ques et biologiques d'un malade à l'autre avec cependant dans l'ensemble, une relative fréquence des réactions anxieuses et des manifestations sensorielles hallucinatoires, et une intensité des manifestations cliniques et végétatives plus grande chez les sujets névrotiques que chez les autres malades.

Enfin, nous pouvons souligner dans les conditions expérimentales utilisées la quasi constance des modifications EEG chez les différents malades surtout caractérisées par un applatissement, coïncidant avec les manifestations cliniques du syndrôme psychodysleptique (97.5%), et dont l'aspect semblerait assimilable à une désynchronisation du tracé.

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H. LEUNER

Göttingen University Psychiatric Hospital, Göttingen (Germany)

When working clinically with psychodysleptic drugs, the so-called hallucinogens, no scientific advantage is gained by differentiating between the psychotic effects of the various drugs available, such as mescaline, *d*-lysergic acid diethylamide (LSD 25) and its derivatives, psilocybin and its derivatives and others. They are very similar in any given frame of reference, notwithstanding the fact that hallucinations under mescaline tend subjectively to be more brightly coloured, more expressive, and lend themselves more readily to poetic description than those under LSD 25. Experiences with the latter drug seem more brutal, and the material brought up is more depressing, unkind and frustrating.

The most interesting and scientifically most profitable possibility in experiments with these drugs is that of finding a number of parameters by which the conditions for provoking the experimental psychosis can be systematically varied. Examples of such parameters are: 1. the molecule used, 2. the dose given, 3. the rapidity of psychosis onset, 4. the type of subject used, 5. the exterior conditions imposing on the subject, and 6. the inner psychic condition of the subject, which may vary from one session to another.

Only three items will be discussed here: (a) the relation found between the molecule of the drug and the level of consciousness (on the axis between full awareness and deep somnolence), (b) results of high dosage, effecting a catatonic state, and (c) the question of therapeutic value of the drugs as emphasized by THUILLIER.

The close connection between the parameter 6 and the latter two items will be shown.

The first item can best be visualized as a graph, the horizontal axis of which is thought of as a measure of "graduated consciousness". At the far left we would have the pole of wide-awake consciousness and at the far right the pole of deep somnolence. Seven known hallucinogens can be distributed on this scale in accordance with their observed effect. There is only a slight change in consciousness under mescaline, under which subjects retain perfect clarity of consciousness after a certain amount of

experience, although they hallucinate quite well. The hallucinations of LSD 25 and psilocybin, which are at the same level, flourish under a slight sensory dimness, as against the dreamy state observed in most cases under butoxamin and LAE-32. A substantial dimming of consciousness is attained by the use of the atropine derivatives of ABOOD (JB 318 or Ditran), partially obscuring the hallucinations. Complete somnolence without hallucinations is reached under LA-111. It is known that ABOOD's substances provoked a distinct delirium while the substances on the left of the scale yield a "pure" hallucination. These are therefore termed first order hallucinogens, while the former are hallucinogens of the second order. In the light of LSD 25 and its compounds we should see how slight a change of the molecule is necessary for a drastic change of psychopathological effect.

Parameter 2, the dose, plays its part in this complex in a translation to the right of all substances; with increasing dosage the loss of consciousness is greater. For instance, a sufficient dose of LSD 25 leads to psychopathological syndrome similar to delirium under JB 318. An extreme dosage, say 1000 gamma of LSD 25 provokes total somnolence without hallucinations. On the other hand, a translation toward the left of the graph is noticed as doses are decreased or the subjects become more habituated after repeatedly taking the substance. Wide-awake consciousness, similar to that of the mescaline syndrome, can occur under psilocybin, or, a low dose of Ditran (approx. 2.5 mg) generates a dreamy state like that of butoxamin, etc. These insights into conditional relations are of importance for clinical psychiatry because, until recently, the diagnosis of exogenic psychosis, and thus including the toxic case, always required a dimming of consciousness. Here the factors connected with dimming of consciousness can be finally judged for effect and interaction.

