, so long as he has not acquired a firm stand in the different regions of his life.

Complications were relatively few. Two patients with occasional hysterical twilight states developed this condition of somewhat prolonged duration after taking LSD. In both cases large quantities of heavily charged material were abreacted with good results. In one case the pathological state of consciousness disappeared completely; in the other, it recurred with much less intensity and frequency.

Another patient complained of a constant come-back of the LSD experiences (up to six months) after termination of treatment, as if a never-ending movie picture was being shown to his inner eye. It seems very unlikely that this condition had anything to do with the so-called after-waves attributable to the pharmacological effect of the drug, and we looked on this symptom more as a psychological factor which counteracts the patient's inclination to fall back upon his old pattern of repression of his emotional life. It was nevertheless a peculiar condition that annoyed the patient considerably. He blamed the doctors for having made him crazy, and expressed all sorts of aggression. After a short period of hospitalization, physical rest, and psychotherapeutic care, the condition disappeared completely, and the patient was discharged as improved, although he himself was not prepared to admit it.

Confrontation with the deeper layers of self may cause serious fits of acute depression, to such an extent that the patient becomes a danger to himself and his surroundings.

Some people, especially narcissistic characters among the psychopaths, may prefer death rather than face the fact that their lives have been failures.

Close supervision during the first period after treatment is advisable to prevent complications from the inclination of some patients to fall back on their familiar acting-out patterns of running away, abuse of alcohol, suicidal attempts, and the like.

The most important advantages of LSD treatment, compared with other artificial aids, seem to be:

1. Little or no fear of the procedure, as such, after the first experience (contrary to practically all other forms of depth treatment), because no loss of consciousness takes place. The patient practically never forgets that he is in a therapeutic process of an experimental, temporary character, so that whatever horrors he may go through, by the fact of his split consciousness, he perceives the experiences also with a healthy remnant of his ego and he is always able to identify these horrors as expressions of his own unconscious self, i.e., as not ego-alien material.

2. The great majority of patients describe the experience as a revelation of fundamental emotional value, highly enriched, tension-releasing, and insight-giving in the structure of their personal problems, hitherto concealed. Therefore, indifferent patients become co-operative, and begin to take the process of psychotherapy very seriously.

3. Re-living of past experiences with such intense release of emotion in the presence of the therapist, without danger or shame, has great cathartic value, and creates a completely new existential relationship that paves the way for fruitful therapeutic contact during and after treatment.

4. The strong catalysing force of LSD seems time-saving. Especially for the sceptical, indifferent patient, who possesses little or no awareness of his problems and their relation to his criminal behaviour, it provides for realization in a very early stage of treatment that there is something essentially wrong within himself. This process may take a half year or longer in group psychotherapy, and even in individual therapy may not be completed at all, if the patient has a strong resistance.

5. The increasing interest in the significance of the re-lived experiences promotes the internalizing of conflicts. This is a great step forward, in a sense of social improvement for the patient with a strong tendency to act-out.

Although the period of catamnesic observation of our material is as yet of too short duration to allow definite conclusions, it can be stated for the time being that when treatment was terminated fourteen of twenty-one patients were registered as clinically improved (twelve) or much improved (two).

Since then, some of them have married, found better jobs, and seem emotionally stabilized to such an extent that one would be inclined to speak of social recovery; others are involved in a social struggle, with many ups and downs. A remarkable point is, however, that all our improved patients are so much more realistic in their willingness to accept modest jobs as factory workers etc., instead of the social positions they used to strive for inadequately in the past.

A chronic alcoholic with a history of nine years, including four years unsuccessful treatment, has stopped drinking, seems socially well adapted, and states that he has found other satisfactions. An inveterate swindler and sexual pervert, formerly judged morally insane and treated unsuccessfully during five previous years, is now such a different character that sceptics would say this is too good to be true.

I should like to reserve my final judgment for another two years. One of the much improved cases had a relapse and committed another crime. Much inclined to self-investigation, he shows insight into the unconscious motives and dynamics of the event, and regards this incidental failure as a necessary step on the road of reality-testing.

Conclusions

We have reason to believe that experience with LSD treatment of psychopaths proves that the widespread scepticism about treatment of the psychopathic personality needs revision.

Especially I feel that we have to postpone the verdict of incurability on constitutional hereditary grounds until we have tried seriously to establish an affective contact and to penetrate deeper into the emotional life of the patient, and tried to understand the underlying motives of his behaviour patterns.

With this concept in mind, forming the general attitude of the staff, and aided by the tolerant atmosphere of the therapeutic institution and LSD, we have seen functional changes in the personality coming about that would have been regarded as impossible according to our conventional concepts.

No matter what the final statistical outcome may be—statistical evaluation of psychotherapeutic results has always been difficult and relative—I feel convinced that in the treatment of these most difficult and resistant patients, where other methods tend to be of no, or very limited, influence, LSD can take us a great step towards mobilizing the process of mental growth in many criminal patients.

SOME EXPERIENCES WITH LSD IN THE TREATMENT OF ADOLESCENT BOYS

By Kenneth Cameron

I haven't a large contribution to make to this symposium. I propose to discuss some experiences of the use of LSD as an adjuvant to psychotherapy with adolescents. The particular adolescents I have in mind are in-patients, and they are, through the facts of my present charge, limited to boys. They also are narrowed down to a very small clinical group of adolescents: I am particularly concerned with its usefulness in severe obsessional cases and in the cases that present compulsive movements or compulsive shouting, or cases that present both. The particular group of cases selected for this form of treatment depends on the fact that one had reached an absolute therapeutic impasse and the patient remained severely handicapped. I am therefore concerned with a small group of cases from which I have derived a certain amount of clinical experience, some of which I propose to outline.

A few other areas must be dealt with first. The in-patient care of adolescent psychiatric patients presents its own difficulties. One is concerned in maintaining a small community of quite severely neurotic, handicapped, or socially disturbed individuals. One is concerned with providing for these individuals through the personnel of the staff, an interested, sympathetic, enlightened group who, while understanding the mechanisms and disturbances of the patients to some degree, are capable too of maintaining social expectations, routines and demands appropriate to the individual capacities of the patients or the group as a whole. They are also concerned with drawing upon the energies, activities and interests of the patients, to provide appropriate outlets. The situation is always one of unstable equilibrium and is a socially dynamic one. The fragility of the personality of the adolescent is a handicap to psychotherapy. One can seldom expose without previous reassurance. In out-patient therapy the problem is frequently to keep one's patient. With in-patients, resistances build up but the total situation usually permits development. One can, however, be an active person in his life experience, with whom he can in part identify. One can be the recipient of irrational outbursts which are cathartic and the content of which is as irrational to the patient as to the doctor—and seen as such permits him moving forward in development. One can develop specific psychotherapy in a relationship. One can pursue insight therapy with considerable support to the personality. Psychotherapy with adolescents, however, is of itself a peculiarly demanding form of activity. The broad outlines are usefully presented in *Psychotherapy of the Adolescent*, in a chapter written by Dr. Josslyn. She is primarily concerned with girls in her case instances, but my own experience with boys, and in the past with girls, is much the same. The problems peculiar to adolescents are, in the psychotherapeutic field, that the adolescent through his biological development is open to new pressures on his personality, the outgoing aggressive drives have been stimulated, the sexual instincts have been stimulated, the sensibilities of the individual have been increased so that both from outside and from inside the individual is subjected to new stresses. He is approaching with conscious doubt

adult life, for which he feels so far inadequately equipped. Values that were sufficient to govern and control his earlier stages of development now prove inadequate. The striving to attain individuality is also a striving away from (with an undertow backward) the parents who formed a framework to his earlier life. Other adult figures concerned with his welfare frequently are responded to on the basis of the complexities of his parental relationships, yet reality bulks large.

Nevertheless, there is great vigour, vitality and flexibility and in the fluid state of development what I have in another place called the second chance in personality development occurs.

The particular situation of the adolescent as an in-patient, and the intimate relationship that the psychotherapist has in being part of the environment of this small adolescent community both presents difficulties and creates opportunities. In general we find that with in-patients, in response to the modification of the external stresses, to the supportive ward situation, to the interest and uncritical element in the initial ward relationship and in the internal supports that derive from attachments within the group and position within the group, most patients show a fairly positive advance in the first month or two in this particular group. In this time also, the particular doctor concerned with therapy usually becomes a personality of significance in the environment of the adolescent and the various types of psychotherapy can be deployed as part of the particular situation.

The obsessive-compulsive group of cases present a very wide range of clinical syndromes. At one extreme the reactive factor to the home situation and, one presumes to some extent, parental emotional connivance, may produce the most exacting and demanding obsessional ritualistic behaviour in the child or adolescent which clears up quickly on admission to the unit, leaving a state of anxiety or depression to be dealt with.

On the other hand, where a severe personality disorder exists of an obsessive-compulsive character, admission to the ward and the various procedures adopted may result in the patient being generally improved, but the rituals, the compulsive behaviour, the general slowing up remain almost unaltered by the total ward situation. It is in those cases, and in those where speech is so excessively slowed or so circumstantial that communication is almost impossible in the period of a psychotherapeutic interview, those cases where marked motor compulsions or extreme vocal expressions or elaborate compulsive rituals interfere so greatly with psychotherapy, that lysergic acid is of value. The elements in it that one finds of value are not primarily the physiological experiences of the individual or indeed his free thinking while under the influence of the drug. It is rather what one must regard as the sensitization equally of memory traces, and more particularly the unimpaired or heightened capacity to enter into the psychotherapeutic relationship. This was particularly interesting in the first case I dealt with, an adult in his fifties in fact, where I was supposed to be an observer. However, his memory was floating free, he was anxious to talk about thoughts from the past that were drifting up and I became involved. After the interview, the following day, he expressed a strong desire to his doctor that I be at every interview where he had his injection; he described me as a kindly, benevolent, comforting, reassuring presence, like his mother in fact. I participated equally in the next two interviews and then a change developed. There was a streak of hardness in me, I was cold, unsympathetic, masterful—like his old man. Now

this relationship and the projections upon me developed in three interviews; this illustrates the occasional extreme facilitation of the personal relationship.

A number of points are illustrated in the next case. A boy of fifteen was admitted with severe compulsive movements, obsessional rituals and compulsive shouting. At its most extreme degree his room had to be relieved of furniture on which he would damage himself and he had to be given a mattress. Feeding presented considerable difficulties because so many rituals had to be gone through before he actually swallowed anything. In this case psychotherapy had been continued for nearly two years before I proceeded to use lysergic acid. He had become aware of immediate parental situations, of guilt over sexual feeling and had some degree of sophistication and insight. In an interview with lysergic acid he discussed with relative freedom the various impressions he had had of me in the period that I was associated with his treatment; weak and ineffective, or tough and aggressive, seemed to perplex him. He readily accepted the reference back to himself. He discussed a phase of his schoolboy life that had never been mentioned before; elaborated fears, elaborated phantasies, he proved susceptible to the suggestion that he recollect episodes in the past. He readily was able to relive those with the expression of feeling, although again this had to be dealt with in terms of the relationship, hostility, withdrawal, inability to recollect anything, had to be interpreted before the next phase was proceeded with, and an active and intensive psychotherapeutic process was undertaken. The climax occurred with an early memory of fear and hostility to his father which he re-experienced and also projected upon me for my aggressive quality in the interview, and resulted in an ecstatic experience, which resolved the compulsive movements, though left him still slowed with obsessional rituals. He was able to go out and carry on a job for nearly ten months, although with diminishing effectiveness owing to obsessional slowing. He has had two readmissions, but appears to be getting on relatively well now.

Such a case illustrates the facilitation of the therapeutic relationship and the capacity to recede into the past and re-experience with cathartic effect emotionally loaded events of the past while working out the relationship with the psychotherapist.

The next case I will mention reveals, I think, certain of the problems of this type of treatment. Again a youth of nearly eighteen with severe compulsive movements and shouting in an obsessional personality. He had been a patient with us at eleven and again at sixteen before treatment with lysergic acid was instituted. Under a dozen interviews one met with a facilitation in discussion and increased insights, but also a sense of resistance. I do not think he was at all benefited by it and indeed it appeared to me that one had released a certain amount of stress without resolving the symptoms. A year later with the observation of delay in maturing, and low ketosteroid excretion, substitution therapy with hormones produced a much more active, aggressive personality, who responded very effectively to a psychotherapeutic approach. In this he described his experiences with lysergic acid, the prevailing memory of which was that I, with the help of a drug, was endeavouring to push him around like teachers had in the past, that he wasn't going to submit to it; while I had envisaged this particular problem, I had not been able to resolve it, so that I think one must be cautious in the use of a drug where intellectual insight may be given without the ability to pursue total psychotherapy.

In relation to another type of problem was the case of a boy of fourteen,

rather dull, who had had obsessional rituals intermittently since seven or eight, whose speech was hesitant, who paused so long that an interview was over without one having any idea of the validity of any form of approach. We utilized lysergic acid for six or eight interviews. The patient became relaxed, established a dependent situation, responded without the enormous delay to conversation or therapeutic opening and allowed the doctor sufficient awareness of the significant areas of content to allow him to proceed with those interviews without the use of the drug. This permitted the expression of his response to parental attitudes, his fear of aggressive feelings and sexual guilt. Without effecting a cure the use of the drug permitted a dependent relationship, and allowed the expression of feelings in this relation.

Finally, another boy with compulsive movements and shouts and an educational problem coming from a family most of whom have tics, was admitted to the ward. In the course of about eight or ten months during which he has been in, he has matured, he has lost his antisocial quality, he has established good relationships with staff, his school problem has been tackled, he has developed friends of both sexes, but under the slightest stress compulsive shouting occurs. At the first interview in which lysergic acid was used it was possible to continue a friendly relationship, to ask him about the past, to use the day he went to school as a focal point, suggest his memories of this back to him, to see the stress when the last he saw of his mother was mentioned, to allow him to express the feelings of being abandoned, and then to have cut across the discussion his statement of feeling in a rage, which he had never expressed before. The interview was terminated without abreaction or catharsis along that theme, but for the intervening period of a week to the next interview he had confided in the nursing staff his sense of happiness. The second interview produced extreme hostility, unwillingness to talk, defiant smirks, but gradually towards the end of the interview an episode was half recollected and brought into prominence, which allowed the text of his fear and anger with his father to come into prominence. It was not dealt with in detail but general discussion (which can so often be helpful to an adolescent to an extent far beyond what one would anticipate in a more established psychoneurotic), was possible and at the end of the interview he was again easier and more relaxed.

In all, eight cases of such severity aged from fourteen to eighteen have been the subject of psychotherapy with the use of LSD as an adjuvant to psychotherapy and to other methods. In four it has proved of material advantage. In one, the outcome of which was successful, the LSD interviews did not materially alter the treatment. In one, incautious increase of insights without expression of feeling complicated the treatment. In two it proved of little value.

The over-all finding from this experience was that the use of lysergic acid facilitated the interview situation, permitted the quick establishment of a therapeutic relationship, allowed of the expression of suppressed experience and the recovery of forgotten material in the therapeutic situation. It was not regarded as a substitute for the total approach to treatment.

Note—The method was to explain and introduce the drug into the normal interview situation. An intravenous injection was given half an hour before starting, with 40 μg. The patient was for the succeeding half hour with a sympathetic nurse who normally remained during the interview and took notes unobtrusively. The therapist arrived and after reassurance as to the physiological

changes being experienced, proceeded gently into the interview situation. The somewhat aggressive approach to psychotherapy suggested in the examples quoted was related to the severe obsessive compulsive patients dealt with.

Reference

Psychotherapy of the Adolescent (ed. Benjamin Harris Balser, M.D.). New York: International Universities Press Inc.

A CASE OF PSYCHOPATHIC PERSONALITY WITH HOMOSEXUALITY TREATED BY LSD

By JOYCE MARTIN

THIS was a Jewish man of thirty-two, referred to the Marlborough Day Hospital from the London Jewish Hospital, after he had received every possible form of treatment and had not responded to any.

Complaint. He was complaining of feeling antisocial and completely unable to get on with people whether at work or in private. He was irritable and depressed, he also suffered from a stammer, and from active homosexuality, which he deplored. He was unable to hold a job for more than a week or two, since he developed ideas of reference about the people he worked with.

Present History. When I saw him for the first time in 1955 he was an extremely miserable and desperate man, since he felt he had received all the different types of treatment possible, and he had not responded to any of them, so that he wondered if there was a constitutional defect which would always prevent him from getting well, and if so he felt quite determined to end his life. He was therefore very eager to have the LSD treatment as a last hope.

Past History. The patient joined up in the Army in 1940, and here his antisocial and paranoid feelings became worse, since he did not get on with the other men, and got beaten up by them quite often, and eventually he developed severe headaches and his stammer got worse, and he was discharged by a medical board after one and a half years.

He then went to Canada for three years hoping that he would fit into the social structure there better than in England, but the same thing happened, and he could not keep a job for more than two to three months, and felt people were laughing and talking about him.

On his return to England, he was sent to the Tavistock Clinic for treatment for his stammer, for which he had individual speech therapy, and his stammer improved slightly. He also attended for group treatment, but did not find this any help at all. While at the Tavistock Clinic, he had an intelligence test, and his I.Q. was found to be 138.

After the Tavistock Clinic, he attended several other hospital out-patient departments, and eventually in 1950 was referred to the Marlborough Day Hospital. Here he had individual psychotherapy with various doctors, and also some group treatment, but did not respond. He was then sent to the psychopathic unit at Belmont Hospital, where they specialize in the treatment of homosexuals, but here again he made no progress.

Early History. The patient was born while his father was away in Russia where he eventually died, so that the patient never saw his father. His mother had to go out to work from the beginning of his life, and left him with the grandparents. Very often they could not be bothered with him as he grew into a noisy rebellious little boy, so that they would push him on to anyone who would have him. He remembered quite clearly at the age of five, being left at a

public house, and talking to women whom later he knew were prostitutes, and who spoke to him about sex, and made him aware of his sex organ. There were no children of his own age with whom he could play, but he started going to the elementary school at the age of three, and stayed until fourteen. He disliked school intensely and could not make friends with children or staff. He slept in his mother's bedroom until twelve years old, and appeared to have a mixture of love and hate feelings for her, but otherwise had no object relationship.

After leaving school, the patient was taken on by his uncle as an assistant in his grocer's shop. Here he soon got into conflict with his uncle's wife who was strict with him, and he had to leave. Then he became an apprentice in the leather trade, and stayed there for three years, but then left because he could not get on with certain people there, and then he was out of work for three years until he joined the Army in 1940.

Procedure. The decision had now to be made as to whether the patient was suitable for LSD treatment, particularly under out-patient conditions. The criteria that I chose were as follows:

(*a*) No history of any previous psychotic episode.
(*b*) Some knowledge of his unconscious processes.
(*c*) Some degree of insight.
(*d*) A high intelligence.
(*e*) A good ego development.
(*f*) A strong desire to get well.

In my opinion the patient fulfilled all these conditions except that of having a good ego development, since he was too much dominated by his instinctual impulses, with a poor super-ego and ego development. There was therefore a possible danger of a paranoid psychosis developing as a result of treatment, but since he was in such a desperate state, I decided that the right thing would be to give him one treatment, and see what sort of reaction he had. If it was a paranoid reaction, then I would discontinue the treatment.

First LSD treatment reaction. One treatment of 50 gamma of LSD was given orally. The patient became more co-operative, and talked about his present day difficulties of getting on with people. He realized that he was suspicious of everyone, and that other people were not antagonistic to him. He felt more positive and hopeful as a result of the treatment. I therefore decided to continue the treatment, and at the following session I gave him 75 gamma.

Second LSD reaction (75 gamma). After one hour the patient became very cold and began shouting at me, and abusing me for neglecting him, and he wanted more blankets. It was a hot July day, but I gave him more blankets, but it did not make any difference. The patient said that he felt that he was lying in a pool of blood, and why did I not do something about it. I asked him how he came to think it was blood, and he said it felt smooth and oily. I asked him to be patient, and let himself go with the sensation, and see what came into his mind. He then said that he felt as though he had just been born, and was lying in a pool of blood, and that no one was bothering about him, because they were all bothered about his mother. Later on, I asked him to check up through his aunt, on the conditions of his birth, and she said that the mother had been

very ill before he was born, and she thought she had a haemorrhage, so that this may have been a true experience. At any rate, it made some difference to his horror of blood, because the next week he came to me saying that he had cut his finger badly, and previously would have fainted and shouted for someone to come, but this time he was able to look at it and then bind it up, and was not afraid of it as previously.

Third LSD reaction (100 gamma). Under this treatment the patient went back to his early childhood, and he re-experienced being left at the public house in the care of women who he later realized were prostitutes. He remembered how they used to tell him sexy stories, and play with him, and be amused because he had a big penis, and they told him what to do with it. He felt that he was encouraged to go round showing off what he could do with it, that he became very precocious and later on went round exposing himself to girls so that he got a bad name in the neighbourhood. He then began to use sexual swear words, and took delight in shouting them at myself, the sister or the nurse, and was annoyed if no response was given. This led on to very strong desires to attack sexually any woman who entered the room.

Fourth LSD reaction (125 gamma). The rape desires developed very quickly, particularly in relation to myself. He re-experienced the ambivalent relationship he had had towards his mother, at one moment hating me and saying I was old and ugly, and the next moment saying I was young and beautiful and wanting to make love to me. During this session he worked through a tremendous amount of transference material, and finally he re-experienced having made a deliberate sexual attack on his mother when he was still sharing her bedroom at the age of ten years. This liberated a tremendous amount of guilt and shame, and he remembered that after this event he went off girls, and later concentrated his sexual interests on men.

Fifth LSD reaction (150 gamma). During this session the patient experienced a great feeling of omnipotence, and thought he was the Emperor Nero, and that he had power over people's lives and could do with them what he wished, and he devised the most horrible cruelties to inflict on them, and derived great pleasure from this. Later on however he began to enquire why he should feel so sadistic, and it came to him that he had never forgiven his mother for deserting him by going out to work, and he had the phantasy that she was all powerful and had killed off his father and taken on his role herself. So she became a castrating figure to the patient. He said he used to feel the same about me, and be afraid of me, but now that he had expressed so much to me, he was no longer afraid of me. He even felt that he might be able to talk to women and feel friendly towards them in future.

Sixth, Seventh and Eighth LSD reactions (up to 200 gamma). The patient continued to relive incidents from his early childhood, and to continue working through various aspects of the transference situation. During this time I was able to encourage him to join one of our therapeutic social clubs which previously he had scorned, but now he entered into the activities with great enthusiasm, and was able to make contacts with both sexes, although very superficially.

