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Protocol for Pilot Project on Effect
of Drugs on Cerebral Function

1. Object:

- (a) To study the effect of drugs on the perception of sensory stimuli;
and
- (b) To observe the emotional responses to such changes in function.

The first drug selected is LSD-25 (Sandoz) - an ergot preparation which, in very minute doses, produces a toxic state with altered perceptions, emotional reactions and occasionally hallucinatory phenomena. Studies of perceptual changes in the visual, auditory, and somesthetic senses are planned. Special emphasis is to be placed on the more complex functions of spatial and temporal orientation; discrimination of size and shape; body image; and the perception of multiple simultaneous stimuli.

In the emotional sphere, the following questions are considered:

- (1) Are the emotional responses secondary to or simultaneous with the perceptual changes?
- (2) Are the responses consistent in repeated experiments in each subject? In each class of subjects?
- (3) Are the emotional responses related to personality structure in any predictable fashion? How?
- (4) Is there any relation of the response to drug action and the ability of the subject to utilize the mechanism of denial?

In addition, there are therapeutic considerations:

- (1) Does LSD have any effect on depressions?
- (2) Does LSD have any value in eliciting psychiatric material in blocked, repressed subjects?

2. Subjects:

The subjects are in three groups:

- (a) "Normal" controls - hospital personnel or hospitalized patients at a general hospital.
- (b) Psychiatric subjects at Hillside Hospital:
 - (1) Depression - psychotic and reactive.
 - (2) Schizophrenia.
 - (3) Neurotic.
- (c) Neurological subjects at Mt. Sinai Hospital:
 - (1) Cerebral disease, focal or diffuse.
 - (2) Spinal cord disease.
 - (3) Spinal root disease.

3. Method:

Each subject is to be tested in a similar fashion prior to drug ingestion; during the period of drug activity; and after. Subjects treated by EST and insulin are to be examined during and after the course of such treatment. Repeated sessions with each subject are planned. As the drug action has a duration of 2 to 5 hours, testing procedures may be extensive. The testing may be divided into three groups:

- (a) Neurological.
- (b) Medical.
- (c) Psychological.

3a. Neurological:

1. Routine neurological.
2. Visual.
Perception of color; mixed and ambiguous figures tachistoscopically exposed; and estimation of relative size and distance.
3. Tactile.
Double simultaneous stimulation of various modalities.
4. Auditory.
Perception of loudness; identification of sounds and estimation of time intervals.
5. Special studies of body image.

3b. Medical:

Observation of the subjects by members of the Department of Medicine has been requested (Dr. A. Blumberg) and is under consideration. Biochemical studies of hormonal studies secondary to drug activity is under consideration, with emphasis on the possible role of adrenal function in the reactions as measured by the pattern of ketosteroid excretion.

3c. Psychological:

Clinical psychological testing is considered an integral part of this survey. The cooperation of Dr. M. Gurvitz has been requested. An evaluation of personality structure and habitual methods of reaction to stress will be studied in each subject. In addition, special testing procedures to study the mechanism of denial are under study by a member of the psychology staff (Mr. Antinoph).

Specific testing procedures include the following tests:

- (a) Rorschach.
- (b) Bender Gestalt.
- (c) T.A.T.
- (d) Special tests for denial.

4. Supplies, Funds, Etc.:

The drugs have been made available to me for experimental purposes at no charge by Sandoz Pharmaceutical Company. Funds for the equipment necessary for testing have been placed at my disposal by the Neurological Research Fund of the Mt. Sinai Hospital.

The following items are requested from Hillside Hospital:

- (1) Office space and the use of one room in Treatment Dormitory during experimental days.
- (2) Availability of records and permission to request occasional cooperation of Nursing Department and of the Record Room staff.