The catatonic state brought on by a high dose of LSD 25, was studied. A 21-year-old student was given a dose of 350 gamma of LSD 25 which evoked a catatonic stupor with stereotyped oral action. He bit into a wet handkerchief, and again and again tugged it out of his mouth, mingling this with a wiping motion of the hand over his face. Inwardly excited and tense he stared straight ahead, and although he perceived his surroundings he could not be brought to converse, but just continued staring.

Another high dosage effect is the intensification of affective excitement to a pathologically maximal pitch. The resulting behaviour regresses to the preverbal stage, primitive instinct behaviour as described for psychoses by PLOOG and, using the notion of motoric stencils, by KRETSCHMER, BENTE and WIESER. It becomes clear that this effect really results from the extreme psychophysical excitement. I have shown elsewhere that catatonic excitement, this tense stupor, must be interpreted as such a racing of the psychic system.

Along with this aspect of functional psychopathology this example also clearly shows the part played by parameter 6, the inner psychic condition of the subject. The particular symptom formation in the experimental psychosis is certainly not random, but rather determined by the subject's psychodynamic constellations in a verifiable manner. The stereotyped biting of the subject in the case here can definitely be taken as oral aggression, associated with his strong psychic inhibitions with regard to normal oral functioning. He suffered from a severe stutter-neurosis which we know originated in an insufficient release of his oral-agressive tendencies. From the abundance of empiro-clinical experience which we share with other authors we feel justified in saying that, as in this example, the subject's latent dynamical tendencies are ac-

tivated by hallucinogens and lead to experienced phenomena, which may often even be observed from outside. What is found for the motoric impulse in the catatonic syndrome also appears here in the content of hallucinations. To anyone who has worked in this field this is a matter of everyday experience, verified in numerous publications on the activation of unconscious content.

This interesting function of, say LSD 25 and psilocybin attains its greatest clarity in the thoroughly realistic reawakening of early childhood experience, in so-called age-regression. The often puzzling fact that the formal phenomena and content of experimental psychoses are completely different even in repeated intoxication of the same person also has the same roots. For, in every session new subconscious content and dynamics are activated, these having been latent previously. I have suggested the expression "activation of dynamic control systems" as being suitable for this phenomenon. For indeed, such dynamic roots really control the subject throughout an entire intoxication or longer, holding him in a constant direction and making a certain selection of the content of his experiences. These quite interesting results have thus far been given but little notice in the mainstream of clinical psychiatry.

This aspect of hallucinogenic effect leads of itself to the third point of my discussion, concerned with the question of therapeutic value of hallucinogens. As much as I admired THUILLIER's witty and brilliantly prepared talk, I must unfortunately disagree absolutely with his remarks on this point. The hallucinogens have an eminent therapeutic value. This value, however, is not to be found in the domain of the usual pharmacotherapy, but rather in the very active support of psychotherapy based on depth psychology. As to the theoretical questions involved, I must limit myself to the already mentioned activation of subconscious dynamics. A well-known German psychiatrist and psychotherapist coined the term "experimental psychoanalysis" under the impression of the therapeutic effect of these drugs.

This opinion cannot be forced on anyone. Yet, more than seventy publications in numerous countries and a variety of congresses, including a meeting of the Royal Psychological Association here in England have considered this subject. Also at the VIth International Congress for Psychotherapy held in London this year several sections were devoted to this field. This treatment, which has become known as "psycholysis" or, in the United States, as "psychodelic therapy", is becoming more widespread. Seventeen treatment centers exist in Europe alone, of which four are here in England and four in Germany. Collective statistics show more than 1000 treated cases. These are primarily neuroses, abnormal reactions, perversions, borderline cases and alcoholism, more rarely, psychoses. Positive results were achieved in some 65% of all cases, including many serious cases previously incurable. Along with many others papers important results are found in those of MARTIN, ARENDSEN-HEIN, LEUNER, SANDISON, SPENCER and WHITELAW.