After the eighth treatment the patient was unable to have further LSD since the general hospital which had been giving him a bed overnight after the treatment, were unable to do so any longer, and I could not allow him to go back to a bed-sitting room on his own after treatment. He therefore came up to see me once a week for half an hour, and during this time I was satisfied that the process of stabilization was progressing steadily. He was continuing with the social club, and his relationships were getting easier. He had made a good relationship with a nurse whom he felt he might like to marry one day, and he had ceased having homosexual relationships altogether. He started to study French and Russian (unconsciously following in father's footsteps), at evening classes, and he got himself a new job which he said he liked.

About this time I was unable to see the patient any more, and transferred him to a male psychiatrist, who saw him once fortnightly and gave him an injection of methedrine. This seemed to help the patient to release the early infantile aggressive feelings which had been liberated under LSD and which still needed to be made more conscious in order to integrate them into his conscious personality, and which were connected mainly with the oedipal and castration complexes. These intense sadistic and hostile feelings had overwhelmed the ego and prevented it from normal development, but now that these feelings had been liberated in the transference situation, they were being resolved, and the ego became stronger and was able to develop and integrate. In my opinion this could not have happened if I had not stayed with the patient throughout most of the LSD session when he was abreacting violently and working through transference feelings. If I had left him on his own, the conflicts would not have been resolved and he might have become more paranoid. It was more economical and effective to stay with him during these eight sessions than to give him years of psychoanalysis later.

Final Result. The patient got married to the nurse one year later, and is still happily married after five years. He has kept in the same job, and augments his income by doing French and Russian translations. He gets on well with colleagues, and has a few social friends. He and his wife hope to start a family shortly.

Conclusion

An account has been given of a psychopathic Jewish man of thirty-two, suffering from stammer and homosexuality, inability to keep a job or to get on with people, and contemplating suicide, who was treated with eight LSD treatments, and as a result of his re-experiencing of early incidents, including oedipal and castration complexes, in a transference relationship with the therapist, he was able to resolve these infantile conflicts, and free the ego to develop and integrate, so that eventually he was able to marry, and settle down in a harmonious heterosexual relationship.

Discussion

Openers: C. H. van Rhijn and T. M. Ling

Dr. C. H. van Rhijn: My place here discussing this morning's papers is an unexpected one for which I have to thank the organizing committee, with a bit of ambivalence. I want to discuss three papers of this morning, the first one by Dr. Arendsen-Hein. The importance of the work of Dr. Arendsen-Hein can clearly be understood by those who are working with the same problem: that of the so-called psychopaths. Dr. Arendsen-Hein calls psychopathy "an old clinical entity", and there is much in favour of this. The diagnosis "psychopathy" is all too often an endpoint, because mostly the prognosis "incurable" is attached to it. Internationally the numbers of the so-called psychopaths are growing, so that the work of a few doctors who busy themselves with these difficult cases must be followed with interest and appreciation.

I have, however, one word of caution. Society does not know that some of us regard psychopaths—and especially the criminal type—as patients, patients with character disorders, and even if they did know they wouldn't accept it because of feelings of insecurity. So you see, the work of psychiatrists occupying themselves with psychotherapy of criminal psychopaths faces a double resistance; not only that in his patients, but also the resistance of society. We must hope that these psychiatrists will find the courage to carry on and find suitable surroundings in which to treat these patients.

Dr. Martin's paper is a confirmation of the work of Dr. Arendsen-Hein. Her patient was, no doubt, a psychopath in the old sense. That she cured this man must be regarded as a nice example of what can be the result of the combination of Freudian concepts with the new drugs (and a lot of hours work).

I have complimented Dr. Arendsen-Hein and Dr. Martin on their courage, but the most courageous man this morning was, as I see it, Dr. de Groot. He described eight patients all suffering from depersonalization, treated without success with psycholytic drugs. I think some day we should have a conference on negative results! His presentation is very useful, both from the practical and from the theoretical standpoint. From the practical standpoint, depersonalization can be treated often with great success with tonics of the sympathetic nervous system; as for instance with isoniazid or iproniazid, because these drugs heighten the sympathetic alertness, inhibiting the amino-oxidase enzyme system. More important still is the theoretical standpoint. Depersonalization—with the possible exception of tension depersonalization—is not a neurotic state, but mostly a symptom not of a blocked emotional relationship but a lowered emotional relationship resulting from a lowered "elan vital". I have to thank Dr. de Groot for his observations, which are in accordance with my own work.

Dr. T. M. Ling: First I would like to congratulate all four speakers on their excellent presentations. Dr. de Groot mentioned one case which did particularly well, which he described as a tension depersonalization. I suggest that this case is probably a tension state, with some degree of depersonalization; and, as he has shown us very lucidly, depersonalization is a symptom ranging right across the board. We feel that tension states do extremely well with LSD and, by that

I include various forms of anxiety, and people whom normally one would recommend for fairly long-term intensive psychotherapy.

Usually these cases tend to get passed on from one hospital to another and very often treatment takes the form of five or ten minutes' rapid discussion with the registrar, and graded doses of amytal. We find at the Marlborough Day Hospital and also in private practice that tension states by and large do extraordinarily well, and I would suggest that some of de Groot's cases have certain psychotic features that in our view would make them unsuitable for LSD. And we have now developed a technique of not taking on cases, certainly for out-patient care, without a previous comprehensive Rorschach which we find very revealing as bringing up many unconscious problems missed in the course of two or three psychotherapeutic interviews.

As regards Dr. Arendsen-Hein's comments, I think it is important to realize, as in other forms of medicine, that one must clearly differentiate between those that one can or cannot safely treat as out-patients, which we do in our hospital both in the day-time and at night.

There are, I understand, forty day hospitals in this country, and there is, I think, a very real need for the treatment of suitably selected neurotic cases with LSD at night. If, for example, you are going to treat an assistant bank manager week after week during the day, his prospects of becoming manager, whatever you may do, are much jeopardized by your activities. If you treat that patient quietly and in secrecy at night (there is an analogy, if I may say so, with a V.D. clinic), you enable him, as we have found in 90 per cent. of our cases, at least to go back to the bank next morning, and nobody there need know anything about it. What is more important, the fact that he is having treatment is unknown to his head office. I would emphasize this point in all seriousness. An increasing number of people are employed by large organizations, and large organizations, on the whole, are not sympathetic to problem individuals.

We at the Marlborough Day Hospital and elsewhere, I think, have done something to show the way in which we can, in suitably selected cases, treat patients in the evening. They come in at half past six, and have their treatment till about twelve o'clock; then they are given sedatives and they sleep. They are given breakfast the next morning, and they are usually fit enough to work. Occasionally they have brought up so much disturbing material that they have to rest the following morning, but this applies to clerks and secretaries, civil servants and all the other people who live and work in our complex society. The group—going back to Dr. Arendsen-Hein's series—who need in-patient treatment, represent a different problem, of which I personally have no experience, but I would like to congratulate him on his results in cases that most of us have been brought up to think of as virtually incurable.

Dr. Arendsen-Hein stressed another point, which was not to give too heavy a dose of the drug. I think that in this connection there are two misconceptions. First, LSD has been described as producing a model psychosis. I think that if it is used in small doses the patients do not become psychotic if they are not psychotic already. It is a practice with us to start with 25 gamma and then gradually to work up to the optimum level. If you go up too fast or give too high a dose, the patient may get a temporary psychotic phase, which is very frightening to him, and very disturbing to oneself.

I think psychosis is an unfortunate word, and I would like to make a plea, too, with Dr. Sandison, that in the fullness of time we think of these as

psycholytic drugs, and not drugs producing psychosis. A lot of drugs can produce psychosis, including alcohol. Most of us enjoy alcohol in moderation, and I think the same applies here.

Dr. Kenneth Cameron's cases of adolescents, an extremely difficult group, also taught us many lessons, and not least the tremendous importance of the transference relationship with the therapist, and also the very real difficulties of treating these border-line obsessional cases, which again verge on psychotic states.

The last case from my colleague Dr. Martin emphasized, I think, before everything, the value of motivation. I think that in the selection of cases one of the things one has to learn is when to start and when to stop, and also who to start with and who not to start with. And I think that of all the criteria the most important—and here I very much agree with my colleague, Dr. Betty Eisner, who is speaking this afternoon—is the expression of the willingness, the conscious willingness, of the patients to face up to their own problems and difficulties. If a man is brought for treatment by an over-anxious wife because he is running around with other women, or whatever the symptom may be, and wishes to continue to run around with other women, you are really rather wasting your time. It is very often the unfortunate wife who gets sent to us, when the problem in the marriage is primarily the husband, but if he is unwilling or semi-unwilling to be treated, the unwilling patient, in my experience, is capable only of a very unsatisfactory relationship.

I am sorry we had no opportunity to hear the paper on marriage problems, because I think that if the motivation is good, or reasonably good, on both sides, and the marriage is not completely on the rocks, then one can do a tremendous amount of good, utilizing particularly the transference relationships, and, both at hospital and in private. Some of us are getting husband or wife to sit with the patient throughout the session. At the moment I have a married couple, both of whom have difficulties; and I think it is important, to realize the extent to which a neurosis *à deux* is a very common manifestation of marriage difficulties, Writers from the Tavistock Clinic and many others have pointed this out—that it takes two to make a happy marriage, and it takes two to make an unhappy one. And there is a lot to be said for alternating weeks, so that one week one patient is treated, and the other one holds his or her hand, and the next week the roles are reversed, so to speak. This produces a non-verbal communication between the two which I think is extremely valuable in converting, in some cases, a marriage from the sort of knife-in-the-back stage into one of mature happiness.

I think the other moral that might be drawn from Dr. Martin's case is the value of persistence; and lastly, I would like to point out the fact that this drug goes on affecting individuals for anything up to two years.

Lastly, I think that one of the greatest lessons to be learned is the fact that this drug enables us to understand and see ourselves. And I would remind you that was what Socrates in his wisdom in 500 B.C. told us, that the most valuable thing for a human being was "to know thyself" and I think that it is by enabling one to know oneself and to get real insight that LSD has so much to contribute.

Dr. R. A. SANDISON (Worcester): I would like to ask two very brief questions. I would like to address the first one to Dr. Cameron. He referred, I think, to the fact that some of his adolescents were not able to make full use of LSD until they had reached the age of seventeen or eighteen, but I don't think he told us

precisely the ages of his patients. I wonder whether Dr. Cameron could say a little more about this, because I think it has some relationship to a question that all the speakers mentioned, and that was their astonishment that these psychopathic and anti-social individuals, criminals and delinquents, who were thought to have a weak ego, could show such remarkable integrative powers under the influence of LSD? This seems to be one of the great psychological puzzles of the whole LSD problem, and I do wish that our speakers could perhaps be given a little time to comment on this. The question I would like to ask all speakers in this connection is "Do they consider that the disorder really is with the ego or whether it is that the primary disorder is in the unconscious, and that it is only appearing to come from the ego because this is the way in which the unconscious manifests itself to the external world?"

Dr. CAMERON: I'm not in a very good position, in view of the way in which the cases were selected, to give a résumé of the effectiveness at different ages. The cases I dealt with varied, in fact, from fourteen to eighteen. The last boy mentioned was a fourteen year old, and he seemed to be responding as effectively as the eighteen year old. The fact that the two I experimented on were eighteen years old depended on the fact that that was their age when I took up treatment and when I began to use LSD. But I haven't found that there was a material difference except in how one dealt with the cases—one had to respond to a fourteen year old boy or an eighteen year old youth, but an equally effective treatment situation appeared to develop in the fourteen year old as in the eighteen year old.

Dr. ARENDSEN-HEIN: As far as my experience goes it has been also a revelation to me that these patients with so-called weak egos should be able to integrate and to be able to carry out auto-synthesis in a way that you would not have expected them to be able to. But I felt that it was especially the new relationship with the therapist, which I have called an existential relationship, that helped them to face their problems, and put their problems in their proper place. I will give you an example, as the existential relationship is perhaps a concept which is not clearly defined yet. One of these patients of mine showed in one of his treatments an enormous resistance, an enormous struggle for an emotion which wanted to come up, while he wanted to repress it. I encouraged him and said, "What's gone wrong?" and he said, "Well, I want to cry, but I dare not." So I said, "Well, I'm here, go on and don't be afraid", and encouraged him in this way. And then, after a while, he said, "Will you stay here?" and I said, "Yes, I shall be here all the time as long as you want me to be", and then suddenly he caught my hand, and, after a minute, started to cry, without explaining what had happened. Afterwards he told me that when he was a little child his father would not allow him to cry, but said boys never cried, and he would beat him if he did so; and he was experiencing under LSD the moment that his mother was taken into hospital, and being taken away from home and he had the feeling that she would never come back—she would die. From that moment he was very much carried away by the emotion, and he wanted to cry but he didn't dare to because he visualized his father being present. Then he said, "I wanted you to be there, to catch your hand in order to have somebody there who was more powerful than my father. You were, so to speak, entering together with me into the situation; and being associated with you I felt capable of standing the father figure who was also there." There is no question of

transference here, but the question of the therapist entering the situation, together with the patient, as somebody who strengthens the ego; and he is then able to face a situation which he cannot otherwise learn to face.

Also, I have a feeling that LSD enables the patient sometimes to integrate experiences by seeing them on different levels. I mean that he sees at the same time how things of the past correspond, and how relationships relate to each other. This is what I would call a multi-dimensional integration, in that he has an over-all view. What he cannot bear to see in a limited sense, he can see and he can face when he appreciates the background. An example of this was, for instance, a man who had very intense guilt feelings about actions of war. He had killed several people and he had many guilt feelings about them. Under LSD when he spoke about these experiences he said, "I was cruel, I had no unpleasant feelings, I was like a beast, and I more or less enjoyed it." Then under LSD he re-experienced the situation and he felt that at the time when he was killing these people he experienced an awful and dreadful resistance, and he was very afraid to do it, but he had to carry it out because it was war. Now, by re-experiencing the situation, not only remembering that he killed, but also reliving the experience in association with the other side of his personality, the side of his personality that rejected it, he could face the matter and accept himself better than he did before.

Dr. MARTIN: Well, I agree with Dr. Sandison. So far as this one case, which I was using for illustration, goes, I think that that man had quite a good ego development, really, but he couldn't show it; and it appeared to be very weak because of the strong and violent unconscious aggression that bound the ego, so that if he showed anything it would be violent, and he couldn't allow that. He was completely crippled by this unconscious aggression, which he couldn't accept, and no one else could accept, in him. Because of this he dared not express his ego; but, under LSD all this came out and was made conscious, so that it then became part of his conscious personality. It was accepted by the therapist, and therefore he could accept it: he could accordingly accept himself and his ego, and he now is quite an adequate personality.

Dr. DE GROOT: My only comment would be to confirm the suggestion made by Dr. Ling, namely, that we too felt that one or two of our patients had an underlying psychotic process, or some evidence of this. And, in fact, we did treat our patients as in-patients; we didn't attempt to treat them as out-patients.

CHAIRMAN: It remains for me now to thank the speakers, who have presented such extremely interesting, and, for me, I must say, most instructive reports on the clinical applications of these drugs. I think it is very necessary for us to be instructed at the present stage, because these drugs are still relatively new, and to many of us unfamiliar, although I was pleasantly surprised when Dr. de Groot began by mentioning cannabis indica as being in this category, because it reminded me that in not all parts of the world are these drugs unfamiliar. In fact, my own personal first experience of any psycholytic drugs was just ten years ago when I was living in an Indian village. My hosts one day administered a large dose of cannabis indica to me without telling me so. This is a favourite practical joke in that community, and afterwards they tried it again more deliberately. But another thing struck me in contrasting the use of cannabis indica in that community. There was a little group of tipplers, who

gathered almost every afternoon to partake. But the use they made of it was very unlike the use that we have been hearing discussed in the therapeutic situation. We know that it can heighten one's capacity for emotional response, but that wasn't the use they preferred. The social meeting dispersed a little while before the cannabis indica started to take effect, and each returned to his own home to enjoy in solitude the autistic dream-like quality of the full cannabis indica experience. Nor can I say that the members of this little group of tipplers were outstandingly the most mentally healthy, or in any way the most distinguished citizens of the village; in other words the drug, as we have been reminded on more than one occasion, is not by itself therapeutic. It creates a profound momentary disturbance, a new experience for the patient, which makes him incidentally receptive to other kinds of new experience, including the therapeutic communication. But it is very clear that the papers we have heard this morning, stimulating and instructive as they were, have not exhausted this topic, and it is well that a place has been given in the programme of the conference for further discussion.

FIFTH SESSION

"CLINICAL OBSERVATIONS AND PHENOMENOLOGICAL INTERPRETATION"

CHAIRMAN: MURRAY JACKSON

ANALYTIC OBSERVATIONS ON PATIENTS USING HALLUCINOGENIC DRUGS

By MICHAEL FORDHAM

INTRODUCTION

THE aim of presenting notes on three cases is first and foremost to further interdisciplinary discussion. It may be that analysts and others not using hallucinogens are getting patients referred who have undergone treatment using them and have observations and conclusions to contribute. If so, it is hoped to stimulate them in helping to elucidate a highly controversial field.

Hallucinogenic drugs can stimulate a profusion of what is known as archetypal imagery and Cutner (1959) has suggested that the LSD experience can be used as an "aid to deep analysis". One manifestation which seems to support her thesis is that imagery, stimulated by hallucinogens, can be compared with that brought into consciousness during active imagination—a procedure playing a considerable part in the synthetic symbolic processes observed and described by Jung (1960). Nevertheless, the similarity is superficial, and the differences considerable. The hallucinogens produce archetypal imagery by involuntary biochemical means; in active imagination the archetypes in the unconscious are given form by the patient's deliberate activity. This is why the imagination which Jung described is called active in contrast to other sorts of imagination in which passive, often defensive, participation is more characteristic. The activity in the LSD fantasy is unlike that found in active imagination and resembles more the second passive kind of imagination which I have proposed should be grouped under the caption "imaginative activity" (Fordham, 1956). The importance of making patients aware of this distinction seems to me evident.

The next point is this: it is fallacious to assume that making patients aware of unconscious fantasy, repressed memories, etc., is necessarily therapeutic. Therapy depends more on integrating the previously unconscious products into the ego. It is therefore important for all therapists to keep in mind the form which the ego's activity takes. An analyst is in a good, even the best, position to perceive and analyse ego defences and attitudes with the patient: if he does not do so the whole imaginative process easily gets used in the service of defensive splitting of the ego, and not in the service of integration no matter what the imagery. Mandalas are no exception! The result is a therapeutic transference illusion believed by the patient and often by his physician as well, as part of his counter-transference.

CASE STUDIES

Case One. This patient was reported by Sandison (1954). In using his report rather heartlessly it is not meant to depreciate the good work he did with his patient. She had previously, for about one year, received psychotherapy for depression. It was reported by the patient to be didactic in that the nature of her psychopathology was explained to her. It was terminated because of a suicidal attempt and she was admitted to Powick Hospital. Before the course

of LSD Sandison says of the patient (p. 511), "The death of her mother at the age of twelve, a restless, psychopathic father, the failure of her marriage and other factors had led to progressive severing of all ties and emotional relationships until she was faced with despair and suicide." We are told "the problem of securing any sort of rapport was immense" but this difficulty was overcome and the patient eventually took the drug. After the course of treatment Sandison reports (p. 513), "At the time of writing she (the patient) is spending a week or so with her husband for the first time for over a year. This development is remarkable in view of the desperate state her marriage was in, having drifted, over six years, into complete separation and impending annulment. All this has been accomplished in eight months and there seems little reason to doubt that this patient will completely recover and live a satisfying and consummate married life." This was written in 1954.

She was referred to the C. G. Jung Clinic in 1957, after ECT treatment for depression which had led to a suicidal attempt. Dr. Ogden, then a trainee analyst to the Society of Analytical Psychology, undertook the analysis. I was her supervisor. The patient had overtly come to an analytical psychologist because he would understand everything in her LSD experiences and continue to give as she said "good Jungian interpretations" like her previous therapist; however, all the material she produced was at first of everyday affairs or memories of her past which were mostly preconscious, i.e. little repressed material emerged.

A prominent feature of this patient's analysis has been—as in the two cases to be reported later—a predominantly negative transference, reminiscent of her attitude when she first went into Powick. The patient found consistent difficulty in undertaking analytic work which was quite unlike her previous exhilarating experiences under the influence of LSD and this adverse comparison led her to depreciate her analyst and emphasize her uselessness. Further the patient repeatedly tested her analyst in various ways, for instance by bringing all her LSD experiences written down and depositing them with her analyst, then referring to them from time to time by classified references. In her analysis the patient never made other use of the imagery in the LSD experiences; only one dream was detailed containing anything like them. It ran as follows: the patient was in a bath with her husband, there were seeds floating in the water and the sun was shining. The dream was accompanied by the same dramatic feeling as in the LSD experience. Little or no analysis of this dream was possible.

It soon became clear that her therapist at Powick Hospital had become a highly idealized love object whom she was forbidden to meet again and who therefore had to be preserved in her mind as a memory without blemishes. Therefore she did not wish to give her analyst the chance of becoming a rival to her ideal nor to spoil the good experiences which she remembered and did not analyse, wanting to keep them intact. The overall aim was, however, to hide from herself and her analyst the rage she felt against her former therapist at having failed her and to repair her ego which had become disorganized.

In short, the analysis centred on the interpretation and gradual working through of her negative transference during which she was occupied in re-establishing her ego. Only after three and a half years hard and painstaking work did a new phase start. This began through her concern for friends who had also been treated with LSD—the results were all inadequate as she reported them. Next she became fascinated by the way she continued her analysis in

spite of its humdrum content. She then began to enquire into the nature of her feelings for her analyst, realized her hostility and why she had needed her analyst to be useless. At the same time her ideal lover ceased to be ideal and she began to make use of interpretations without fearing or idealizing them. Her resistance to interpretations is of interest because it stemmed from two sources (*a*) the didactic psychotherapy and (*b*) the prominent place explanation by her therapist took during her hallucinatory experiences: everything was explained, she said, and this experience became built into the idealizing defensive transference to her physician. I want to state here that, reading Dr. Sandison's report, I found abundant evidence of ego disintegration and regression. This would explain why she needed a "useless" analyst for so long i.e. one who could not repeat her previous experiences.

To conclude: the temporary improvement was brought about not by the imagery in the LSD but by the transference, for relapse soon followed its rupture.

The next two cases were in analysis when they themselves experimented with LSD over a short period. The supposed effect of the drug was different.

Case Two—a young male. He had been in analysis with me for some time and had suffered from rather severe crises in which he lost hope in what I was trying to do for him. My interpretations had become meaningless, his fantasies and dreams had become largely worthless, he became absorbed in his own suffering and pain. His reality situation had "come to a standstill", because as he said "the outer world became empty and dead". Hearing that LSD produced good effects he took it on about ten occasions, making notes of his experiences and bringing them along to his interviews. He spoke enthusiastically of the effects and clearly wanted me to take the substance myself. He reported that the imagery of his fantasy was more real and had body in it. Furthermore, it convinced him of the importance of the images and gave him more courage to act in his personal relationships on what he felt. With regard to the content of his experiences: the majority of the early images had already occurred in his dreams and fantasies, but as his experiments continued new images probably emerged having characteristic archetypal features. Whether they were new or not is irrelevant in the present context for the whole manoeuvre was part of his aim to get me to stop being a "dead analyst" doling out meaningless, unreal talk. If I would also try LSD I would give up my untenable position and become real.

This experiment of my patient may not have been fruitless, for it may have carried him over a period of hopelessness and schizoid disintegration. However, subsequent events have shown that his problems depend far more on realizing and even constructing his own identity, and in this my counter-transference affects proved important (Fordham, 1960). His many attempts to find a solution in fantasy and dream failed partly because he needed a much more real, physical, medium of expression. Also the real source of his distress lay just as much outside his body surface, outside his skin, in the objects and persons of his environment as in his internal world. Examination of the "standstill in his reality situation" was therefore the most important. The sensational imagery, by which he was already fascinated and with which he tried to fascinate others (including myself) only produced an illusory sense of improvement, of euphoria and of an existence that could not satisfy him. His ego was too fragmented.

The contrast between the effects of LSD in the first case and in this second one is evident. I conclude that the difference stems mainly from consistent analysis of the transference and counter-transference.

Case Three is of a woman who it seems could make use of one LSD fantasy in a rather primitive way. The conflict situation into which imagery experienced under LSD emerged was as follows: there was a rather strong negative transference in which her analyst, Mrs. Ruth Strauss, was attacked destructively. She was depreciated (*a*) for the uselessness of her efforts and her talk: what could talk do when the patient's anxieties centred on real affairs? Words therefore became an essential instrument in her transference conflict and long silences occurred; (*b*) in addition she was criticized for interfering in the patient's love affair out of envy and jealousy.

The patient's love affair had gone through many difficulties. The patient wanted to marry, but her lover had no intention of doing so. Therefore the situation became intolerable and several attempts at breaking it up occurred. They were not of long duration. The couple parted only to come together again in a compulsive way and it was clear to the analyst that the conflicts of her patient were being acted out. This was not evident to the patient, who persisted in her aim of marriage.

The patient took two lots of LSD. In contrast to the first case, one fantasy activated by LSD with characteristic vividness and "reality" was of use to the patient. The fantasy, which started from a recurrent one about a spider, ran as follows:—

She found herself looking down a pit, at first seeing in the far distance a spider with a great many legs and arms. Then the image changed into a man and a woman who were conjoined twins. They were linked together by the umbilical cord which was rather like "a bridge of flesh". Both were writhing about and trying to separate and she immediately knew that the couple represented herself and her lover. Still later, but before the influence of LSD had ended, she also knew that it was her internal problem and that she would have to work it through with or without her lover. This reflection coincided with a temporary change in the transference, which ceased to be so hostile, through a transient identification with the analyst.

In the previous case presented above (case two) the transference implication was the most important, as it was in Mrs. Strauss' case also. The change in her patient's attitude to the lover had begun in terms of acting out and of the transference in which the projected compulsion to break up the love affair first appeared.

The idea that some change in her love relationship was thus incipient already and the value of the image as a dramatic illustration reinforced, but did not implement it. The effect might well have been lost without the use the analyst made of it to control acting out procedures; as part of this ran the progressive analysis of the transference which led to the integration of the projection already cited. There were thus a number of ways in which the patient was becoming aware of the necessity for a change.

The inaccessibility of the imagery produced by LSD to analytic interpretation was a common feature to the two cases and was an aspect of the transference in both of them.

Discussion

These three cases all illustrate the difficulties inherent in integrating the hallucinatory and other experiences into the ego. They support what is already known, and many attempts have been made to overcome this disadvantage; they also show the difficulties in doing so, even when the drug is not given by the therapist. It may be assumed that the difficulties are greater or in some respects insuperable when the drug is given by him, because the LSD therapist becomes instated permanently within the patient as an inner personality. Nothing that he does or says will change this because by giving the drug he has by proxy created the imagery.

Jung (1960), who has pioneered for almost half a century in the emergence of archetypal images and their management, says, with reference to the use of mescaline: "this and kindred drugs cause, as we know, an *abaissement* which, by lowering the threshold of consciousness, renders perceptible the perceptual variants that are normally unconscious, thereby enriching one's apperception to an astounding degree, but on the other hand making it impossible to integrate them into the general orientation of consciousness. This is because the accumulation of variants that have become conscious gives each single act of apperception a dimension that fills the whole of consciousness (p. 263)." This means that the ego is disintegrated too much.

The case material presented shows that he overstates his case when he uses the word "impossible", for case two (in analysis with Mrs. Strauss) integrated a bit of the experiences by giving a meaning to it. Continuing analysis of the first case will, it is hoped, lead to further understanding by the patient of what happened and so give further evidence in the matter.

Conclusion

A study of these cases gives sense to the following propositions, which could make the basis for further study.

1. Analysis needs distinguishing from therapies using hallucinogenic drugs. To think that the hallucinatory process can supplement analysis results from a confusion because:
   (*a*) The ego is not mobilized but split and the ego's relation to the imagery is essentially different from that in active imagination.
   (*b*) Though it is reported by Sandison (1954) and Cutner (1959) that the transference can be understood and experienced, this has the limitation that essential aspects of it cannot be worked through. (cf. case one.)
2. By far the strongest therapeutic agent is the transference (case one).
3. Lasting therapeutic effect of the drug is slight.
4. Temporary results may be achieved:
   (*a*) By splitting the ego, which consequently regresses to a more primitive state (all cases).
   (*b*) By increasing the intensity of inner images and thus repressing the main field of conflict in the external interpersonal relationships (case two).
   (*c*) By integrating an image into an internal figure having authority (cf. cases one and three).

5. The transference illusion of health, cure and such like experienced by patients using hallucinogenic drugs (all cases, but case two most clearly) can be participated in by the therapist (cf. case one).

References

CUTNER, M., "Analytic Work with LSD", *Psychiat. Quart.*, 1959, **33.**

JUNG, C. G., "The Transcendent Function", *Collected Works of C. G. Jung*, 1960, **8.** New York: Pantheon; London: Routledge & Kegan Paul.

FORDHAM, M., "Active Imagination and Imaginative Activity", *J. analyt. Psychol.*, 1956, **1**, 2.

SANDISON, R. A., "Psychological Aspects of the LSD Treatment of the Neuroses", *J. ment. Sci.*, 1954, **100**, 419.

FORDHAM, M., "Counter-transference", *Brit. J. Med. Psychol.*, 1960, **33**, 1.

JUNG, C. G., "Schizophrenia", *Collected Works of C. G. Jung*, 1960, **3.** New York: Pantheon; London: Routledge & Kegan Paul.

SIGNIFICANT HALLUCINATIONS

By C. H. VAN RHIJN

WHEN we ask ourselves, "Is a given hallucination significant for the structure of the patient, who produces it?", we are already in the centre of the problem. But looking more closely into this question, we find that it widens until it becomes co-extensive with the problem of communication and understanding. This problem has two sides: that of the producer and that of the receiver.

The problem of the producer: is a word, a sentence, a speech, a gesture, a painting, a drawing of a person or a tree, a dream, a phantasy, a hallucination—significant *for* the structure of the producer—and if so, why?

The problem of the receiver: why are these things, those sounds and images produced by the other person significant *to* the receiver?

The problem of understanding is focused here. You can understand what I mean . . . only if:

(*a*) my expressions are significantly bound to the meaning of what I want to say.

(*b*) your frame of reference is the same as mine, so that you attach the same significance to my expressions as I do.

Only in this way can I convey my meaning to you.

These problems are of course too big to handle in a short introduction, so I will restrict myself to a few rather categorical remarks.

1. All our actions are controlled by way of the senses in a closed circuit. (This is not new—von Uexkühl wrote a book about it fifty years ago.)

2. Normally we do not notice this continuous control, except in cases where this control function of the senses is disturbed. (For example, when by means of a tape-recorder the hearing of your own voice is delayed for half a second, it may induce stammering or even make speech impossible.)

3. Not only simple routine actions are unconsciously sensory-controlled, but nearly our whole routine behaviour.

4. This control-function and regulation of output is the second—and least studied—function of the sense organs, the first being of course the input from the surroundings.

5. Sensory input (whether it be the unconscious control of movement and behaviour or the input of the world around us), is loaded with meaning without our noticing this; or in another way, this loading with meaning happens unconsciously.

Because in normals this loading with meaning is not open for introspection, we have to prove this theory in patients with selective disturbances of the meaning-giving process.

I have in mind on the one hand the subjects of *agnosia*, on the other patients with a *psychasthenia* in Janet's sense.

6. In patients with agnosia the world is disturbed in a very tragic way; e.g., in visual agnosia the patients are "blind" for the quality of known-ness of the world around them. The Germans call this very appropriately "Seelen-blindheit" = psychical blindness. I can recommend especially patients with temporary agnosia for studying this part of the meaning-giving process. They can sometimes report later on what they went through during the time of their agnosia.

From these patients we can conclude that part of meaning comes from former experience, believed to be organized somewhere in the brain cortex.

7. The other component of meaning is emotional or instinctual and can be studied in patients with Janet's psychasthenia.

These patients also describe the world as strange and altered, but in quite another way to patients with agnosia; difficult to explain, everything is strange, colours are lifeless, seeing is like looking at everything through a veil, hearing is like listening to sounds coming from afar, even hearing their own voice, touching their own skin, is estranged.

Jaspers, in his famous book, *Psychopathologie*, states this more cautiously in the following remark, "Es muss bei der normale Wahrnehmung noch etwas anderes geben, das wir nicht bemerken würden, wenn diese Kranken nicht ihre eigentümliche Klagen vorbrachten." (Page 53.)

8. Summing-up: meaning is an entity, composed of: a trace of a sensual stimulus—to which is added: evoked former experience, evoked emotional relationship.

9. Except in the just before mentioned disturbances in the origin of meaning, we can in normal persons only come to know more about meaning through its expression, since meaning is not conscious as such.

10. If meaning does not become conscious as such, how does it become conscious, in what form?

Meaning can only become conscious after it has taken some form—so to say, materialized into some shape or figure. (Professor Conrad of Göttingen told me that this theory has much in common with the Gestalt theory. Professor Conrad is expert in the field of the Gestalt theory, so I refer to his publications on Gestalt and the unconscious.)

11. This taking a form—or getting a form—is a preconscious happening. It is—so to say—a function of the threshold: the threshold between unconscious and conscious. This process can best be studied in the "creative process", on which subject Professor Brewster Ghiselin has written a beautiful little book.

Probably it also can be studied in a phenomenon which the Freudians call "resistance". Even in preparing a communication like this one it is often difficult to shape your meaning into appropriate words—or better—you have often to wait until the right words come.

12. Next question: What has become of the meaning after it has gone over the threshold and got a form; otherwise stated: What is the relation between form and content?

Susanne Langer, a philosopher, from whom I have derived many of my ideas, calls forms the symbols of meaning. The function of the threshold is thus a symbolizing function. The symbol is the form, the meaning the content of the symbol. Words, sentences, speech, she calls discursive symbols and by means of these discursive symbols, we convey in speech our meaning to others.

13. Not only in discursive symbols can meaning come to consciousness. We all know, that often meaning can better be explained by means of a picture, a photo, a drawing, than with many words. The same holds for meaning coming to consciousness. It need not come in discursive forms, it can also come and often much more clearly in presentational forms. In the presentational forms, meaning has a picture-like quality—even a sound image.

14. In the same way as meaning has come to consciousness, it can be explained to others. In other words meaning is expressible in two ways:

(i) In discursive symbols, that is in carefully chosen words, giving more precise but piecemeal information;
(ii) In presentational forms, that is in pictures, drawings, diagrams, slides, giving more global information.

15. This is the way of voluntarily expressing oneself. But there are a number of other ways of expressing yourself without your knowing it.

I see three different groups of involuntary expression, going alongside consciousness. All these involuntary expressions are presentational symbols (symbolic symbols?).

16. (*a*) The first group of involuntary expressions contains facial expressions, intonation; some automatic movements as, e.g., in doodling, nervous tics, etc.; gestures of impatience, interest, sorrow, anger, etc.; sighs of weariness or relief; cries or movements of joy or pain.
(*b*) The second group contains paintings, as produced in art therapy; day-dreaming; phantasies, as for instance, those produced in autogenic training; dreams and nightmares; hallucinations.
(*c*) The third group is reserved for the neurotic and psychosomatic symptoms, often understood by the therapist as expressions of neurotic meaning.

17. From here we can drift to the therapy of neurosis. Words—discursive symbols—are used in analytical therapy, but words have definite disadvantages.

18. Therapy of neurosis, by asking the patient to produce presentational symbols, can sometimes go much quicker.

(*a*) I do not mean the voluntary recalling of a traumatic experience: this is often not possible, because of unwillingness of the symbolizing function to revive it, to bring it up.
(*b*) I mean, asking the patient to produce involuntary expressions.

19. This is done in different therapeutic systems by:
(*a*) Symbolic paintings (e.g., Mrs. v. d. Horst-Oosterhuis).
(*b*) Series of dreams (Freud, Jung, von Siebenthal, etc.).
(*c*) Schulz derived from yoga a therapeutic system, called autogenic training. Jung also uses besides dreams spontaneous phantasies. Desoille calls his method of therapeutic active imagination "le rêve éveillé".
(*d*) Benedetti once used an alcoholic hallucinosis for studying the total structure ("strukturanalytische Untersuchung") of a patient and compared it with an LSD treatment.
(*e*) Our method with controlled hallucinations by means of LSD and other psycholytics.

20. So we have come at last near our target: the therapeutic value of the psycholytic drugs: What can they do that other methods cannot do?

(*a*) First and foremost: nothing essentially new as compared with the other systems of treatment based on production of presentational symbols.

(*b*) But directly afterwards: the psycholytics produce at will (in a suitable dose in suitable surroundings) hallucinations with essentially the same content as dreams, but altogether much richer, much deeper, much more intense; revealing to the patient and to the therapist much more than is seen in spontaneous dreams or in phantasies.

21. The hallucinations (evoked by 200–400 gamma LSD in a dark room) are clearly presentational symbols, often presenting the hidden meaning-complexes in a significant way.

22. The hallucinations are to the patient:

(*a*) Often moving to a high degree, indicating that the emotional factor of the meaning complex is abreacting.

(*b*) Often clear indications of his problem, clearly understood as a true presentation of something unmistakenly real, but hitherto unknown to him (for instance, a traumatic experience in childhood).

(*c*) Mostly they are both emotional and cognitive at the same time.

(*d*) Occasionally the patient can manipulate his hallucinations in the direction of pleasure and lust.

23. The hallucinations are to the therapist:

(*a*) Often an indication that he need not interfere in the therapeutic process: the patient can deal with the material himself.

(*b*) Also often the patient presents the cause of his neurosis in a highly symbolized form.

24. All this being so, we can go back now to our starting point, the problem of significance:

(*a*) Sometimes no explaining needs to be done. In cases where the hallucinations are significant for the patient, the problem does not arise.

(*b*) But often the meaning-content of the hallucinations is clear to the therapist (or so he thinks) and obscure to the patient. Here comes the problem of significance in its most intricate, dangerous and doubtful form.

25. As compared with words the information given in phantasies, dreams or hallucinations is much more difficult to interpret.

We can clearly see here the meaning of the word "significance" and the problems arising from it.

In understanding each other there is only one possibility: we attach the same meaning to the expressions we use.

Significance is obtained only if we have one communal way of symbolizing our meaning into forms, whether discursive or presentational.

No significance is obtained if we have different ways of symbolizing. If we have in the discursive sector a different set of symbols for one meaning (or a different meaning expressed by one and the same symbol) then we can talk about it in the gentle art of conversation called "semantics".

But in the presentational sector: Do we have here a sort of semantics in symbolic forms or in involuntary presentational forms?

I must leave you here with this problem wide open. The problem is as old as history and as deep as dream interpretation. It is worth a whole conference!

CLINICAL OBSERVATIONS ON AGGRESSION IN THE TREATMENT OF AFFECTIVE DISORDERS WITH OBSESSIONS BY THE USE OF LYSERGIC ACID AND INTENSIVE PSYCHOTHERAPY

By Ismond Rosen

The study of lysergic acid treatment of affective disorders accompanied by obsessions is important because we can gain some idea of what happens to the ego with this drug and how it deals with instinctual processes, especially aggression. Depending on the degree to which obsessions or depression predominate, for they occur so frequently together (Abraham, 1949; Lewis, 1934), we have an alteration in diagnostic category, but all these cases impinge at that equivocal point where neurosis and psychosis meet. Such patients show resistance to all forms of therapy, and, as Stengel (1948) has pointed out, are especially liable to suicide. Suicide, according to Sandison (1957), is the main danger during LSD treatment.

Abraham (1949) has compared the psychopathology of obsessions and melancholia. This may be briefly summarized by the shared features of ambivalence, fixation to the anal phase, and precipitation of the illness by the loss of an object or diminution in self-esteem. They differ in their actual relationship to the object. The obsessional retains the object, while the melancholic gives it up by expulsion and regresses to oral sadistic mechanisms characterized chiefly by introjection and identification. One has been struck by the massive evidence of oral-sadistic strivings brought up by LSD during this conference, especially the paintings shown by Dr. Leuner. Regression is the prime feature in LSD treatment and is difficult to control. Factors influencing regression will be discussed later.

The interaction between these complicated processes and the effects of LSD can now be studied in some detail by the comparison of two patients.

The first, Ann, was basically a psychotic depressive with hypochondriacal obsessions. She was of limited personality and experienced severe early deprivations. She had in fact those qualities which some authors, notably Ling (1960), consider would render her an unsuitable candidate for LSD treatment. This then is the lower limit of therapeutic efficacy and an attempt to understand the mechanisms responsible.

The second patient, Barbara, had a severe neurotic illness with phobias, checking obsessions, depression and suicidal preoccupations.

Ann, aged thirty-five, was illegitimate and was given for adoption at two weeks of age to an elderly childless couple. Her real mother had had many children by two husbands before and after her birth. She discovered her illegitimacy at sixteen and this blow to her self-esteem led to her first depression with anxiety. She was also much upset by the death of her adoptive father when she was twenty-six, and at this time her adoptive mother became quite paranoid, insisted that no good would ever come of her, cursed her formally, and told her to get out of the house. Cursing was regarded as being magically fulfilled in this household. At this stage the patient made contact with her half-brothers and

lived with them for six months, being openly rejected by her real mother. At the age of thirty-one she married. Her husband, who was illegitimate, she discovered to be impotent. She had had no pre-marital sexual intercourse for fear of falling pregnant like her mother, or of fitting the accusation of being a whore continually levelled at her by her adoptive mother.

The impotence preyed on her mind and feelings, and after two years she told her husband to leave. She then became severely depressed and suicidal with obsessional thoughts of never being any good or getting well. She was in several hospitals and responded only briefly to ECT, of which she had seventy-four in all, to check her acute suicidal propensities. At the Maudsley Hospital she showed little response to psychotherapy and presented with profound underlying aggression, repeating her complaints in an agitated way. In addition a distressing obsession appeared continuously that her lips were blue and she would die of heart disease. Her half-brothers were prepared to help her fully, but her ambivalence and envy towards them prevented this.

It was decided to give her LSD to deal with the aggression. She had twenty weekly treatments over eight months with concurrent intensive psychotherapy of a transference kind. Doses were from 100 to 250 gamma.

In the first LSD session she expressed aggressive wishes against her real mother, whom she wanted to strangle and call names such as "old cow" and "whore". These alternated with the wish to die and being called a bastard. There was much crying, and some triumphal laughter associated with attacking her mother.

During the early part of the second session, the above was repeated. Then she became afraid that if her brother knew of her aggressive intentions towards his mother, he would have nothing to do with her, and it would therefore be better if she were to kill herself as her mother wanted. The obsession about blue lips became prominent. Later, actual attempts to strangle herself with the bedclothes alternated with feeling she was getting hold of her mother and choking her. This alternation of suicidal and homicidal impulses was a feature of the next five sessions, together with the blue lips obsession. Unless restrained, she tried to act out these desires in a purposive but psychotic way, seemingly losing contact with her real surroundings.

This deflection of aggression from herself to an external object seemed periodic and rhythmic, there being five suicidal attempts in two and a half hours. The whole sequence would end in the suicidal phase. This observation of a primitive ego response, which appeared to have the characteristics of a biological defensive rhythm, requires confirmation by others. The regression could also be described as a temporary instinctual defusion, where the aggression appeared in pure form, unchecked by libido, and beyond the stage of concern described by Winnicott (1958). Concern with what others might think produced the blue lips obsession.

Certain identificatory processes were also revealed. For example, some suicidal aims were to throw herself from the window, as a half-sister had done in a successful suicide. The blue lips obsession came to be understood as an introjectory identification. In her early twenties, she and a friend used to visit a middle aged woman suffering from cyanosis. The friend hoped she would die so that she could marry her husband. The patient secretly wished it was her adoptive mother who was ill, felt guilty about this, and afraid of falling sick in this way herself. This was revealed during the discussions of her guilt over her

adoptive mother's death and was also an introjection of her adoptive mother and a punishment for her own oedipal wishes. This symptom therefore retained full libidinal strivings, and was used to check the oral sadistic aggressive drives. Libidinization checks aggression by fusion with it.

The living out of aggressive desires abated in the last ten sessions coincident with her preoccupation with sexual phantasies and her spoiled marriage. She could actually see her husband before her eyes, and expressed ambivalent loving and hating feelings towards him. Hostile wishes against him were followed by feeling she had blue lips, but this latter symptom, which distressed her more than any other, was completely absent at times.

Thus, over nine months, Ann improved greatly and could enjoy weekend leaves with her brother and going out dancing. Her sexual feelings became intensified to a degree of hallucinatory wish fulfilment, in daily phantasies of intercourse with her husband. These hallucinations were experienced out of LSD sessions. In the transference, her sexual feelings could only be experienced in a projected way. She had phantasies of her adoptive mother sticking needles in her vagina. This referred to her early abreactive experiences with the therapist prior to LSD. She remained highly sensitive to loss of any external, narcissistic supplies. Upset by the fears and inability to respond to a man she met dancing and by the vacation of the therapist, she regressed and became severely agitated, suicidal and depressed with blue lips. She refused further psychotherapy and LSD. Leucotomy, which released primitive aggressive feelings was then performed. With further psychotherapy she improved, and for the past three years she has lived in a private home and worked satisfactorily. Her LSD and psychotherapy appear to have contributed materially towards this.

The second patient, *Barbara*, aged thirty-eight, who is presently in intensive psychotherapy, had suffered with compulsive checking for many years, and developed a phobia of wasps which became intolerable to the point of serious suicidal actions and inclinations.

Her seven LSD sessions were administered as an out-patient by Dr. Brooke of Runwell Hospital, to whom I am indebted for the use of the extensive protocols recorded by the patient. Barbara had intense experiences of altered perceptions with great pleasure in colours and taste. Ann reported none of these. Barbara could use them as evidence of good objects coming from herself and the treatment and used this to balance more negative ambivalent feelings.

Her early sessions dealt with ambivalent loving and disappointed feelings, only later did frankly aggressive wishes emerge, and these were always controlled.

With a sense of detachment Barbara could observe her thoughts trying to push themselves up into her mind from the subconscious like the ball in a lavatory cistern. This ball she pushed back. Besides the anal representation, the ball symbolism had another connotation. In the third session she felt the doctor was holding out a beautiful gift, a golden ball, which he took away again, leaving her disconsolate. This represented her complete perfect self towards which she was striving. Melanie Klein (1948), has discussed this desire for self-perfection as being compelling because it is rooted in the idea of disintegration, which is thus disproved. Thus in her psychotherapy this patient wished to be completely cured. Nothing else would satisfy her. The loss of ego control under LSD was felt to be terrifying, which in Barbara was felt as a fear of complete madness. The fourth session aroused a great many aggressive feelings, especially towards the doctor. She felt she had to repress these feelings. She wanted him to be present

so that she could express them, but knew that if he was there she wouldn't feel them so intensely. The awareness of so much aggression in her was an exhausting, shattering experience. Barbara felt she had to protect the good external object, the doctor, from her aggression, but wished she could sting him into retaliation. Both in the literature and at this conference doctors using LSD in therapeutic relationships report relatively little hostility levelled against them. The therapist has to be preserved as the good external object, and because of this only a partial transference can be achieved. The patient cannot destroy his one link with reality.

The origin of the wasp phobia became revealed as a particular identification with her adolescent daughter who had one day become terrified of wasps in her presence. The patient reported animal phobias going back to childhood.

What I wish to point out is that although such complex identificatory mechanisms become available to the patient under LSD treatment, they still have to be dealt with by analytic transference therapy, and cannot be worked through by the patient alone. Ann felt LSD "to have something in it" but her symptomatology as such remained unchanged. To regard abreaction as the prime purpose of therapy is to conceive of analytic therapy in the stage of Newtonian physics as compared with modern atomic theory. The whole concept of object relationships, transference interpretations, and complex unconscious defence mechanisms seems denied by certain speakers.

Many authors have noted the strong transference relationships aroused in LSD treatment. This seems especially significant for separation anxiety. Patients tolerate being left alone extremely badly. Barbara experienced a period of isolation as an intentional torture. She felt "hemmed-in and horrible, with big mouths closing and opening"—"ill, sick and confused, like a child without a hand to hold," deserted, left flat, the way she had been all her life. This phase of depression with its dangerous oral aspects lay underneath, and both Barbara and Ann had the fear that the expression of any anger would lead to a loss of the loved person and being left deserted, described by them so graphically.

As has been shown elsewhere with schizophrenics, the presence of obsessional symptoms militates against psychotic personality regressions (Rosen, 1957). This seems true as well in severe depressive illnesses. Lysergic acid however promotes regression which involves the whole of the psyche, ego, superego and id.

Deep oral sadism and intense longings for unity within the self are only assuaged by primitive ego mechanisms of depression and identification. Much mental pain is experienced, due partly to greater awareness of the ego ideal by which the self falls short, and partly due to the strong id drives the weakened ego feels unable to cope with, the LSD session leading always to exhaustion if intense or prolonged.

While the presenting mechanisms seem to depend more on the type of illness and personality structure, the main effect on the ego seems to be the regression and increasing awareness of unconscious processes. The clarification of good and bad psychic elements is assisted by analytic psychotherapy. Otherwise patients fail to integrate the material and the experience is felt as a further narcissistic wounding.

The transference is especially difficult, with the need to preserve the therapist as a kind loving figure. This leads to hostility being directed mainly at the self

with further regression resulting. This mechanism has been shown to operate in persons exposed to Communist brain-washing techniques.

In summing up, the treatment of the depressive with obsessional symptoms may be facilitated by LSD, but the ultimate success of treatment depends on the analytic transference situation and how it is dealt with. Otherwise the basic problems of response remain unaltered. The use of the term "psychoanalytic drug" is to be deprecated, because by itself it does no such thing.

References

ABRAHAM, K., Selected Papers on Psychoanalysis. Section on Manic Depressive States and the Pre-Genital Levels of the Libido. London: Hogarth Press, 1949.

KLEIN, M., "The Psychogenesis of Manic Depressive States" (p. 290). Chapter on "Contributions to Psychoanalysis 1921-1945." London: Hogarth Press, 1948.

LEWIS, A. J., "Melancholia: A Clinical Study of Depressive States," *J. Ment. Sci.*, 1934, **80**, 277.

LING, T. M., and BUCKMAN, J., "The Use of Lysergic Acid in Individual Psychotherapy," *Proc. Roy. Soc. Med.*, 1960, **53**, 927–929.

ROSEN, I., "The Clinical Significance of Obsessions in Schizophrenia," *J. Ment. Sci.*, 1957, **103**, 773–785.

SANDISON, R. A., and WHITELAW, J. D. A., "Further Studies in the Therapeutic Value of Lysergic Acid Diethylamide in Mental Illness" (p. 338), *J. Ment. Sci.*, 1957, **103**, 332–343.

STENGEL, E., "Some Clinical Observations on the Psychodynamic Relationship between Depression and Obsessive-Compulsive Symptoms," *J. Ment. Sci.*, 1948, **94**, 650.

WINNICOTT, D. W., Collected Papers, "Aggression in Relation to Emotional Development," 1958, London: Tavistock Publications Ltd., p. 205.

THE INFLUENCE OF LSD ON UNCONSCIOUS ACTIVITY

By BETTY GROVER EISNER

ANY resemblance between this paper and its title is, I am afraid, purely coincidental. The title was assigned while the paper was being written. The two probably have not met—let alone merged.

Probably the most fascinating aspect of close association with psycholytic drugs, and particularly LSD, is the almost miraculous way in which human dynamics are laid bare and levels of consciousness become available to scrutiny.

LSD and related agents appear to be research tools far beyond present-day conception—even the conception of those of us who have been working with them for years. Controlled journeys are made possible into the psyche: into the individual or personal unconscious; into the racial and collective unconscious; even into cosmic levels. This is possible through manipulation of the environment, the dosage, and the condition of the patient. Our observations indicate an enormous order in the unconscious and its multifaceted levels; these levels seem to be available in what appears an orderly fashion. But why should it be otherwise, when each night sky reveals the ordered grandeur of the universe, and every flower expresses the beauty of transcendental symmetry?

It further seems apparent that LSD, when properly used, contains a great potential for the treatment of mental illnesses which may not be amenable to conventional methods. It appears to work specifically on the two essentials for true healing: the handling of problem areas; and the potentiating of the integrative experience whereby the individual feels himself at one with his environment.

There has been continual if not unanimous observation that the therapeutic setting may be the optimal situation for research into the layers of human dynamics and of the many levels of consciousness. We are indeed fortunate to be the explorers of inner space and the first voyagers who can make planned and often predictable trips into areas where time and space seem to have no bearing. And here I would like to mention the importance, in my opinion, for anyone working with LSD to have had personal experience with it—different times, different dosages, different situations. Dr. Ling's most pertinent observation this morning of the imperative "Know Thyself" applies here.

There are also unusual, little-known areas which have emerged with sufficient frequency as to appear just as real in the infinity of the psyche as Hawaii is in the vastness of the Pacific Ocean, and Venus in the sweep of the heavens. These "places", if one may so define them, seem to be perceived by patients as though existing in space—and in relatively similar positions. This is, paradoxically, despite the fact that when any moment is felt totally under any of these drugs the experience appears to transcend time and space. We have, for the sake of communication, and with temerity and perhaps some levity, assigned names to some of the most frequently-appearing places: Cosmic Rejection or Limbo; Chaos; the Black or Schizophrenic Belt; the Desert; the Ice Country. In addition to these are the two which have occupied man's attention since the birth of self consciousness: Heaven and Hell.

The secret of experiencing these "places" creatively seems to be the patient's total acceptance of their "reality" and one's presence there as fully as though for "eternity" if necessary. In fact, one of the techniques for maintaining a deep psychic level of drug operation is to have the individual "move" toward that which appears repulsive, painful, or frightening, and to continue the experience as long as is necessary for completion.

In the course of five years of work with the psycholytic or mind-changing drugs—LSD, mescaline, psilocybine, ritalin, and the amphetamines—one can only be awestruck by the genius of Freud, Adler, and Jung—and be saddened at the forces which split apart this trinity. Their observations and theories should be integrated; for the split skewed so many fundamental perceptions and discoveries.

Freud is recognized as the cartographer of the personal unconscious, although if one reads him carefully it is apparent that he recognized the racial and perhaps the collective unconscious in his use of the terms archaic mind and biological heritage. Adler saw the vast importance of the siblings: our observation is that as often as not the triangle of relationship, which Freud too narrowly named oedipal, is worked out through the siblings either totally or supplementarily to that of the parental. Jung perceived the importance of racial inheritance, the collective unconscious—and most importantly to me, the cosmic levels of consciousness and man's need to turn toward them at least by mid-life. These are three men of gigantic, independent, but related insights and their theories should be fused. Alas, it appears they were split apart by that core problem of humanity—the line of authority—with which all of us must come to terms.

At this point let us speak briefly of the therapeutic methods used in our work. They closely approximate Dr. Sandison's and his colleagues although developed independently. The drug most frequently used, because of efficacy and least side effects, is LSD. Treatments with LSD are set within the context of psychotherapy and are used as an aid in speeding the process of therapy. The criterion for choice of patient seems to depend more on motivation and readiness than on diagnostic category: it is far preferable to have a patient who knows that something is wrong, that he must change, and is willing to make effort toward this, than any special diagnostic category. We have worked with a wide range of mental illness, from situational depressions to a schizophrenic of suicide status. From our studies we are convinced that LSD therapy can be made to work successfully for anyone, *provided* there is the willingness to spend the amount of time necessary. However, with the inadequate personality or the schizoid, the requisite outlay of time and energy is not usually consonant with the results achieved.

When a patient is accepted for LSD therapy, the course of treatment depends on the presenting problem. If there is much symptomatic distress, LSD sessions may be initiated immediately after the complete physical examination which is always given before treatment. Sessions occur at weekly intervals, starting a minimal dosage of 25 gamma, or micrograms, and building up in increments of 25 gamma until optimal dosage—usually 100 to 150 gamma—is reached. For certain patients the addition of from 10 to 40 milligrams of ritalin IM or IV has been found very helpful to enhance and sustain the drug reaction.

If the problem is one of character structure, LSD sessions may be postponed until a good working relationship with the therapist is established and the patient

is ready for the drug. Recently, because of time limitations, patients are accepted for LSD therapy and referred to another doctor who carries the patient therapeutically and who will be present for whatever amount of time he can manage on the day the LSD sessions are given. So-called interference or confusion of the transference relationship has not been observed, contrary to prevailing traditional viewpoints.

The number of LSD sessions necessary, as the time required for therapy, depends entirely on the patient and his condition. The number of LSD sessions in our original study at the Veterans' Administration in West Los Angeles averaged between four and five. Here the patients were acutely aware of being ill and almost desperate to get well. In private practice one finds patients who may be very ill, but are not willing to face their situation because they are operational and not so "desperate" either motivationally or situationally, as they would be if they were in-patients. Sessions here average between 10 and 12.

With us, LSD sessions last from six to eight hours, the therapist being constantly in attendance. Some therapists abort sessions after four hours; others see the patient only for part of the time the drug is acting; under these conditions far more sessions are usually required. We have never aborted a session; however 1½ gr. seconal and 50 mg. of chlorpromazine are given for bedtime use—otherwise psychic activity might continue all night. Music is played throughout the sessions and has been found useful not only in potentiating drug action but also in enhancing moods or effecting desired mood changes. Other aids include: mirrors, family photographs, material to be felt, cardboard boxes on which to beat out hostility, and art supplies for drawing. All sessions are tape recorded.

The main process is the allowance of the patient's unconscious to reveal itself in its own sequence. Direct interpretations—used at appropriate points to clarify and to slice away misperceptions—have been found effective in taking the patient deeper into the drug experience. Recently we have been experimenting—successfully, we believe—with non-verbal techniques: physical contact for anxious or fearful patients; the presence of both male and female therapist even if one or both seldom speak; hostility discharge by throwing clay or by beating cardboard boxes; reduction of inhibitions and extension of emotional range through feeling different textures and materials—to "feel" tactilely seems closely related to "feel" emotionally; the presence of additional individuals personally familiar with LSD in difficult cases—this technique in addition to but distinct from group therapy where all individuals except, of course, the therapist are under a low dose of LSD; and physical containment—to break certain refractory defence patterns, for example at the extreme, passive resistance to the point of suicide.

There are other experimental but efficacious techniques which are little understood and as yet not named or categorized. One of these is eye-to-eye non-verbal communication. This may sound strange; it is strange how well it works.

It is becoming increasingly clear that a large part of the interaction between doctor and patient takes place at a non-verbal level. This is disconcerting in our highly-rational, over-intellectualized society where semantics seem to act as the cement of human relationship. However, much better results are observed to occur when the wisdom of the deep unconscious is allowed to take over—with the therapist acting more as guide and interpreter.

In the course of our therapeutic work, a number of startling phenomena have been observed. We may have a milieu in which such little-understood phenomena as ESP, "sensitives", laying on of the hands, so-called faith healing, hypnosis, and other relatively uncharted border-line states of consciousness may be systematically examined. In this, as in all research, it is imperative to keep an open mind—to be willing to look at any data which emerge—no matter how contrary to traditional beliefs.

To speak briefly about improvement rates: as with most other techniques, the figure runs about seventy per cent. Our results, both at the VA and in private practice, concur with those of Dr. Sandison and his colleagues and, as with his follow-ups, have held up well. Our patients, too, are mainly those who have proved refractory to previous therapies. Discharged patients separate into two categories: (1) a small group of individuals who seem to need no further help, and (2) a much larger number who return for therapeutic contact, which varies from an occasional talk or LSD session to alleviate specific stress, up to return for an added series of treatments.

The research with alcoholics, reported by the Canadian groups and by the UCLA Clinic on Alcoholism, reveals what seems to be a variation in treatment due to a specific sub-group. From the reports of Drs. Chwelos, Osmond, Hubbard, Ditman, and their colleagues, it appears that some fifty per cent of the alcoholics treated with LSD go "dry" successfully following one or two high-dose LSD sessions irrespective of whether therapy is given along with the LSD. It appears possible that an additional "shot" every six months to a year might well prolong the drought. However, there should be no inference that character changes take place with this method.

There is so much to be understood—so much research to be undertaken in the new field of psychopharmacology. One of the most interesting aspects to me is the phenomenon of the non-verbal as a therapeutic technique. It appears to point toward alternatives to so-called regressive methods which have been held to be the *sine qua non* of successful psychotherapy.

In concluding, let me quote from an earlier paper on the virtues of the non-verbal in psychotherapy.

"And why should the non-verbal be so frightening? After all, there is not one among us who has not felt uplifted by the sight of a magnificent sunset—and who has not lost the feeling when an attempt was made to verbalize it. Great works of art and higher moments of inspiration in the theatre often serve as a greater catharsis than hours on a therapist's couch. We are products of a highly logical, rational, and intellectual society, and these moments of emotional transcendence are isolated oases in the desert. We have not yet learned to control, to delineate, or even to sustain the non-verbal change which may occur on seeing the Elgin Marbles or the ceiling of the Sistine Chapel; we have not yet learned how to maintain the state of integration and transport we feel after seeing great Shakespeare, or that of lightness and joy after being a part of a production of *My Fair Lady*."

"Emotions appear to travel by way of the bridge of relationship; relationship is most meagre when it exists from mind to mind via words. Is not a much more satisfactory bridge one which leaps from the heart of colour in a painting straight into the solar plexus? Or one which can swing from the psyche straight through a forest into the cosmos? Perhaps the greatest of all bridges of relationship is

one which makes a magnificent circle from hand to hand in a group and comes to rest as a transcendental experience in the individual."

References

CHWELOS, N., BLEWETT, D. B., SMITH, C. M., and HOFFER, A., *Quart. J. Stud. Alc.*, 1959, **20**, 577.

DITMAN, K. S., and WHITTLESEY, R. B., *AMA Arch. Gen. Psychiat.*, 1959, **1**, 47.

EISNER, B. G., and COHEN, S., *J. Nerv. and Ment. Dis.*, 1958, **127**, 528.

MACLEAN, J. R., MACDONALD, D. C., BYRNE, U. P., and HUBBARD, A. M., *Quart. J. Stud. Alc.*, 1961, **22**, 34.

OSMOND, H. Personal communication and article in preparation.

SMITH, C. M., *Quart. J. Stud. Alc.*, 1958, **19**, 406.

Discussion

Openers: Hannah Steinberg and Frank Lake

Dr. Murray Jackson (Chairman): Of the two discussants, Dr. Steinberg is a psychologist who is specializing in the field of experimental psychopharmacology. Dr. Lake is a psychiatrist who has had a great deal of experience in the practical use of LSD.

Dr. Steinberg: As the Chairman has implied, it is not altogether natural for me to comment on some of the papers that have gone before, because most of my time is spent in the laboratory investigating the effects of drugs on normal man and animals. Therefore I hope you will forgive me if what I have to say is a little general. I have been sitting through this conference, listening with great interest, because it is not often that I get the chance to see that the drugs that I am studying are actually useful; but also I have to confess that much of my time was spent trying to work out how some of the very interesting phenomena could be measured objectively and quantified. And, in particular, I have been wondering if the users of these drugs were given a chance to specify what desirable properties of these drugs they would like, what they would say; and whether anything they said could be measurable by laboratory methods.

Now, this is quite difficult, because so many different substances have, of course, been included. For example, we have had, not just the more spectacular newer drugs, like LSD, but amphetamine; and somebody said yesterday that they found the amphetamine psychotic effects rather more like schizophrenic effects than those produced by LSD, which surprised me. There are certain other substances, old ones such as alcohol, cannabis indica, and nitrous oxide which have recurred over and over again, and I have been wondering whether there is anything that these have in common.

One suggestion I would make is to question whether increased responsiveness to stimuli is not something that should be considered desirable. This would not necessarily mean producing a qualitative change in the patient, which Dr. Fordham does not seem to want very much. But if one were able to distinguish between drugs, and select those that simply make a patient or a person, or even an animal, more responsive to all sorts of stimuli, including non-verbal ones, would this not be a useful property to look for? I should be very much interested in opinions from the speakers about this.

Chairman: I wonder who would be the most appropriate person to say something about this? Dr. Eisner, do you think you could?

Dr. Eisner: It really would depend somewhat upon the kind of stimuli you are more open to. If you are more open to distracting things, I fear that this would not be valuable. If you put it into terms of openness to the importance of internal elements—this is very general comment—this is the only openness we want. Most of the time I would like to have patients more open to something inside themselves in the relationship.

Chairman: Dr. van Rhijn, have you any comment?

Dr. van Rhijn: Perhaps I could comment on the physiological basis. In Göttingen I once had a phantasy—not LSD produced! It was that when a stimulus is applied the end of the stimulus is not the end of the sensation. There is an overshoot, but after some 20 milli-seconds, the sensation ends. Perhaps the sensation ends by the production of a counteracting substance. It is possible that LSD and other psycholytics influence the body by counteracting these counteracting substances, so that the central stimulus is prolonged and altered. That could be—if it could be proved, but it's only fantasy—why colours are so brilliant under LSD. When you look at something red, the sensation of redness is dulled by the compensating green; and, similarly, when you look at something green, the brilliance of the colour is subdued by the sensation of red. And when you have had a long sensation of green, and then shut your eyes you get the compensating red impression. I have the feeling that the reason why colours are so much more brilliant under LSD and mescaline is because there is a possibility that a counteracting substance is counteracted by these psycholytics. This would be perhaps a starting point for the physiologist in interpreting the changing response to sensory stimuli.

Dr. Rosen: I would like to answer Dr. Steinberg by taking examples from art, and using the concept of libidinization in this connection, as I have already done in my paper. It seems to me that one really can't say what LSD does inside the brain.

It may stimulate certain cerebral processes, which fire off, and one therefore gets the sensations consciously. However, we do know from most phenomena that there is a heightened sense of existence and of feeling, which spreads over many fields and seems to be much more than the stimulation of any specific area of the brain. One could explain this on psycho-analytic grounds in terms of a theory that instinctual processes have been liberated, so that there is a high degree of libido, or instinctual energy, available in the personality, directed on to these experiences. The issue is not whether we can do this, because we can with alcohol, or by putting on rose-coloured spectacles, to use a simile. But we want to be able to do this when the person is not in drug treatment; we wish to allow the patient to have built-in controls as the result of which he can libidinize objects. Why we value artists and their work is that when a painter paints a still life, he looks at the object, which is to us very complex, and libidinizes it highly. In this way he gives it new qualities which we haven't seen, and we get this quantity of high libidinization from looking at the work, which to us is experienced as pleasure.

Dr. Steinberg: So that there is a change of emphasis, not just a quantitative heightening?

Dr. Rosen: I think it is quantitative mainly, but it is something which is fixed, in art, and which comes and goes in ordinary normal experience. But the individual who is depersonalized can't bring the libido to bear on the experiences of everyday life—therefore he doesn't feel very highly. The person who is in love feels everything very highly.

Chairman: I think, in fact, that both what you have said, and the essence of what Dr. van Rhijn has said, is actually similar to something said by Aldous Huxley, some time ago, although he did not use either this terminology or the

physiological terminology of Dr. van Rhijn. Does anyone have any further comment to make on this question?

Dr. STEINBERG: Perhaps the other thing which I should like to ask about, is whether it is important for the therapist to take the drug himself, as Dr. Eisner and others have suggested. I find this a very interesting problem. I have it in a small way myself, because I give substances to volunteers, and I sometimes feel that I ought to take them myself. And then something else says to me, well, if I do this then both my own experience and my own reaction swamp my expectation of what the drug ought to do to the other person. Now in my own case this is perhaps not so serious because the work I do is mostly an attempt to measure much simpler processes, relatively objectively, so that the problem is not quite so great. But I wonder whether in a therapeutic situation it is in fact helpful to have been through something analogous, or whether it may sometimes lead to bias in expectations and interpretations.

Dr. EISNER: If drugs bias me, then a whole lot of Freudians are biased, as they believe one should go through analysis before one is able to analyse anyone.

Dr. STEINBERG: Yes, that's an analogy after all.

Dr. EISNER: I believe, though, that it is of primary importance to take LSD in LSD work. It is such an unusual experience, and I have consistently observed that those people who talk about LSD who have not had it just don't know what they are talking about, I'm sorry to say. They talk on one level. They just are not able to grasp the heart of the matter. And there's another reason, I think that LSD should be taken at several levels by the therapist, so that he or she has different levels of experience. You shouldn't just have one experience and expect everybody to go that way. I always take any drug before I give it to a patient.

Dr. FORDHAM: Since I am really in the position of devil's advocate, I should like to make the point that if my idea about this is right—namely, that the permanent effects of LSD do not come about through the LSD, but by bringing the process into the transference relationship and analysing it there, what is also implied is that people who are undertaking LSD therapy are likely to be prejudiced in its favour by taking the drug.

Dr. STEINBERG: Well, that's not quite true. Yesterday somebody said that he'd taken mescaline some years ago and since then he has been prejudiced against LSD.

Dr. FORDHAM: He's not prejudiced in favour of mescaline because he's taken it?

Dr. STEINBERG: No, I think he didn't like the mescaline either.

Dr. FORDHAM: Well, you get prejudiced one way or the other.

Dr. STEINBERG: Yes, that was partly what I was wondering.

Dr. EISNER: Well, aren't we prejudiced one way or the other in anything we do? You're not unprejudiced in relation to a therapeutic problem, are you?

Dr. FORDHAM: This is the essential difference between the mescaline way of therapy and the analytic one.

Dr. STEINBERG: Then exit the experimentalist. (Laughter.)

CHAIRMAN: Dr. Lake.

Dr. LAKE: These have been four deeply interesting papers, ranging from Dr. van Rhijn's careful semantic analysis of the nature of content and form and meaning in communication, which I feel we need to go into a great deal more deeply. We shall not have the proper language until we become familiar with the work of the existentialists. And then again we've had Dr. Betty Eisner's *jeux d'esprit*, lifting us up to her own happy empyrean height. One thing is quite certain—that if people have anything to do with LSD in therapy they seem to enjoy the experience; perhaps we shouldn't, but I think we do. There is sometimes thought to be a scientific virtue in not enjoying things. Then there was Dr. Michael Fordham's cautious evaluation of LSD imagery, and Dr. Rosen's firm clear reporting on two cases of this most testing thing, the obsessional case. I spent eighteen months seeing six (at one time it was eight), obsessional married women, all severe psychoneurotics, and spent the whole of Tuesday every week with them from ten in the morning till eight at night. I have not had a training analysis. You see, if you work in Leeds you can get neither an analysis nor a training analysis so you've just got to let LSD do its perfect work and pick up the bits, and you find that you're driven to read your Fenichel and then you're driven to read your Jung and then you're driven to read Melanie Klein. And then you find Fairbairn is necessary, and then you find R. D. Laing at the Tavistock gives you a lot more things. Then you begin reading the existentialists and then you find there are more interpretative concepts. But always I've had the experience with the patients under LSD and then searched around and asked my friends whether there was a textbook that talked about this kind of thing. I'd like to comment on Dr. Fordham's appraisal of this patient who passed, like Dr. Schreber, from one therapist to another; in this case from Dr. Sandison. And I think Dr. Sandison would be the first to admit that having made a clear diagnosis of depression he was very bold in prophesying a future of clear skies for her, when there was no clear indication that she had worked through to her repressed rage, either in the transference or, as so often happens, in LSD, in direct recall of the rage against her mother, with the analyst there as an aid to overcome her fears, and probably also going on to have a clearer understanding that it was not fact, but fantasy that made the idea of her retaliation so terrifying.

So that if this patient had not gone through that, I think that those of us who find LSD effective in depressives would not have expected a cure. The aggression has to be faced, accepted and integrated. But as there are so often many schizoid elements of earlier passive suffering, of trophotropic suffering if you like, that the splitting off of dread underneath the splitting off of rage, is the real resistance to therapy. And I think in the first case can't we say that while this depressive negativity is lying on top she could not enter a transference situation at all? And then, as often, LSD and kindness precipitated a transference. It is evident that, probably because of the schizoid element, she did not feel secure enough at the time to sacrifice her good mother to the fires of rage or, if I may use Dr. Eisner's phrase "the ice-country of dread". As so often happens,

if under LSD the patient has peeped into the cellar, so to speak, that she dare not enter, there's often this defensive recoil, a pseudo getting better, a decision to be a good girl and go back to her husband, strengthened by the good analyst. This I think happens, and that's why it is always so dangerous to report on things rather early, and it seems to me that it was the schizoid problems not the depressive ones which were really holding up this patient, and she needed, to quote Dr. Fordham, "a useless analyst", as the paranoid person needs a useless analyst, not primarily because the first analyst was useless, but because her own mother had been so useless for so long that she needed a great deal of real love and real caring from a "useless" analyst before she could deal with this material.

I would accept, with Dr. Fordham, that there are two quite distinct kinds of imagery, that which is merely a passive recall of what has been imagery in some of the tragic circumstances of childhood, and that which is creative or therapeutic imagery. These are different. But I think that Dr. van Rhijn has pointed out that in his cases he moves through to creative and therapeutic images. But where you get an underlying dread one of the basic reactions of the ego is the proliferation of images. The essence of the dread is to be without a personal object on whom to deposit one's ego. It is the same tremendous separation anxiety that we come up against so constantly in LSD, that Dr. Rosen mentioned. It is the primary mental pain, it is the loss of personal being, of objectlessness, of "identification with non-being" to use Tillich's phrase, which evokes this whole Pandora's box of phantasy objects and persons. These constitute the psychoanalyst's treasure chest, and the patient's toys, and they are always thrown about the floor of the mind in much greater profusion when there is danger of a trap door opening into an abyss of nothingness. And I think that this is not not necessarily anything to do with LSD, but with the question of resistance to going down. Many of us know that when we are working well with LSD, almost from the beginning to the end of the therapeutic process, we are just not bothered with all these hallucinations—working on low doses that is.

Now Dr. Fordham's second case was, as he says more frankly, schizoid and fragmented. Of course, he needed what Dr. Fordham gave him, a real actual relationship, a love he could trust. And yet, Dr. Fordham, you do say that this patient's private experiments convinced him of the importance of images, and, you say, gave him more courage to act in his personal relationships on what he felt. Now my experience is that LSD often doesn't only bring into the conscious mind the relevance and importance of basic infantile imagery, but it does often mobilize courage. Even though, like the man in "Waiting for Godot", schizoids often feel that their mother gave birth to them over a trench, that there was just a brief flash of light and human living by relatedness, and then the darkness of relational death and angst, but this short period of intra- and extra-uterine blessedness can often be recovered by LSD. This ties up with what Dr. Rosen was saying about his patient, who felt "if only my real mummy would come she would love me". I had one girl who quite positively was adopted at the age of two and a half months and yet under LSD she was continually waiting for this real mummy to come back. She had always rejected her adoptive parents, not because they hated her but because they tried to replace the first mother of the two and a half months. And in fact, she broke the wrists of one parent (and put the husband's shoulder out in another case). She was quite determined to hold on to what had been of importance to her only for two and a half months. And often LSD enables the patient to leap over the traumatic months and years that

followed, so that the mind re-experiences this monistic, almost mystical union of identification with being and well being. The kind of thing (I've worked in India for about eleven years) that my Hindu friends are trying to get back to by their Yogic experiences is the "thou art that" of primitive, monistic identification. So that is an important experience. It is the whole basis of Hinduism and a good deal of Buddhism, that this courage which can be gained from behind the trauma is an important thing to mobilize. And it means that the traumatic complex of dread can be invaded from both sides, with the primal depths of courage inside, even if it is only intra-uterine or a few weeks or months post-uterine, and with the courage derived from the therapeutic relationship outside. And this attack on both sides is I believe of tremendous value in loosening the hold of the complex. I think this should encourage Dr. Fordham to use LSD himself, I don't mean on himself, though even a wise Jungian might find some surprising things, as a colleague of mine did, who had had 700 hours of Freudian analysis. On the first occasion that she had LSD she re-lived an experience when she was four months old, of being left out on the verandah of a house in Canada with a temperature outside of minus 40°. Her mother confirmed this—she thought this was the right thing to do; she had just come out from England. So that there is still a possibility that LSD, as she said, taught her more in four hours of what was really hurting her, and really made her over-identify with suffering patients, and made her difficult in her relationships, than the whole 700 hours of Freudian analysis that had gone before.

Don't you feel, Dr. Fordham, that there is some real validity if LSD can reproduce the courageous sense of unity derived from discovering that my roots are not bad, my roots are good, and that if you can get back to this, it is quite logical to use this drug?

Dr. FORDHAM: I am not against using LSD, but what I do think is that LSD therapists are much too credulous about the wonderful experiences they have. This is what strikes me. I mean I'm not unfamiliar with these kinds of experiences which you are describing, but they are not produced by LSD; they are produced by a good imagination or in the course of analysis. And all I am trying to say is that there is an essential difference between the two, and that is what I want to put first. The second thing is, it seems to me that the results of LSD are not likely to be as stable as the results of analysis.

Dr. LAKE: Thank you. Mind you, we are all saying here that LSD is not the point at issue. It is, we agree, the analysis. And all of us, I think, who are working here should recognize that point.

I think there is a fundamental difference between those people who have had severe ego splitting within the first nine months of life and those who haven't. I think they definitely can only work through many of these non-verbal experiences in a transference situation. But I would say there is a certain type of patient, and this oddly enough, includes a certain variety of sociopath, who is not like the absolutely unresponsive psychopath, but the compulsive aggressive person, who benefits because he has something in the roots of him that he knows is right, and he is determined not to have it taken away from him. I would say that in a number of psychopaths my experience would very much go along with that of Dr. Arendsen-Hein. These are people who often will work in LSD without you. They say, "You're wasting your time sitting with me, old chap, I'm all right". Their anxiety is not for being itself, and the absence or presence of the

mother, but of well-being, of their sustenance and their rights, so to speak. These patients are often able to work without a transference relationship at all, with anybody who happens to be there, because their basic ego is solid and firm, and they can work the other problems out in their own mind. One man, for instance, who had been nine months in jail and four months in a mental hospital when I took over his ward, whenever he was let out of the hospital immediately went and exhibited himself in front of the local schoolgirls. Time and again he had been given opportunities. In his very first LSD session he recalled an occasion when he had been about the age of five—his little boy friend had informed him that their common girl friend had shown him what she looked like. And he was so utterly distressed that she had not shown him too that he remained with this fixated notion that he would have to show himself to the little girl sometime in order to get to know, in order to have the confidence to move on with girls. This boy's mother, an eminently sensible parson's wife in other respects, had taken him to the lavatory and held his penis until he was ten years old lest he should do anything naughty with it. Now in this case there was no transference relationship with me at all, but his basic ego was a sound one. And one LSD session was sufficient, although at first he was so horrified at the revelations, that he threw the written product of them down the lavatory pan, and next morning I had to get him to tell me about it. But once he realized that I was not as shocked as mum—this was his whole problem—he left the hospital. That was six years ago and he has had no trouble since.

I do believe that it is the question whether there is ego-splitting at a deep level which determines the importance of the analytic situation. And there are many people who can be helped who have not got this problem. And this LSD fantasy of Dr. Fordham's third patient quite fascinated me. She and her lover emerge from the image of a spider, like conjoined twins linked by an umbilical cord, trying to separate from each other, though their life comes through the cord. Now, looking back over these six years of work with LSD and collating the recollection of nearly 3,000 hours which patients have spent, reliving their births and their first early years of life, they have driven me to a sort of analogy between the nine months of intra-uterine life and the nine months of life after birth. I mean we can appreciate that the child in the womb is only a term of a relationship. There's mother, term one, so to speak, and there's the relational term, the umbilical cord in the centre, and then there's the foetus, term three. And three has no life without two and one. But even Descartes himself at this point would not have said, "*Cogito ergo sum*" he could only have said, "*Respondeo ergo sum*". And what one feels is that the basis of the human spirit must be thought of in the same way. Just as at the end of nine months you can take away the body, so to speak, which was mother's once, and when the cord is cut you come into a dichotomy; so in the realm of the spirit the child at birth is only a potential unit or ego which may respond to relationships. But the normal formulation of these, as being primarily a matter of the mouth-breast relationship, simply does not tie up with LSD experience. This has something to do with being itself, and being itself has something to do with the umbilical cord of the distance receptors, of sight and of hearing, and so on. And the constant experience one has is that the infant after birth is dependent for being itself, for its very humanity, for the growth of personality, on the availability of this relationship, on the fact that the mother always comes down to where the infant is and lifts it up to herself. If she does not come, there is a diminishing capacity for waiting, and with this anxiety increases greatly. I am

quite convinced that under the tutelage of Sir Truby King, our British mothers have indeed been subjecting their infants to transmarginal stressing, to brain washing if you like, to a degree of stressing of the relationship with them that beyond a certain point the child gives the whole business up. And this is what we mean by dread. This is what Kirkegaard and Sartre and the existentialists mean by dread: identification with someone seen, someone who comes to look at me and at whom I can look. But if this is broken, and the mother does not come, your capacity for tolerating being under the load of nobody's being there is so intolerable that anxiety rises beyond the Pavlovian margin and you get dread.

Constantly, under LSD, as is manifest in so many papers we've heard this afternoon, one's experience is that when this realm is entered the whole manner of one's being is changed. At one point you infinitely wanted to look at and be looked at by someone; at another point, "It's too late, now, it doesn't matter, get away." Time and again with LSD one's seen people going down through this. Of course, the schizoid reaction is precisely the same, "Now I don't love life, I love death." But when this has happened there seems to be in schizoid persons a tremendous reaction of detachment, "Never again will I trust life by the woman." If it is a baby boy, he may, like Pavlov's puppies, as it were, rebound on to the father figure and become a homosexual. If it is a baby girl, she may rebound on to a father figure and become, like Florence Nightingale, one of the great man-centred hysterics. If there is no ability at all to detach, then you can get a hysteric who puts up a road block and says, "Never again will I allow it to happen that nobody's paying attention to me." I want to ask Dr. van Rhijn whether he feels that we must distinguish between two kinds of hallucinations that occur in LSD. One you might call raving hallucinations which may be pictures of mother's breast, now lost, but deeply desired, or father's penis, or the snake that's substituted for it. Or, as I had a Methodist parson once, who was just about to go into this, crying out, "Mary, Mother of God have mercy on me." This is not Methodist. He said, "I know why my brother became a Roman Catholic, he just had to have someone to stop him going into this." He said, "Next time you're bringing an oxygen apparatus in, because I'm going to die; I've got to go right into the place where there are no saving objects." And yet, strangely enough, one wonders whether the hallucinations which were shown so beautifully in those slides yesterday are characteristic of the child's dread of the mother being a witch. Two of my patients, one an experimental engineer in charge of an enormous factory, and the other a sensitive, both of them picture the mother as a Red Indian, with a tomahawk, great beak nose and bloody fingers. But these two are quite different kinds of hallucinations. Even here I feel these horrible pictures of mother may be, in fact, much less terrifying than what that Methodist minister had to go into, since he felt, like Christ, who alone understands what it is to be absolutely in dereliction, the panic and paradoxical terror of the forsaken. "I've got to go down into Hell in the faith that you'll be there to meet me." And so the objectlessness, I feel, is part of this pattern, and I'd like to ask whether you feel that there are two quite distinguishable hallucinations of this sort, and that in all cases it is doubtful whether they are therapeutic, and that the only really therapeutic ones are the ones which, as Dr. Fordham says, have come up from the deep reconciling symbols of the unconscious.

CHAIRMAN: Unfortunately time is running out, so I'm afraid I'll have to take the liberty of letting Dr. van Rhijn answer that question afterwards. Before we

do have a few minutes discussion I think we might ask Dr. Sandison if he'd like to say anything in the light of his particular case.

Dr. SANDISON: Dr. Fordham, I think, has recognized that this patient is probably what is known in Jungian terms as an anima type, and the characteristic of the anima type is that men will quarrel over her and fight over her. I trust that this is not going to happen between Dr. Fordham and myself. It also illustrates the fact that those of us who write have to be frightfully careful what we say because six years later these very words may be bandied about and torn to pieces in the Royal Society of Medicine. Nevertheless, I do feel that this case is a commentary on the transference situation rather than a commentary on LSD. We just have to consider what was happening. Here is a patient, who had been amongst the early group of LSD patients to be treated and was in amongst all the enthusiasm and excitement that attended this new treatment, and after eight months of this she is producing some fascinating symbols of which I'll show you two on the screen in a moment (Figs. 1 and 2). At this point in treatment her husband is saying, "Unless you join me in Kent where I've got a house all ready for you, I will divorce you", and she has to make a very difficult decision. The decision was that she would go and join him in Kent. It may be (Dr. Fordham may say that there were other reasons which caused her to make this change) that the pressure of the LSD symbols were something which she could not face and could not integrate. If we could just have the two slides—it may help us I think to understand what was happening.

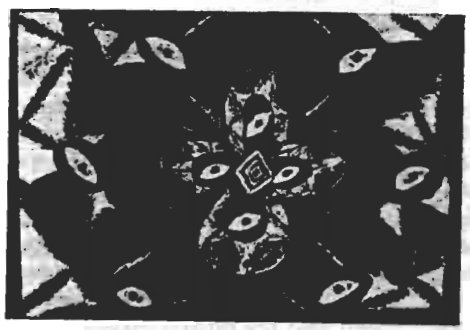


FIG. 1

The object which dogged this patient's LSD experiences right from the beginning was a spider, and it eventually developed in the LSD experience to the picture in the first slide (Fig. 1). You can just see the spider's legs, you can see the characteristic eyes which so many LSD patients experience, again in the centre here. The design is taking on a characteristic mandala formation, with this cruciform fourfold appearance. And in the next slide (Fig. 2) you see the development of this. All you can see of the spider is the little hairy legs in the centre, which she referred to as either a prison or something which held possibilities of beauty.

Well, here is a patient who has got to this point, and I feel quite sure, looking back, that she should have continued with LSD and, if it had been at all possible, we should have gone on and developed this theme. I think it is asking a great deal of any analyst to take on a patient at this stage. We have all had this

experience, of the tremendous difficulties of change of analyst. But I don't think Dr. Fordham need have been quite so gloomy about the outcome. This patient wrote to me at the end of last year, and asked if she could come and see me. When she arrived just before Christmas I must say I was agreeably pleased. I don't know how it had come about, but she seemed to be managing her life very well. She is living with her husband and they are getting on well together. She has not got the child which she very much desires, but one can't have everything in this life, and she's not had a return of the suicidal depression. Incidentally both she and I saw each other in a new light, which is probably a good thing, and she said, "I have at least discovered one thing through my analysis, and that is that you were my mother all the time."

FIG. 2

CHAIRMAN: We must limit the discussions to a few minutes, so that I'm afraid most of those burning questions are going to be unasked. But if somebody does have any question sufficiently important I'd be very glad if they'd come up on to the rostrum, but would they kindly make it fairly brief.

Dr. E. K. LEDERMANN: I have been listening to the various fluent speakers and wondering whether one could classify them into two groups. Most of them have tried to pursue the objective scientific aspects and principles upon which medicine is based. And they have worked on the ideas of physiology and pharmacology; of object relationship, of abreaction, of transference, of concepts, of ego and id, etc. Libido, as the great Freudian idea of energy, has been very prominent. There is, on the other hand, another group of speakers, such as Dr. Spencer, Dr. Sandison, Dr. Hein, Dr. Eisner especially, Dr. Cameron and our last speaker, Dr. Lake, who have thought in terms of experience, of phenomenology, of existentialism, of encounter, of "I—thou" relationship, the "thou" may be the therapist, the mother, the father, the sister or another aspect of the same person, namely the patient. And meaning attaches to those experiences without it being at all possible to make a verbal explanation of it. It is not a matter of semantics at all. If you are studying phenomenologically, you know that you are conscious of something, and automatically this something has a meaning for you. It isn't two things in a conceptual or objective relationship at all. It is an ethical question, it is a question of courage, it is a question of being, and I am wondering whether those who have found LSD not so helpful have been hampered by their own framework of objective natural science; and I am wondering whether those who follow an existentialist approach on a

phenomenological basis, where objectivity is no aim at all, would find LSD a most helpful thing, as I have in my own practice.

Dr. T. F. MAIN: I am stimulated very much by the papers and by the last speaker's remarks, and would like to take just a minute or two of the remaining time. One of the things that has really bothered me throughout, particularly where the emphasis was a therapeutic one, has been the curious naïvety with which it is accepted that children, young children, infants and neonates, experience the world in adult terms, as if they had fully integrated egos to understand everything that is going on, and that an infantile memory at two months of a mother is actually of a whole person, with head, arms, legs and capacities which are fully understood. All analytical research suggests that this just is not so: that the child's ego itself, unintegrated, undifferentiated, has the greatest difficulty in apprehending the world around it.

Now one of the interesting things about LSD is that perhaps it produces certain phenomena, and it is a great pity that we psychiatrists, so hard up for magical techniques, should turn from one drug to another—of which LSD is the latest—to attempt to apply it to therapy, rather than to study its effects. I liked very much Dr. Steinberg's contribution and was sorry she did not emphasize more the need for observation of the phenomena.

Now the phenomena which have emerged are clear enough—there is a disturbance of colour sense, disturbances of the experience of time and space, disturbances of primary identification, disturbances of body ego, of the libidinization of the parts, a sense of madness, a sense of unintegration, senses of dedifferentiation. I have heard of some other things like union of the ego-ideal, oceanic feelings, projective identification, shedding of false self, of finding the libidinal ego, and so on. In other words, the ego regression not the libidinal regression, seems to me highly worthy of study and of record. Whether an existentialist viewpoint, that is an "I—thou" relationship, is something which should be studied in the LSD experience I very much doubt. It seems characteristic to me of the LSD experience that a patient should remember being left out on a balcony 40 degrees below zero. My God, that's what LSD treatment sounds like to me! It is not in the slightest bit surprising that this particular patient expressed the transference shift in scathing terms, and that this memory was revived in this way. In other words, LSD provides the patients with the curious experience of ego disintegration, and, sometimes, in the presence of a person who could not care less about it; it is then that they bring out these feelings of dread and horror. Where there is some sense of idealization, and of regard for the individual, such as Dr. Rosen mentioned, the need for an external support leads to a kind of idealization and the revival of memories, dim memories, infantile memories of oceanic fusion with the infinite.

CHAIRMAN: I think to invite replies and further discussion on this crucial point which may have been raised would be to initiate another Congress. But I think this is the point we've got to. It would be very nice if I could succinctly sum up the essence of what has been said today, but we really have ranged over such a wide field. But there are one or two points which I think very important. Dr. Main spoke about the therapist who really could not care less about the patient as an individual. This may be a very inflammatory comment. But I do think that what does seem to be true is that it does matter who is under LSD, and what somebody talked about as real love and caring is a very important

matter, and I think that's very much what Dr. Lake was talking about. I think I'll say no more, except to thank the speakers for what I certainly, possibly because I'm biased, feel to have been the most stimulating of the sessions we have had.

SIXTH SESSION

THE MORAL, RELIGIOUS AND SOCIAL SIGNIFICANCE OF EXPERIENCE UNDER HALLUCINOGENIC DRUGS

CHAIRMAN: T. F. MAIN

CHAIRMAN: May I call the meeting to attention.

This evening we have our final session and it may seem appropriate to you, as it does to me, that the final session should be a breath of fresh non-medical air; and we have four speakers tonight, some of whom will be known to you. On my extreme right, need I say, is Mr. Christopher Mayhew, a Member of Parliament, a vice-president of the National Association for Mental Health, a well-known figure on television in mental health programmes; and, among his other activities, he has taken—I am not sure whether it is lysergic acid?—"mescaline"—he has taken mescaline and, of course, has written about it. Next to him is Gordon Rattray Taylor, who may be well known to you as an author. He has had a varied career in the field of human study. He is a journalist, he has made social scientific investigations, he has written a kind of social psychology or social psychopathology of history, he is an adviser to the B.B.C. on scientific programmes, and he has been to Basle and discussed with Hofmann. He will be our first speaker; and our second speaker will be Mr. Raymond Mortimer, who is another national figure, known at least by his name, as well as by his writings, in the *Sunday Times*. He is another of those who have taken, is it mescaline?—"mescaline"—mescaline, and who has also, of course, written about it. His experiences are still vivid enough for them to be meaningful to him. On my extreme left is Mr. Francis Huxley, a social anthropologist, who has travelled widely and has made observations about how other people take, I am not sure whether it is mescaline or LSD, I think it is mescaline?—"both"—both. and of course he had some himself—I am not sure which?—"both"—both. He will be the last of our speakers.

The session is down to take the form of a general discussion on the moral, religious and social significance of experience under hallucinogenic drugs. I think, if we are to give a proper latitude to our speakers we should say moral, religious and social *et cetera* significance. With this short introduction could I ask Mr. Gordon Rattray Taylor to open our panel discussion?

Mr. G. RATTRAY TAYLOR: I would like to start by saying that I am very conscious of speaking as a layman in the presence of a great many experts, and I must apologize in advance if anything I say seems jejune, but I take it my job is to present the layman's point of view and therefore I must go at once to my main point, a point which I feel has been skirted throughout the conference, that what the layman really is interested in is the content of hallucination. He wants to know whether these hallucinations could possibly come from outside the experience of the individual; are they derived from personal memories, or are they perhaps derived, as people like Gurney and Myers thought, from experiences occurring in the minds of other people simultaneously, or at times in the past? The second possibility is that they should have a mystical character, that they should be derived from some contact with the divine. This is surely where the moral and social significance first occurs, because if either of these possibilities were true, clearly many things would follow. To settle this it seems to me we now have the extraordinary chance that we can induce hallucinations at will. The first requirement of scientific experiment is that one should be able to

repeat the experiment, and the difficulty which attended the work of people like Myers and Gurney was that they had to wait until these things occurred, and perhaps they would only occur once in the life of a single individual. We now have this extraordinary possibility that we can repeat, perhaps indefinitely, the hallucinatory experience with a single individual; and I should have thought, therefore, that the logical next step to take was to create a catalogue of material about hallucinations from all possible sources and, I think, perhaps from a number of different cultures.

It seems to me that the people here who have worked with these drugs must already have a very great pool of information about the content of hallucinations. However, I have noticed that in the lectures that I have heard, people have tended to say rather briefly that the patient was hallucinated, and leave it at that, as if the content of the hallucination was not of importance. If an importance has been recognized it has been that the hallucinated event should seem to be emotionally significant to him. In general the drugs have been treated as psycholytic drugs and not as hallucinant drugs which, as we call them hallucinogens is perhaps an indication of the hesitation which the psychiatrist feels in becoming involved in these rather explosive wider issues. I think, therefore, if it is not thought impertinent, one should say how pleased, as a layman, one is that the organizers of the conference thought fit to allow some time to consider these rather more disturbing possibilities.

I listened to a talk by a South African coloured psychiatrist who had trained in a Freudian school, and he said that the images which he had learned to interpret in Europe were very little guide to him in interpreting the unconscious of South Africans, which seemed to contain quite different, if we can use a Jungian word, archetypes. I should have thought, therefore, that an investigation of this kind might also have some medical advantages. What I would then like to say is, can we regard the word "hallucination" as a sufficiently precise word? There seems to be at least two main types—the kind of hallucination which is completely consistent with reality, which at the time the person hallucinated supposes to be a genuine objective experience, and the more dreamlike sort—such as the person I was told of yesterday who saw a wedding ring on the ceiling, and, although this wedding ring was quite clearly seen, it was larger than life and, of course, it was so improbable that it should be there that the person concerned was aware of the hallucinatory character of the experience. Are we really entitled to regard these two types of experience as equivalent?

I am also reminded here of a dream I once had—and I have met other people who have had similar experiences—in which at first one was dreaming in the inconsequential way which dreams are marked by, and then one seemed to awake in one's own bed in one's own room, and had an experience which seemed realistic, but which later turned out to be a further dream, because one awoke from this into actual reality; and the person one thought to be present in the room was not there and the lights were out. So even at dream level there do seem to be two distinct possibilities of cerebral functioning, if that is what it is. It seems to me, therefore, when we say the patient was hallucinated, perhaps we should specify at least into which of these categories—and I think someone like Dr. McKellar could probably suggest refinements of those categories—into which one it fell.

I myself am a mechanist rather than a vitalist. One has seen vitalism retreat steadily over the centuries in biology, and therefore, I do not turn too readily to the sort of conclusions which people like Huxley turn to. I have to bear in mind,

however, that I have myself some twenty years ago had two or three hallucinations, which I would like to tell you about on the general principle that one should betray one's interest in the matter.

I stayed in a house in Norwich, and, during the preparation of supper, I saw a cat go into the cellar and I saw somebody slam the cellar door, which was a very heavy door. It was an old house, and I said, "The cat will be shut in the cellar for the night", and they said, "No, it won't. There it is", and surely enough it was in the room. The next day after breakfast, in bright sunlight (while reading *The Times* in my dressing gown, I may say), I saw the cat walk out of the room through the door, and I then realized the door was closed, and the cat was in fact on the sofa next to me. I then discovered various other people had seen this cat, and three days after that I was walking with my host in front of the house, and we saw two children looking up at the front of the house, and we said, "What are you looking at?" and they said, "At the cat". We were unable to see any cat.

So, for what it is worth, one must include in one's reckoning the possibility that something more than thought-transference was taking place, in that the children, who had no connection with people living in the house—these were passers-by, these children—were induced to have the same experience without having been spoken to, or influenced in any way. It cannot, therefore, simply have been some kind of auto-suggestion. So, having explained my equipoise between these two possible interpretations, may I make some remarks on both sides of the fence?

On the mechanist side one would look surely at memory. If hallucinations are asserted to be merely activated memories, one must ask: is it possible that the material which appears in hallucinations could at some time have been put into the memory system? Here I think we have some new facts coming up, the first of which is the fact that the memory seems to operate at a very deep level in a tape-recorder-like manner, in which nothing is forgotten. Memories certainly seem to be formed in a much more thorough way than we normally recognize.

The classical case here, I think, is the maid of the parson in Wales who was thought to have been seized with the gift of tongues, and who, on being taken into care, was found to be speaking in Aramaic and Ancient Greek. It was then discovered that she was in the habit of working in the kitchen while the parson for whom she worked read aloud from the Bible in Aramaic and Greek, and this had been memorized unconsciously by her—when I say unconsciously, I should say, without effort—and reproduced clearly in a manner in which she could never have attempted, indeed in which no one could have achieved, by any effort of the ordinary will.

I was in Montreal last April talking to Wilder Penfield who, as you know, stimulates the cortex in the temporal lobe, and sometimes gets memories which to the patient seem to be really occurring. I met there a woman who heard music, and she thought this music came from a radio in the operating theatre, so they waited a few seconds, stimulated the same point, and she said, "I hear the same tune again. It can't be a radio, it must be a gramophone". And they then waited a while, and stimulated again. She again heard the same tune. So this kind of memory seems to have a switch-on, switch-off, character which is rather unlike our normal conception of memory.

The next question, therefore, is: could the brain really absorb memory on this tremendous scale, so as to make available the enormous mass of material

which one does not normally think of oneself as having available? Just this last month, as you know, Prof. Hyden of Stockholm has put forward a suggestion that memory is located in the neuroglial cells, not in the neurons. There are, I think, about ten times as many glial cells as neurons, so this rather enlarges all previous estimates of the memory capacity of the brain. I couple with this the rather interesting report from Strasbourg where they found that DNA has ferromagnetic properties. Whether RNA has also I have not yet heard, but if one can assume it does, one begins to see the possibility of a sort of ferromagnetic memory inside the cell, and if in the RNA, then inheritable through the cytoplasm; so one begins to see a mechanism which could account for a racial memory, perhaps for instinct.

There was a report two weeks ago from Russia of a very strange kind in which the patient was given an image by hypnotic suggestion, and was then brought up against a very large magnet which erased the image. This could be explicable from the ferromagnetic point of view.

These, I realize, of course, are ideas way out from normal thinking, but we are moving very fast. A great many things have happened which even twenty years ago would have seemed quite unbelievable. At least we can now see that to consider the possibilities of an inherited memory is not scientifically absurd. This is what I say when I try to persuade myself that this kind of hallucinatory phenomena can be explained in a purely mechanistic kind of way.

If we turn to the other side, to the mystical side, here I think we have to ask what is the characteristic of the mystical experience. I was reading the account Wasson gave of how he felt after taking psilocybine in Mexico in 1955, and comparing it with the account Wesley gave of a spontaneous trance or ecstatic state in a mystic in the eighteenth century, and the descriptions are quite astonishingly similar. There is intense preoccupation with the internal experience, the sense of joy, and pleasure, and release. Wasson himself speaks of understanding what the word "ecstasy" means for the first time.

So at a first view it would seem that some hallucinated experiences do closely resemble the mystic experience. I recognize here that a great deal depends upon the mood in which one takes the drug. The evidence of many people who have administered this shows this and, of course, it varies from one occasion to another. Wasson took it after a quasi-religious ceremony in which, no doubt, a good deal occurred to create the appropriate mood. But the second thing in mysticism, and this hasn't been much mentioned at the conference, I think, is that it seems to be associated with a loss of individuality, and this is a phrase pretty near the word "depersonalization" which appears in many of the protocols about people who take LSD.

I therefore ask myself, what we mean by loss of individuality. As you know, in the Middle Ages, when mystics expressed this sense of loss of individuality, and merging in the divine, this caused great opposition from the Church, which was very insistent that individuality should be preserved, because if it was not preserved then guilt and original sin, and so on, were very hard to maintain; and St. John of the Cross, I think I am right in saying, spent seven years in jail because he maintained that his personality had been lost, and finally recanted on that point. So are we to regard mystic experience from this aspect as some kind of breaking up of the ego? The child, I suppose, learns what is self and what is not self by a series of reality testing processes, and finally within the cortex some organization of ideas is separated from some other organization, and one lot is marked "self" and the other is marked "not self",

and perhaps by some facilitation of transmission these two systems lose their separateness in such an experience. This is the only kind of mechanism which I can see behind depersonalization. When we think that hallucinogenic drugs cause regression and the loss of later experiences for the time being, this seems quite consistent with that sort of interpretation. One could therefore, I think, consistently say that the mystical experience as reported by Christian mystics and also by nature mystics could be explained by some kind of depersonalization. Therefore, I would have been interested if those speakers who had references to make to depersonalization had been a little more specific about what they meant. The speaker this morning, whose paper was on this subject, gave us four symptoms by which he identified depersonalization, but he did not say very much about the actual sense of depersonalization itself, which, from our present point of view I should have thought was the relevant matter.

I think there is at least one more aspect of mysticism which is harder to account for in this kind of way and this is the intense sense of significance. Wordsworth, of course, has written so much which conveys this rather special sense, particularly in the *Lines written above Tintern Abbey*, and I would like to ask whether anybody later would care to say whether any of their patients have expressed this same kind of feeling in their reports of their hallucinations. He says elsewhere

> "To every natural form, rock, fruit and flower,
> Even the loose stones that cover the highway
> I gave a moral life; I saw them feel,
> Or linked them to some feeling: the great mass
> Lay bedded in a quickening soul, and all
> That I beheld transpired with inward meaning".

It is, I think, a sense of inward meaning that makes people interpret these experiences in a religious sense, and therefore one is intensely curious to know whether the experiences produced in these medical situations contain this quasi-religious element.

In one of my books I have attempted to show that this tendency to diffuse the bounds of the ego is associated with mother identification, and that with father identification there is a tendency to strengthen the bounds of the ego unduly, so that people feel particularly separate from one another and from the rest of society; and this sometimes is expressed as a feeling of remoteness from God, and of being lost. This is very marked in many Puritan diaries. I bring this up because here is one of the social implications. If in fact a weakening of ego boundaries makes for a sense of brotherhood, and a strengthening of them makes for a sense of separation, then, clearly, social peace and co-operation may be related to this psychological parameter. So—if one can make a wild speculation—what might happen if one took hallucinogenic drugs in very small doses over a protracted period, so as slightly to shift the balance in one's brain, a degree of hardening of the ego limits, as it were? As far as I know, the experiments have all consisted in the taking of relatively large doses for relatively small periods.

In making a suggestion like that one would have to consider whether these drugs were in fact addictive, and I believe there is some medical evidence that in certain cases they have shown signs of being addictive. But, of course, alcohol is addictive for those people who feel an intense need to deal with a disturbance in that way, and the fact that a mentally disturbed person might

wish to return addictively to the drug does not, I feel, necessarily therefore exclude the possibility that for undisturbed persons a continuous taking of the drug should necessarily be excluded on those grounds. Here is another point on which medical people present may be able to advise me.

There is a further aspect of this tendency to separate, or to fuse. Scientists I think tend to fall between two poles, those who make differences and distinguish—and the extreme case is the taxonomist, who finds smaller and smaller categories of, let us say, plant classification to explore—and those who see similarities where other people fail to see them; and many of the great advances in science have come from seeing similarities where others did not notice them. There may therefore be social implications if in fact we have here a possibility of influencing people, whether temporarily or otherwise, towards the ability to see similarities on the one hand or differences on the other.

The principal drawback that I detect when I try and examine the kind of information we have been given here from the social point of view is that the drugs seem to lower the power of self-criticism, and, of course, one is unlikely to make a good scientific theory if one fails to criticize it adequately. Dr. McKellar quoted some well-known cases from James's work, where people clearly were convinced of the significance of something which, in a sober state, did not seem significant at all.

But I would like to make one rather random suggestion. Since we have now found drugs with these remarkable properties in two or three things which have been taken for religious purposes, it might be interesting to explore some of the other plants which have been eaten for religious purposes. Ivy, I believe, was chewed by the followers of Bacchus in Greece, and in India, of course, soma was widely used, and there may be, therefore, perhaps still further drugs of this kind to investigate.

I think this has raised rather briefly a considerable number of issues, but there is one which I have not raised because Professor Price is present, and he may feel inclined to raise it, and is certainly much more qualified. That is the question of psychic or extra-sensory material which may be present in hallucinatory material. He has advanced a theory of access to a medium in which experience is common, and from which our attention is normally withdrawn by the cares of the world. I don't want to state his theory for him. I only want to point out the similarity to the Jungian collective unconscious. I was interested that one speaker, rather hastily, perhaps, or subtly, at the end of his talk slipped in the words "collective unconscious". I would like to know rather more about how far the material produced by people gives support to the idea of the collective unconscious. Dr. Fordham, many years ago, in a book, reported finding material in the unconscious of his child patients which he felt could only have come from the unconscious of the parents. If this is a well-established fact in Jungian teaching today, and this I do not know, then once again we have a problem to explain, on which perhaps this sort of cataloguing of hallucination material which I have advocated might throw some light.

CHAIRMAN: Springing as they do, if springing is the right word, from different fields of experience, it is not to be expected that our speakers are going to keep to one theme, nor argue the same kind of case. I would like now to welcome the next speaker, Mr. Raymond Mortimer, who in his own right will speak on whatever he feels will be an approach to this kind of discussion without any obligations to us or to the last speaker.

Mr. MORTIMER: I am flattered but alarmed. I have not been able, unfortunately, to come to any of the meetings except the first. And the first evening, I must say, I listened without understanding anything at all that was said, because I have not had any scientific education at all, and so I was helpless. I am therefore here merely as an articulate guinea-pig. If I had heard the later papers I should know more about what the effects upon your patients have been. In my view, the extraordinary thing about mescaline (the only hallucinogenic drug I have taken myself) is the wide variation of its effects upon different individuals—a variation incomparably wider than we find in the effects of alcohol. It can bring happiness or misery; it can clarify or delude the intelligence. The very word "hallucinogenic" and the talk about "hallucination" puzzle me, because in my own experience there were no hallucinations at all. The effects were interesting, but in no sense hallucinations. I was absolutely clear in my mind throughout. I know this both from friends who listened to my conversation, and from notes I made later in the evening, when I had gone to bed. There was never any interruption in the clarity of my mind.

What the drug did affect was my emotions and visual perceptions. Let me say a word first about mysticism. I think this a very vague word, a dangerous word unless carefully defined. Aldous Huxley in his book *The Doors of Perception*, which first interested me in mescaline, talked about having enjoyed under its influence "pure contemplation at its height" but was careful to add that this was not "the beatific vision".

The experience of Wordsworth which the last speaker referred to, in face of nature, might, I suppose, be called mystical. I do not know how far the aesthetic experience that one gets listening to great music, or reading great poetry, can also count as mystical. Any speaker who talks about "the mystical experience" requires to explain exactly what he means. I myself do not believe that this—or any other drug—is likely to give us any information about the nature of the universe. Yet I should recommend anyone educated to try these drugs, because the effect is extraordinary, and an enlargement of experience: and I think enlargement of experience is—not only to the psychiatrist and his patients, but to any thoughtful person—valuable in itself. If one has the opportunity to have such an experience, one should not miss it.

I shall tell you very briefly about my own experience. I was given a dose of mescaline, which I suspect was too strong. I suffered considerable nausea within about an hour and a half, which lasted some while (I had not taken dramamine, which I believe some people are given beforehand). The experience took a matter of about ten hours before it ended, and the later stages were most disagreeable.

The first and exciting impression was a heightening of visual sensibility. I perceived—much more clearly than ever before—reflected colours in things, like ceilings. There was also an extraordinary intensification of three-dimensional vision. I am convinced that under mescaline I saw appearances as they have been shown by a number of the great painters who have trained themselves to scrutinize the exterior world. I perceived colour as vividly as the impressionist, and form as vividly as Bronzino.

I am very much interested in visual art, and the experience has been a permanent help to me in using my eyes. The effect returned for two or three days afterwards, as streaks of this exceptionally sharp perception. Bergson and Broad have suggested that in ordinary life part of our brain or nervous system cuts off our possibilities of vision in order to concentrate on what is useful; and

that this "censorship" ceases under the influence of mescaline which therefore enables us to see—to be aware of—the great brightness of colours, particularly reflected colours. This was the only enjoyable part of the experience. The most important part of the experience—and I do not know how far your patients may show the same—was the extraordinary removal of emotion, and the emotive attitude to life. I listened to music, repeated a poem to myself, and looked at books and photographs of architecture, things which usually move me very deeply. On this occasion there was no emotional response whatsoever. I could have given a perfectly clear lecture about why I thought these works were good poetry, good music, or good architecture, but they excited no feeling at all. It was only the intellectual perception of their virtues that remained.

Also, I thought about the people I am fondest of, perceiving their good qualities: and I thought about Hitler, perceiving his bad qualities; but without any affection for my friends, or any disgust with Hitler.

This effect was extraordinary, and I think alone made the experience very valuable. Whether that is what Aldous Huxley means by depersonalization I do not know. I remained interested in my own personality, my own feelings, and talked about them; but there was this complete absence of emotion; and after some six hours or so the experience became horrifying. I think possibly I found myself in a state very like that of mentally ill people who suffer from inability to feel. And as the effects of drug wore off I was seized with panic, and a vague apprehension that I have never felt before, which I rationalized in this way: I said to myself, "not much is known about this drug. Possibly I have an idiosyncrasy against it. It may have done my brain permanent damage. I may never recover my power to feel affection, and hatred, or to respond emotionally to a work of art. If I were to remain in that condition, whether it be depersonalization I don't know, but in that condition I should want only one thing, death as soon as possible." This lasted until I eventually got myself to sleep by taking a far stronger sleeping thing than I usually require.

I am not tempted, as you may gather, to become an addict of mescaline. But I think this experience of having one's emotions (apart from fear) cut off is something to which, not only psychologists, but critics and all persons interested in the workings of the mind, ought to submit themselves.

CHAIRMAN: And now, Mr. Christopher Mayhew, who is, of course, quite accustomed to public speaking—he even speaks in other places much bigger than this, and, maybe, welcomes what must be to him this intimate atmosphere —will make a contribution.

Mr. MAYHEW: Your invitation to speak to you this evening reached me just as my urge to communicate my shattering mescaline experience was, after five and a half years, finally reaching vanishing point. For the period immediately succeeding the experiment I was prepared to travel any distance to speak to anybody about what had happened. Up to a year later I was still prepared to address congenial audiences within a reasonable distance of London. Today I am only prepared to speak to extremely congenial, and distinguished, audiences in the West End. It may be that during these last few days you have been talking about the urge to communicate these experiences; if so, I should say it was a very interesting and fruitful field of study.

When I hear that you have been talking about this subject of hallucinogenic drugs for several days, I can see that I really have nothing to tell you that you

have not mulled over already many times. And there is nothing unique, I think, about my experience, except possibly that it was done in front of a film camera for television broadcasting. I do not know if anyone had ever done a mescaline experiment in those circumstances before. But something always happens once, and this is my only claim to fame.

I took the drug because I am an old school friend of Dr. Humphry Osmond. I am sure he is well-known to a number of you. He is Medical Superintendent of a mental hospital in Saskatchewan, and I think was one of the very early pioneers in using these psychotomimetics, I think you call them, which make people mentally ill for experimental purposes. He said he was coming over to England and could I recommend him for a B.B.C. Third Programme broadcast to describe his research work. I said, "Don't go on sound radio. No one listens to that. Explain about hallucinogens on television and give me this stuff in front of a film camera."

And the B.B.C. quite rightly thought this was a first class idea for a programme, and so did Humphry, and he came down to my home in Surrey, and in front of a film camera he gave me, I think it would be 400 mg., of mescaline hydrochloride, sitting in my own armchair at home. Those are the circumstances of the experiment.

And, of course, from the common-sense point of view, what happened to me was that I simply took this hallucinogen and had a hallucination. And the fact that, as I shall show you, I do not think it *was* a hallucination means nothing. because those who are hallucinated seldom accept that it *is* a hallucination. And it needs an awful lot of courage to throw the common-sense explanation out of the window; but I propose to do it, because I do not believe it. and I do not accept it.

My very rudimentary scientific knowledge—it is practically non-existent, but is a great deal more than Mr. Mortimer's—tells me that one should state the facts first, and make one's comments on them afterwards. Well, what is and what is not a fact, of course, is a very moot point in these things, but let me try and explain roughly what happened to me.

Like Mr. Mortimer, I began by feeling extremely sick and various nerves and muscles twitched all over the place. My body became more or less anaesthetized, and I became what I may call, if it is the right use of the word, depersonalized. That is to say, I felt completely detached from my body, and from the world, and I was aware of my eyes seeing, and my ears hearing, and my mouth speaking, some distance below me. And by a quarter past one—I took this stuff at twelve o'clock—I was in the full flood of the visual phenomena described by Huxley in *The Doors of Perception*, which I need not go into.

I think this was something of tremendous value to me. A whole range of modern painting became accessible to me at that instant and has not gone since. I am still profoundly excited by certain paintings and colours to which I was blind before. And if nothing else had happened in the experiment I would regard it as thoroughly worth while from that point of view alone.

But this was not the main thing that fascinated me. Because, about half past one, that is an hour and a half after taking the stuff, any further interest in the visual side was swept aside when I found that *time* was behaving as erratically as *colour;* and this really was the whole point of the experiment for me, and why it had such a tremendous impact. I was perfectly rational and wide-awake, and passing intelligence tests which Dr. Osmond was giving me throughout, without any significant falling off in intelligence. But I was not experiencing events in a

normal sequence of time. I was experiencing events of half past three before the events of three o'clock, of two o'clock after the events of a quarter to three, and so on. And several events I experienced with an equal degree of realism more than once.

Now I am not suggesting that these things *happened* in the wrong sequence, or that they *happened* more than once. All I am saying is that I experienced them in the wrong sequence, and I experienced them more than once. And you may say I am deluded, but I would claim that I am entitled to my view on this. I am entitled to my view that I experienced the thing in the wrong sequence of time and that I experienced it more than once.

And by "I", in this context, of course, I mean the disembodied part, my depersonalized part up in the ceiling, which was, so to speak, aware of itself downstairs talking, seeing and hearing. I do not say that I "saw" myself downstairs, no, or that I "heard" myself downstairs, but that I was aware of myself by a form of comprehension that seemed to include seeing, hearing, and so on, and yet to be different from them.

In films, as we all know, you get "flashbacks". You see a film of a couple of old gentlemen in a club in 1960, and one of them says, "Well, that reminds me of the old days in the trenches" and you're back in 1914, and there they are in their tin hats and so on in the trenches; and then a little later, when you're used to that time you're flicked forward again into contemporary life, with an equal degree of realism each time. In the same way—I think it is the best analogy I can draw—I found later events in my drawing room, events in which I myself was participating at a bodily level being interrupted by earlier events, and vice versa. And I say now, even after five and a half years, that this was the most interesting and thought-provoking thing that I have ever experienced in my life. And I say this even today, when the emotion, the vividness, has all worn off and only a kind of intellectual conviction remains. The experience lasted four and a half hours, when the drug began wearing off.

And an amusing by-product was that I could not tell whether, or when, the experiment was ending. True I could, and often did, consult my watch, and I would be aware of my eyes seeing that it was now half past three, but that would be of no significance whatever to me up in the ceiling, because I knew that that might be followed by an awareness of myself looking at my watch and seeing it was only two o'clock. And thus I had no means of knowing whether or not the experiment was ending, or ever would end. I was very conscious of that, and of wanting to know. And after a bit I managed to work out (and I take some credit for this) a way of deducing that the experiment was coming to an end. I noticed that I was experiencing events of a particular type with increasing frequency and regularity. These were experiences associated with our tea trolley. This was brought in, as the film shows, at four o'clock. The increasing frequency of recurrence of events associated with the tea trolley, gave them a special importance and significance to me. And after a time this type of event held the field altogether. They were no longer interrupted by earlier events. The tea trolley stayed there all the time in my consciousness, and from this, and it was my only clue, I deduced that I had returned to the normal world of time.

That was the first of the two phenomena I want to talk to you about in connection with time (because these are the only two phenomena I want to mention), things happening in my consciousness outside their normal clock sequence.

The second phenomenon was rather more unexpected and strange. At regular intervals, about twice every five minutes at the peak of the experiment, I would become unaware of my surroundings, and enjoy an existence quite conscious of myself in a state of complete bliss, for a period of time which, for me, did not end at all. It didn't last for minutes, or for hours, but for years, and during this period I would be aware of a pervasive, bright, pure light, like a kind of invisible sun snow. For several days afterwards I remembered the afternoon not as so many hours spent in my drawing room interrupted by these kind of excursions, but as countless years of complete bliss interrupted by short spells in my drawing room. But to the film team, and to Dr. Osmond, the excursions lasted no time at all. In fact, according to the parochial assumption of the scientist, they could not in fact have happened, because there was no time for them to happen in, as the film shows.

On one occasion I made two of these excursions in the middle of an intelligence test that Humphry Osmond was giving me, and the transcript of the sound-track of the film reads at this point as follows:

Dr. Osmond: Will you subtract 7 from 100 and go on subtracting it until nothing is left?

Myself: 93, 86, 79, 72, 63 (I might make this mistake, when timed, anyway), 58, 51, 44, 37, 30, 23, I'm off again for a long period but you won't notice that I've gone away at all.

Dr. Osmond: When are you coming back?

Myself: I'm back now in your time.

Dr. Osmond: Could you give me the next of the 100–7 test.

Myself: (About to go off again). I might be able to start when I'm back again. I'm back again now. 34, 27, 20, 13, 6.

On the first occasion when I came back from an excursion in this way I naturally assumed that a huge passage of time had elapsed; and I exclaimed to my filming friends, "Are you still there?" Their patience in waiting seemed extraordinary. But, in fact, of course, no time had elapsed at all, for them. They hadn't been waiting at all. And this is a very remarkable thing to me—to nobody else, but to me—to have suddenly interrupted them, "Are you still there?" and, looking back now, I can begin to understand the feelings of mentally sick people. Because that was a rational remark, "Are you still there?" a purely rational remark, a much more intelligent remark than anything they were saying to me; and yet from the article it looks as though I was seriously sick mentally.

Well, later on I became a bit sophisticated about this too. And when I came back from an excursion, I looked at my watch each time to remind myself of the time in which the film operators were working, and that gave me the same pleasant feeling I remember getting in the Army when you used to orientate yourself successfully on a map. You suddenly found, "Ah, here I am, now I know where I am".

Well, those I would say are the facts—anyway, that is the part of my tale which I regard as factual; and I want now just to comment, if I may, briefly on how I would account for it.

Well now, take the first phenomenon, about experiencing time outside the natural clock sequence. The common-sense explanation is that since events in our drawing room actually happened in normal time sequence, as is obvious from the witnesses there, and the film, I could not have experienced them in some other

order. I must have merely thought I did. I was deluded, or, to use your favourite word, hallucinated—whatever that means (and how much I agree with the previous speaker about that!). And for anyone other than myself this must be very easy to believe; but I cannot believe it, obviously, myself. I am not, I repeat, saying things *happened* in the wrong order, only that I *experienced* them in the wrong order, and on that point I cannot doubt my own judgment.

Now, how can I maintain rationally that my companions experienced the same events in my drawing room in a normal time sequence, while I experienced them in a different sequence? How can I claim, as I do, that I was aware of my eyes seeing my tea being poured out after I was aware of my throat swallowing it?

It sounds nonsense, and yet I believe a rational explanation is possible; if we make, of course, one revolutionary assumption, or an assumption I believe is revolutionary—it may be a platitude to you. This assumption is that from my peculiar disembodied standpoint up in the ceiling, all the events in my drawing room between half past one and four o'clock existed together at the same time. That is the assumption that I make, and of course it is a very difficult one to grasp.

But it isn't self-contradictory, obviously. If I could give a couple of analogies which I think is the only way of approaching it, this is the way I see it. When we take off from an airport at night we see individual runway lights flashing by us one after the other, and we say the lights follow one after the other. But then a few minutes later we are up in the air, and we look down, and we see all the lights co-existing together at the same time.

Or take a different analogy, from reading. When we read something we are aware of one word coming after the other, but when we detach our minds from the sense of the words, and look at the page as a whole, the impression fades, and we see that the words all exist together at the same time. Moreover, with our minds thus detached our eyes are free to travel over the page in any direction. We can read later words before earlier ones if we want, but as soon as we start reading again, we automatically become blind to the words which lie ahead of us or behind us. Now I maintain that in an analogous way my dose of mescaline detached me so far from the current of events in the drawing room that "I" actually stood outside the stream of time, and was aware of the events of two o'clock and three o'clock as things existing simultaneously, capable of being experienced by people in my position either before or after each other. That at least is what it felt like at the time.

You may say, "Well, all right then, but if you experienced later events before earlier ones, why didn't you foretell the later events to the film people?" Well, I naturally tried to do this but I could not do it. The detached part of me that had the foreknowledge didn't have the power of verbalization, still less of communicating verbalized messages to my brain and tongue. To the extent that I was out of time, I knew but could not communicate. When I returned to the world of time I could communicate, but I no longer knew. I am not saying that this problem is insoluble, only that I certainly could not solve it then.

Now, could we turn quickly to the second time phenomenon in the experiment, the excursions in which I enjoyed an existence, fully conscious of myself, for what seemed like several years. What is the explanation of this?

Well, here I think the issues are clearer cut. The film shows me going off on these excursions and coming back from them, but allows for no time for any kind of experience in between, let alone for the vast eras of bliss which I claim

to have enjoyed. Since there was no time for these experiences to happen in, science must deny that they took place at all; but since I obviously did have some kind of experience, science must resort to the theory that they were dreamlike hallucinations lasting a fraction of a second, which I was deluded into believing lasted a very long time. And so we have a broad choice. We can either say that the experience certainly happened, but lasted for only a fraction of a second, and that during this time a powerful hallucination, besides producing an overwhelming emotional impact, deluded me into thinking I was conscious for a very long period; or we can say the experience certainly happened, but took place outside time.

Well, no proof obviously is possible either way, but I simply prefer the last explanation, which is shorter, more economical, and fits my experience at the time. The drawback is, of course, it assumes that the human personality can exist outside time, and we know how much follows logically from that. But, nevertheless, that is the way I prefer to look at it myself.

You see, I am encouraged a little bit by a visit I paid to Professor Elkes' laboratory at Birmingham soon after I did this experiment. This was on a totally different mission in connection with some broadcasts on mental health. Professor Elkes showed me a cat, a most extraordinary ginger cat, I do not know whether it is at all familiar to you, or unknown, but an enormous ginger cat with six electrodes in its brain. The professor would do an experiment on the cat as follows: he would flash a torch in front of its eyes, and some dial or other would register the light rays falling on its brain (I suppose, talking in very general terms). Then he would give the cat mescaline, and flash the torch again, and this dial would show that the cat had a more comprehensive experience of light after the mescaline than before.

Now this seemed to me profoundly significant, and very helpful to my thesis, because that cat was seeing *more* after mescaline than before. Its experience of light was more comprehensive, and therefore, in my view, more valid than it was before. I should say that my vision of colour was certainly more comprehensive, more discriminating and more valid when drugged than undrugged. Therefore I would say that the effect of the drug was not to derange my mind, not to put me out of contact with the outside world, but rather to remove a filter, and to enable the signals to come in in a far purer and more objective way. And so I said to Professor Elkes, "Very interesting, but you've been wasting your time. Devise an experimental apparatus to show that when you give this cat mescaline its experience of *time* is more comprehensive, and to that extent more valid". And I believe, you see, this is a tenable hypothesis —of course, you'll all know it's nonsense, and will shoot me down if there's a discussion afterwards—but at least that is the conclusion I reached.

Finally, may I just make one or two general points. I agree that people's reactions to the drug vary, and I agree that I had probably, so to speak, predisposed myself to this kind of experience as a result of considerable study and reading in oriental religions which I had just done for a series of television programmes. But whatever the truth about the metaphysics of mescaline, I did come away feeling that experiments along these lines surely ought to go ahead. It is an amazing thing to be made, if you like, schizophrenic (looked at from your point of view), to be made schizophrenic for four hours under controlled conditions, and then to be brought round again: or I believe I was brought round again—my friends sometimes tell me I have never really recovered. It makes you feel that it must be possible in some way to find some substance which you

can give to schizophrenics which will have the reverse effect. In any case, you know, the experience of becoming mentally disordered like that did help me tremendously, I think, to get on terms with mentally sick people after that. It happened I had been interested, in the House of Commons, and in other ways, in mental health. And if it was in my power I would make every psychiatrist mad under controlled conditions, I mean artificially mad under controlled conditions; and I would make all mental health workers, and hospital staffs—I would make them all mad under controlled conditions, so that they could understand what it is like.

I admit that this is only one particular kind of disease; but I saw, for example, something which I would never have imagined, I saw how it is that when you have this particular kind of mental disorder you *feel* the same—the same fears, the same love, the same emotions, and you are as rational and intelligent as before (in this particular illness). The only thing wrong is that the signals coming to you from the external world are totally jumbled up. Your reactions, both emotional and intellectual, are entirely normal reactions, granted the appallingly topsy-turvy signals that come to you from the external world. And that is something I have learned about being mentally ill which I could never have imagined otherwise.

About the religious implications—perhaps I can say a word or two during the discussion, because of course it is an enormous subject. In general, I would only say this, that I am delighted to have done it, and I do not believe it had any evil effects. I do not know quite what has happened in this field since. I gather people all over the United States have been taking these drugs in great quantities for experimental purposes. It has been a little disappointing to me that no one has come out with some kind of easy solution to some of these mental illnesses as a result of these last five years of experiment. No doubt the future is hopeful, and that, fundamentally, I would have thought, is the justification for these extraordinary experiments. They will help to conquer mental illness. But in addition they are bound to stimulate one's curiosity into the nature of reality.

Mr. Francis Huxley: There have been some very interesting controversies raised during this conference that point, indirectly, to the subject of this evening's panel. The most important, of course, exists between those who say that therapy is helped by the use of hallucinogenic drugs, and those who say it is not.

There are the differences between the enthusiasts and the sceptics, between the cautious and the bold, between the existentialists and the scientists, and—this has only just been brought into the open—between those who have taken mescaline or LSD, and those who have not. There is also the complete difference in approach between the experimentalists and the therapists.

I intend no malice to the experimentalist when I say that his relationship to a person under LSD provides—as has been already pointed out by Dr. McKellar, an experimentalist himself—one of the major comic elements in this subject. How can it be, it seems to each, that the other is so interested in trivialities, and misses the reality of the situation? The subject experiences the experimentalist as being only interested in abstractions; the experimentalist imagines the subject to be utterly confused by a wealth of concrete imagery.

Where is reality in such a situation? The point of this evening's discussion, I presume, is directed towards this question. It may become clearer if we take the therapists' point of view. Dr. Sandison has made it quite clear that the efficacy of

LSD treatment lies in the establishment of a relationship between the therapist and the client, which is supported by various features in the environment. The client—who may manifest one of a great variety of thought patterns—experiences certain things about himself in fairly well marked stages. Now it seems at first sight that, since the LSD is given to the client, it is only the client who is affected. However, since the therapist enters into a relationship with him, the therapist cannot help but be affected also. The fact that LSD treatment evokes enthusiasm among certain therapists is therefore vital to understanding of the psycholytic experience, and must not, I think, be thought of as diminishing the value of hallucinogenic drugs, The reason for this is quite simple. When we look carefully at the various elements in a psycholytic experience, we say that we have the analogue of a theatrical performance. There is a definite scene, definite *dramatis personae*—some of whom are in disguise and have to be identified before the play is over—and a recognisable action. We can, in fact, make use of Kenneth Burke's analysis of symbolic action to distinguish five elements; the scene, the action that takes place, the agents with the roles they take up, the agency by which the action pursues its course and—according to how you look at it—the motive or purpose of the entire process. We can be sure that if one of these elements is missing, or out of place, the psycholytic experience will be correspondingly distorted, and the dramatic relationships possible will be at odds.

To answer the question, what is reality in a psycholytic experience, we must discover what drama is to be enacted. A drama I think it certainly is, and it has interesting resemblances to the course of archaic drama. If you remember, the action in archaic drama has to pass through a number of transformations before it reaches its end. There is first a preparation for a contest, resulting either in a dismemberment or a driving out; this is followed by the recognition of the hero, his initiation and eventual theophany. These stages correspond adequately enough to the three mentioned by Dr. Sandison, of abreaction, regression to childhood memories, and experience of the archetypal world.

I make this comparison, not to remark upon the ways of the collective unconscious, but to provide something by which to guage the moral, social and religious significance of experience under hallucinogenic drugs. Drama after all, provides a sure proof of the significance of these things, since it insists not upon reasoning or imagination but upon action, that is, upon the consequences of choice and chance. It also provides other important criteria for judgment, in the relationship of the dramatic action to the roles needed to carry it out, and in the distinction between tragedy and comedy.

Tragedy, at least when played to its limits, is opposed to therapy which is basically a branch of comedy; we can understand this if we define tragedy as the action that takes place when an individual cannot change the role he has chosen, or that has been chosen for him, but must himself suffer the catastrophe of the action; while comedy—which is not necessarily comical—implies that the agents can alter their role in order to co-operate with the dramatic action and not be destroyed by it. This is, of course, the aim of therapy, which by going to the roots of a neurosis wishes to free the individual from forced role-playing.

The fact that tragedy ends in catastrophe, and comedy in a change of role, implies that both involve a basic self-contradiction. Tragedy forces the contradiction upon the individual; comedy keeps it in the action. What therapy shows us is the wholly religious principle that action is not created by roles so much as that roles are created by action—and that once the course of an action is felt,

it is possible to take up the temporary role necessary for its completion. The relationship between what roles are taken up and what action is possible is very clear in the different effects that experimentalists and therapists have upon their clients, showing how a complementary relationship exists making it impossible for a certain action to take place if an unsuitable role is taken up.

I am slowly coming to the point. I wish to show that the whole logic of a dramatic situation implies, not only morality, but a continuously changing relationship between the actors involved, and that we cannot gauge the significance in human terms of any experiences unless this is recognised. From what I know of experience under hallucinogenic drugs, not only is the relationship between persons mediated in this fashion—by action creating the possibility of roles which the individual must take up but not identify himself with—but the very act of consciousness seems to be thus organized. We can perhaps see the whole course of a psycholytic experience as an effort of consciousness to rid itself of false identifications and experience its own ever-changing identity. Many of the somatic changes at the beginning of such an experience imply this casting-off of conventional role-playing, as we may see from the fact that the conventions of time and space, of subject and object, are then gradually but remorselessly undermined.

One of the most fascinating experiences to be gained under LSD is that during which the subject-object distinction is done away with. It is replaced, not by that state imputed to infants unable to distinguish things in the outside world from themselves, but by a recognition that nothing that exists and is experienced can be properly classified as "an object" since the very act of experiencing it makes it part of yourself and therefore of your subjectivity. Strangely enough, however, this recognition does not necessarily destroy the thing's individuality: it remains itself however much it also becomes a vehicle for the awareness of yourself. This very curious sensation is made even more astonishing when what you experience is another person: you then find that this vehicle for your self-awareness is at the same time using you as a vehicle for his self-awareness. I would not like to talk about the implications of this experience: besides, Dante has done it in the *Paradiso*.

The balance to maintain this experience, however, is not at all easy to keep. One reason, of course, is that it is drug-induced, and liable to change with changes in metabolism; another, more important, is that such experiences can come before the subject has learnt less interesting but more painful things about himself, which a therapeutic situation would teach him. Thus, it is no surprise that some people, who begin by having most spiritual experiences, often end up disappointed, exhausted and in confusion. Like Ibsen's Master Builder, they force themselves to climb up the scaffolding to the top of the tower they have designed, but fall when an unresolved contradiction in their nature startles them and makes them afraid.

The religious significance of experience under hallucinogenic drugs thus is limited if not connected to a moral and therapeutic action. It is limited, in spite of its illuminating qualities, because it is a solution arrived at without practice, and the subject does not know the method by which he can make it apply to his normal self.

To experience something very intensely, but for no apparent reason, can make one very uneasy, if one feels one is not substantial enough to bear such an excess of sensation—or, to paraphrase this, if one does not know how it should be used. Drugs which increase work, or endurance, or life, are taken with little

hesitation: it is only drugs which increase energy blindly and without social relevance that are mistrusted. For instance, it is because alcohol has social value and a definite context of action that it is allowable, in spite of its poisonous qualities and often quite unsocial effects.

The social significance of hallucinogenic drugs is certainly a fascinating problem, because anything that produces an excess of sensation or experience is by that very fact on the margins of social relevance if not wholly outside it. Visionary prophets like Joseph Smith, radical and visionary poets like Blake, the mentally ill, juvenile delinquents, ardent believers in spiritualism, or anyone who produces an offensive novelty, such as that of modern art, are all socially suspect. Society learns about such new sources of energy only under protest and with difficulty, just as the originators learn how to control their curious energies only the hard way. When these are controlled, of course, they are no longer marginal to the life of society.

Hallucinogenic drugs seem to be, by their very nature, perpetually on the margin. By evoking a situation in which a certain kind of dramatic action is possible, they bridge gaps between the past and the present, between the actual and the latent, and sometimes extend the margin so far as to be useful for divination. This, at any rate, has been the historical position of peyote, ololiuqui, teonanacatl, and hashish, used as adjuncts of shamanism for divination and therapy. Even religiously they have always been on the margins: it seems that there is a moment in social evolution when hallucinogens are regarded as destroyers of social order, and therefore tabooed. This was the fate of *Amanita muscaria*, the fly agaric that made the berserkers berserk—and, if Robert Graves is correct in thinking that soma and ambrosia are polite names for hallucinogenic mushrooms, the same mistrust occurred in India and Greece. The hallucinogens come into their own in shamanistic societies, and especially in marginal ones. Peyote offers the best example of this. After the bison were knowingly exterminated in North America, to make the life of the Indians even more difficult and get them off the prairies and into the reservations, various interesting tribalistic movements came into being whose avowed aim was to bring the bison back from out of the earth, and to run the white man off the prairies. There was the Sun dance, the Ghost dance and clapping game—whose lives were all short, ineffectual and sometimes bloody—and the peyote cult, which has now spread over the continent and become the native American church. This cult is an attempt not only at individual therapy, but also at social therapy; it is an expression of the marginality of the life these Indians must lead, which is neither according to their traditions, nor has anything much to do, except in a negative way, with the life of the white men surrounding them. Certainly some members of the cult are doctors in the traditional sense, but a great many others—for instance among the Navaho—join as a result of some economic or emotional disaster. It will be interesting to see whether the native American church will continue to exist when—if ever—the Indians become economically independent and are accepted on the same footing socially as white Americans.

These Indians, with their unsolved dramatic situation, thus use peyote in an effort to find a workable solution. Once the solution is found, peyote will perhaps no longer be necessary except as a tool for private therapy of shamanistic training. The situation has an interesting parallel with what Dr. Eisner told us yesterday, when she remarked that though mescaline and LSD made a great difference to the efficacy of group therapy, once the group had begun to work

properly the dosage of LSD could be reduced from 100 to 25 or 20 gamma, without spoiling the group's effectiveness. In time, perhaps, a group will be able to function as effectively with no LSD at all, which will mark the achievement of a superb dramatic understanding between its members. Just as Wittgenstein said that his whole aim in practising philosophy was to be able to stop practising philosophy, so the eventual aim in using hallucinogenic drugs may well be to make it possible not to have to use them. One can, perhaps, put this another way by trying to answer directly the question we are discussing this evening, on the significance of experience under hallucinogen drugs. The answer, I think, in that there is no moral, social or religious significance in such experience unless moral, social or religious relationships are then experienced. And that, indeed, is the problem.

CHAIRMAN: Our speakers have demonstrated the wisdom of the programme planners in inviting some non-medical people to come and address this somewhat closed world of psychiatrists. There were four speakers, each, I think you will agree, bringing a novel, personal, gift to us. How we shall discuss their contributions I do not know, but I suggest we begin. The four papers are now open for discussion. Among us there are some experts, or perhaps they would prefer me to say, some other non-medical people who have had mescaline experiences, and they are particularly welcome to contribute tonight.

Dr. PETER MCKELLAR (Sheffield): I'd like to take up Mr. Mortimer's challenge a little bit and say a word about mystical experiences under mescaline. Two points; first of all, it is obvious from the literature, and from what we have heard in this conference, that some people, but not others, when they take mescaline, react mystically. It is much less obvious that some of those people who react mystically to mescaline also react mystically to other agencies, for example, nitrous oxide, and a variety of things. Secondly, there are obviously, from the literature of the psychology of mysticism, a large number of different sorts of mystical experiences. William James's classic *Varieties of Religious Experience* makes this pretty plain. But what about these experiences which people have, when they do react mystically under mescaline?

Now I'd better try and sketch in what I think they are from introspections, and observation of my own, and from studies of the literature. First of all, the individual has an altered conception of things. You might call it perhaps an increased sense of empathy, or something of that sort—a different attitude, an altered attitude—probably very tied up with the hyperaesthesias of a visual kind, and it may use as its subject matter the very characteristic visual imagery, which can be a very impressive experience with the closed eyes. I think, myself, my own experiences were such that I found the closed eye visual imagery perhaps more interesting than any of the other effects. If people are inclined to be mystical about things they may well be mystical about this imagery, which exhibits peculiarities of lighting and colour and content. Along with this go other things, which has been described as a break up of the ego, a feeling of a loss of oneself in something larger than oneself. I am only talking about it as feeling. The question of its significance or otherwise I do not want to comment on. This is a feeling which very frequently occurs. The experience which has sometimes been called *presque vu* may also occur, a feeling that you are on the edge of grasping something very, very important, and this is prominent also in the psychology of mystical writings. Along with these go three other sorts of

feelings. One is a feeling of significance, that what is going on is very, very significant. Another is a feeling of self-plus, that is, I can do intelligence tests just as well as when I am in my normal state, and so on. This often proves to be illusory, and these feelings of self-plus, I am more than my usual self, we also have with alcohol, and anoxia, and tests show that these people on the whole are quite incompetent in many of the things that they can do normally. Thirdly, and most interesting, feelings of certainty. These feelings of certainty, which occur commonly with hallucinogenic drugs, are often, I suspect, a little bit free floating. The person is looking for something to be certain about and he seizes on the experiences, visual, hallucinatory, or some other kind, and feels certain about them. I wonder if the feeling of certainty is not sometimes a little bit primary, and the thing to which one attaches the certainty, secondary. This may be characteristic of mystical reactions we find elsewhere.

Mr. Rattray Taylor talked about similarities and differences. Part of this feeling of added significance, or a new view of things, may come from an altered attitude, the sort of attitude in which one is perhaps more inclined to overlook obvious differences between things, and preoccupy oneself with less obvious similarities. This may be part of the subject matter out of which, or the way of thinking out of which, a person is inclined to react mystically.

Finally, I wanted to say—I don't want to make any attempt at all to be metaphysical or religious about what these things mean, I am simply trying to outline as I understand it the sort of things people report and experience here—I have no doubt at all that valid insights do occur in these experiences in such experiments. After hearing this conference I am inclined to think that some of these valid insights may have therapeutic value also. But other sorts of valid insights may occur, for example, insights into the way of thinking of the poet who exhibits a sort of empathic reaction to a variety of other things; insights perhaps into the ways of thinking that are characteristic of the child; in general, increases of empathy, including quite specifically the experience of knowing what synaesthesia is like, if you are not normally subject to it.

Dr. MICHAEL FORDHAM (London): Perhaps it may be useful if I say something about the collective unconscious, since the word gets so much misused. It is a term which covers the sum of archetypes. The discussion seems to be about the significance of archetypal experiences. I would like to make a remark about them and the significance of the fact that hallucinogens can produce them. If we assume that one form of archetypal experience is religious and mystical experience, then what does it mean if you start to produce this through biochemical action? Surely it means this: it becomes more and more difficult to imagine the experiences are only transcendent or metaphysical. Now, as you know, Jung has suggested that the importance of research into the psyche is that experiences which were previously thought to be metaphysical become increasingly understood as psychological, and so it would seem that this is the main significance of LSD experience. It participates in the progression, from the metaphysical towards the psychological thus making it increasingly difficult to project into religion for our own personal and individual characteristics. At the same time LSD puts a wide range of experience at our more deliberate disposal.

Dr. DONALD JOHNSON, M.P.: My name is Dr. Donald Johnson and although I have certain professional non-psychiatric qualifications I am mainly occupied in the same institution as Christopher Mayhew.

It has been most interesting to hear the speakers today. Now with regard to my qualifications to join in this discussion, I was very relieved, sir, that you added *et cetera* to the qualifications you listed, because I can perhaps describe myself as one of the *et ceteras*. I have written a book, more than one book actually, about these drugs—rather amateurish books, I'm afraid I must admit to the present audience—but, at least, these books were founded on a personal experience. It was one that differed from Christopher Mayhew's in that it was unexpected, unplanned, at any rate by me.

The advice I subsequently received, I can I think say was as confused as the state I was in at the time. But I have had the benefit of a wide range of opinion which included that of Dr. Humphry Osmond of Saskatchewan, whom Christopher Mayhew has mentioned; and the balance of opinion has been that the state I was in was due to one of these drugs, unknown, though certainly not mescaline. Well, I am in much the state of mind about this experience as that of Christopher Mayhew, in that it happened ten years ago, and I had got to the stage when I really did not want to talk about it any more. In fact, the last thing in my mind when I came into this hall tonight was to say anything about it. But I have been stimulated in two respects by the discussion to feel that I really have something to contribute. The first one was when Christopher Mayhew mentioned about his time experience, because the most curious subjective experience which I have had in my life was when I was in the confused state to which I have referred. I was in a highly excited, virtually a maniacal state: and found myself surrounded by relatives. I had the idea that I had to go round these people, saying the right thing to them—otherwise something pretty terrible would happen. Amongst them was one of my brothers-in-law, who happens to be rather a touchy sort of person; I particularly had to say the right thing to my brother-in-law, I remember, when I engaged him in conversation—he was standing as near as here to there—and, as I fumbled in my mind to say the right thing, the same curious time experience happened. I could see my brother-in-law's beard coming out on his face. We went forward in time together—time for his beard to grow. Then, as soon as I thought of the right thing to say, his beard shot back again. In the same way that it has caused Christopher Mayhew to speculate about his time experiences so this has also caused me.

The second thing that has interested me in the discussion is when Dr. McKellar talked about the significance of the experience obtained by these drugs. I have had the privilege of a sort of round table discussion on this both with Dr. Humphry Osmond and also of his colleague in Saskatchewan, Dr. Abraham Hoffer, and we came to one conclusion about these states, and that is that they are transcendental states, they put you in contact with some force or some power with which you are normally quite out of contact in your everyday life. I am one of those people who are not moved by modern art. I am not moved by music. I am not really moved by anything, in ordinary life; but I was certainly in a transcendental emotional state on this particular occasion.

Reverting finally to the "significance" of these states. In my case, not only did this curious state seem significant but it *was* significant, because subsequent to it, even if not as a direct consequence of it, the whole trend of my life did happen to alter. There is only one way in which a politician's trend of life can alter, and that is according to whether you lose elections or whether you win elections; and whereas prior to this event ten years ago I had spent my life losing every parliamentary election I fought, I have been fortunate enough to win elections since then. Otherwise I would not be claiming colleagueship with

Christopher Mayhew. Not only winning elections but winning very close elections. Yes, this is something for you ladies and gentlemen to think about. Why is it that, some six or seven years prior to this, I fight what was a very important election and in a poll of about sixteen thousand people I lose by 193 votes. Very close indeed. Yet five years later, in a poll two and a half times as much, I come out on the other side, and win by 390, with exactly the same margin.

Dr. I. FROST (Chester): I must confess that this concept that the range of human experience can be widened by the use of mescaline excites my scientific puritanism. In the 1920's the taking of drugs and even flagellation were regarded by writers on the fringe of Bloomsbury as ways to extend experience. I thought this mode was going to die out, but apparently not so far as drugs are concerned. Nevertheless, I was encouraged this afternoon, having visited the Tate to see Toulouse-Lautrec's paintings, to find the gallery extremely full, indeed crowded with people, who didn't need to have mescaline to widen their artistic appreciation. If one keeps in mind, too, the half million people who visited the Picasso exhibition at the Tate six months ago, I do not think that we need seriously consider drugs as a necessary eye-opener to aesthetic experience. Also, although I approve of going back to primitive medicine and getting the best out of it (when I remember that cinchona bark led the way to quinine, and of course, ephedrine came from the branches of the Chinese Ephedra plant), to go back to mescal and ololiuqui, when the past evidence for actual therapeutic benefit is not so sound as it was in the case, for example, of cinchona bark, ought to be done with a little caution. I think one has to consider the sociological significance of the way in which we are disposing of our research forces. It is easy for the big pharmaceutical firms to go back to such ready sources of hallucinogenic material. But, consider the possibilities if the same amount of scientific effort—money, laboratory technicians, laboratory facilities—were devoted to searching for the hallucinogen responsible for the hallucinations of schizophrenia. Are we really right to commit our main forces to investigating the side effects of drugs, which are only adjuvants to psychotherapy, when we should be concentrating attention on biochemical research of a more fundamental kind in the mentally sick human being?

Mr. P. D. TREVOR-ROPER (London): May I make two very brief points. The first is to underline Raymond Mortimer's comment on the variability of the experience. I have given mescaline to three authors, and one artist. One author had experiences along the pattern that Mr. Mortimer described. Another said that she felt a stone in her stomach descending, and that it finally lodged in the womb. She, of course, being articulate, realized that this stone was the child she was never going to have. She then started gathering her garments around her, and realized this was like a dog or a cat building a nest for a pseudocyesis. Then she sat down to become broody. The second was an artist who spent two hours walking round Victoria. He was a conventional artist and stage-designer, but then he saw vorticism in the neon lights and his painting has never been the same since. The third was an author who lingered for hours in Regent Street, unable to move on, as he had been so transfixed by seeing the Brueghel-like faces of all the crowds. They were knobbly, and curious, and gesticulating, and to him crowds now always look Brueghelesque. These diversities vary not just with the personality but with so many other factors that one's conclusions are apt to be very irresponsible.

The other point relates to the cause of these visual phenomena, because they were to me much the most memorable and useful experience. The two changes one notices are—as I think Mr. Mortimer described in the *Sunday Times*—a Bronzino-like effect of seeing things three-dimensionally, and the familiar colour-effect. And it seems to me on analysis that the gist of these is simply due to sluggishness of one's focusing; in other words mescaline produces an impediment between the cerebral cortex and the periphery, both sensory and motor. It is an effort to make any movement, but when one succeeds, the limb is like a feather. Similarly, it is an effort to do any focussing, and one cannot subconsciously flick one's accommodation to and fro as one normally does. So that we see an object (and one can train oneself to do the same afterwards) with an apparent exaggeration of the third dimension, simply because it is out of focus immediately behind, and out of focus immediately in front—and a wonderful effect it is too!

The second, the colour anomaly, similarly follows the cutting-off of our subconscious associations, which would normally discountenance the blue shadow-colour in snow and the complementary colours that encircle any coloured object; because, of course, it would be so confusing if every object changed colour according to how we looked at it, and how we were feeling. So the rewarding thing about mescaline—the transcendental experience which is so exciting at first—is simply the joy of seeing things as they truly are.

I have not taken mescaline for the last two years, because on the last occasion I got a psychiatrist to come and sit by, while several of us took mescaline, in order to take down these important visions of truth, which I knew were so compelling. And at the end of three hours we said excitedly, "What truths did we tell you? How is your world enlarged?" And he turned a sad face and said, "You are all just repetitious bores!"

Professor E. H. GOMBRICH (London): I just wanted to say very briefly, since painting was several times mentioned, how very much I agree with Mr. Trevor Roper. I haven't heard any speaker yet who has produced an argument which would not support the simpler idea that these experiences are breakdown experiences or reduction experiences. Perception is a very complicated achievement, an integration of very many experiences and cues. I have never taken mescaline, but I have taken a small dose of the psychology of perception and I think it would be right to say that on the whole the achievement of seeing or of perception is altogether underrated. As soon as this achievement breaks down we will experience colours for instance as through a reduction screen. We see the true colour of individual shadows because the so-called constancies are broken down, the same constancies which make us see that the chairs in this hall have all one size, although, in fact, if we measure them against a plane they are of different size. Now, in painting there are two possible courses for the painter. He can either try to achieve on his canvas the same interaction of cues which in the end results in a flat plane which looks like the real world to our usual consistency tests. Or he can decide to single out individual cues, and their physiognomic, and other significance, for what these mean to him. It seems quite clear, therefore, that when we have this breakdown of interaction certain similarities with intentional stylistic or other deviations from normal perception can result.

But I am still a little worried by the frequency with which people compare the experiences they have under these drugs with modern painting, since,

obviously, people who make these comparisons have seen modern paintings. It is certainly very difficult to articulate experiences of this kind, and the nearest comparison would probably come first to mind. And, therefore, I just want to introduce this one word of *caveat*. If you ask the person undergoing the test, "How is it?" either you get a synaesthetic comparison, or he goes to the nearest other comparison he can find, and those people who have enjoyed Cézanne will say, "It looks like Cézanne". Whether it would look like Cézanne for those who have not seen a Cézanne is a very different matter.

CHAIRMAN: As there are no more discussants, I take the privilege of the Chair to speak myself. I will try to bring together some of the points mentioned although I do not find it possible to make a synthesis of the views of all four speakers.

One point which emerges clearly and was stressed particularly by Dr. McKellar is the disturbing effect on the ego of these drugs. I would here remind you of Federn's definition of the ego not as a static thing but as a state of feeling, ego feeling, which for him is the sense of identity in time and space. We can agree that in schizophrenia, for various reasons, there is serious disintegration of this sense of ego feeling. We should also agree that disturbances of ego-feeling arise in these drug states. We can therefore see why it is that comparisons between these drug states and schizophrenic states easily spring to mind. What we know about schizophrenia may also help us to understand these drug states.

Mr. Mayhew may be interested in a patient whom I treated. She was a schizophrenic woman who had a serious disturbance of time sense which I was too stupid to see for a long time. She was extremely agitated and did not understand what I was saying, and I did not understand what she was saying. The only thing she consistently did, was to look often at her watch. Once my stupidity broke down, and I saw her difficulty of noting time, I became able to understand that she was unable to place in order what I was saying. This was because, losing time sense, she did not know which of my words and sentences came first and which last. What I was saying was thus nonsense to her. The nonsense of her speech in turn occurred because she did not know what order her words should be in a sentence. I was able to interpret this and there was considerable relief to the patient. We could together then begin to repair her power of communication and her terrifying sense of isolation from others which had taken place essentially because her time sense had gone.

Now not all cases of schizophrenia are based on the fragmentation of a single ego-function of this kind. There are many ego functions, any or all of which can be disordered. Another common difficulty for the schizophrenic for example is his tendency to feel synaesthetically, also referred to by Dr. McKellar. He cannot sort out one sense impression from another. Sounds may have taste; sights may be confused with noises, etc., so he is bombarded by perceptions which he cannot understand. In these drug states some degree of synaesthesia also seems to occur; and one sense modality seems to take on something of the quality of another.

When he compared modern paintings and the images seen under these drugs, Professor Gombrich was right to draw our attention to what a very complex matter simple perception is. It is an adult feat, a sophisticated ego activity, not a simple event. I would like to mention just one aspect of perception —attention. Attention is not only a focusing on one thing, and a cathecting of that, with a neglect of or non-cathecting of other things; but an active

de-cathecting of these other things, a screening off of them and a selecting of the one thing to be perceived. Thus a kind of primal repression is necessary for much of the synaesthetic imagery before a single perception can be made clearly. Under mescaline this function of attention seems to be disturbed, and discrimination between the senses somewhat lost.

Another disturbance of perception is hyperaesthesia. The hyperacusis and the other forms of hyperaesthesia which can be found in children usually damp down in later life. But under mescaline it seems that some primary repression is lifted and hyper-perception can occur once again. The vividness of mescaline experiences may be explained at least in part in this way.

In contrasting these drug states with schizophrenic disturbances we can be struck by the curious triumph of those speakers who have taken mescaline and survived. There is no such triumph in the state of the schizophrenic, which is an abject one. I would suggest that this difference is because a schizophrenic has no way out of his troubles. It seems possible actually to enjoy a disturbance of time sense as a short experiment in friendly surroundings. But if one has a disturbance of time sense, for instance, for months on end, among strange people, who don't understand, without any faith in one's capacity to recover, that is a different experience indeed.

On the social significance of these drugs, I am really not qualified to speak, but it is certainly socially significant that these drugs are being studied today. This is because today is a peculiar point in time, and contains man's own view of himself. If we turn back to painting we can, I think, trace in the history of painting a kind of cosmology. This is old stuff, and I am not an expert on it, but certainly man's position in space as the son of God, the principal creature, is reflected in paintings when beliefs of that kind were present. The concept of man as a member of a social order is again reflected in paintings when man began to perceive himself as *one* of the creatures on earth. Again there was a parallel. With the change in the painting (I'm not saying which came first) man's perception of himself was plainly altering. The first belief was that he was principal creature, and the second was that he was at least equal to the beasts, a creature of chance. But now has come the final assault upon his earlier beliefs with the idea that man's fate lies somewhere in how he handles the forces within him. Contemporaneously has come this concentration on paintings reflecting the curious strains that go on inside the ego. The fragmentation of modern art and the dissolution of the object seem to reflect the courage man has taken upon himself to face the stresses and strains within himself; to face these matters of unintegration and of primitive modes of perception and yet not to be too disturbed by them. They reflect his faith that although he may be split and divided in various ways and for certain periods, he can at least for periods come together again in an integrated way, having survived the dangers of disintegration.

Now the pleasure of modern painting (and I am almost ashamed to say I enjoy it) occurs, I think, because of the strain it imposes upon one. There is so to speak ego regression with a "proto"-way of perception giving rise to the tension in modern painting, but pleasure occurs because one can experience the strain upon one's ego without complete disintegration. The pleasures of libidinal satisfaction and aggressive satisfaction are well known to mankind as id satisfactions, but the pleasures of strain being put on the ego are I think undermentioned. The strains vary from the thrill that a high diver gets when he has the courage to test himself against the dangers of gravity and yet emerge in the bath water alive, to the manic behaviour of a parachutist who lands happily.

I think there is something of this manic quality in the pleasure of having had these drugs. One submits oneself to a severe ego strain and yet emerges on the other side. I think perhaps therefore that there is a reference to our present-day cosmology in the way these drugs are being studied, and the way that man can now take courage to submit himself to such strains.

We should perhaps remember that there are some people who are afraid to submit themselves to strains of this kind. People who are too afraid to submit themselves to the ego regression that occurs in the orgasm, for instance, and who present with frigidity and impotence, are daily bread for us psychiatrists. Some of these patients have no faith, but fear that they will be faced with permanent dissolution of the ego, and are afraid that with such dissolution a point of no return will be reached.

Well, these are my attempt at synthetic remarks. I comfort myself with the fact that no one can reply, but as I am about to draw the meeting to an end I will ask the speakers if they would like the opportunity of replying shortly to any of the points that have been made.

Mr. MAYHEW: I am very much of the opinion that amateurs like myself are not really of much value, except of course, as raw material for the powerful brains of the audience, but if I have acted in that fashion I have been delighted to do so; and I am glad to hear of at least one other person in the world who bears witness to the time distortion which I described to you. I hope she recovered in due course. May I also just add a word about your summing up, which did bring out what I think I hadn't understood myself, how much my own experience depended on my sure knowledge of being brought round in due course. I lacked the imagination to see that apart from that the experiment would have been pure hell, from beginning to end. And it was the confidence I had that I would become sane again that made it bearable—I quite see that.

CHAIRMAN: It remains for me to thank the speakers for giving us this extremely entertaining evening. It has been very lengthy, and that is in itself a tribute to them. Now formally we have an opportunity to thank them very much.

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