

THE POSSIBILITY OF BEING UNCONSCIOUS OF THE PROCESSES WITHIN THE LIMITS OF THE SECOND SIGNAL SYSTEM

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The state of being unconscious is usually considered from the viewpoints of depth psychology, by relating it with the instinctive life of man. The purpose of the present work is to demonstrate, on material obtained by way of experimental pathopsychological studies, the role played by external influences on the formation of categories and performing reasonable (mindful) and practical acts, remaining beyond the field of clear consciousness. It is commonly believed that the latter phenomenon occurs in the so-called automatized acts, wherein the consciously elaborated, with maximal concentration of attention, working or other habit is gradually released from the control of conscious volition, with the latter participating merely in the calling into action (starting), respectively checking mechanism (act). Our investigations assume the task to elucidate the problem of the possibility for "non-participation" of consciousness in the process of producing complex conditioned-conditioned reflexes within the limits of the second signal system.

We studied a series comprising 230 patients affected with schizophrenia in various stages of the disease, but with active psychotic production. A method suggested by the author and elaborated in six variants was resorted to for the production of conditioned reflexes in patients; in four of the variants the conditioned reflex is not produced by a specific stimulant, but by generalization of a group of stimuli, i. e. by the notion including all stimuli referred to. In the most complicated variant, a complex conditioned-conditioned reflex is concerned which should be fully developed within the limits of the second signal system. The experimenter suggests to the subject examined an "arbitrary" answer to the words pronounced by him, with one of two possible words — for instance, denominations of musical tones, interjections and the like. A series of 30 verbal signals are fed, part of which might be unified in one, and another part — in a different idea (for example, animals and plants). The examinee should associate each of these notions to one of the indifferent words (in accordance with a program, previously formulated (drafted) by the experimenter). Following each verbal reaction, a verbal support is prompted ("right" or "incorrect"). In our opinion, the background of the experiment thus outlined in fact, represents a physiological pattern of inductive conclusion. In the remaining variants, the investigation is rendered simpler, passing to concrete-image stimuli, whilst in some of them the responsive verbal-expressive reaction is substituted for an ordinary motor reaction.

Merely 30 patients of the series investigated produce correctly conditioned reflexes with all the variants. Most of the schizophrenic patients produce

temporary associations at a lower level merely, although occasionally, the reverse phenomenon is also observed. However, in our case, merely the problem about being conscious of the conditioned reflexes is dealt with. Disorders in this respect were recorded in 65 patients.

It is well known from the studies of A. G. Ivanov-Smolenskiy and his school that impaired faculty of being conscious is possible equally insofar the newly developed conditioned reflex is concerned, as a whole, and of its separate components (stimulant, reaction and interrelationship between them) as well. Investigations on the erroneous verbal account have been reported, apart by A. G. Ivanov-Smolenskiy (2), also by N. N. Zaharova (1), Y. A. Povorinskiy (3), P. G. Smetannikov (4) and many others. In all the listed studies however, the production of comparatively simple conditioned reflexes is concerned, with utilization of elementary first signal stimuli and simple motor response reaction. Hence, the investigation of these processes at the level of the second signal system represents particular interest, i. e. using verbal stimuli and verbal-expressive reactions.

With our material five different variants are observed of impaired interrelationships between the first and second signal system, resp. between the different properties of the complicated stimulus and its complex (total) image, which in certain aspects correspond to the developmental stages of the conditioned reflex production and conscious perception.

First of all, awareness (conscious perception) of the conditioned stimulus proper occurs with its comprehension *ad integrum* and association to the corresponding logical category. The conscious perception is related by rule with reference of the ideal sensitive-perceptive image to a higher degree of cognition. Insofar the second signal stimulus is concerned, the real, complete conscious perception consists not in associating the verbal image to the concrete impressive image, but rather in its association with the corresponding notion. Doubtlessly, this by no means precludes a process of elective irradiation from the second to the first signal system which, by rule, exists and is likewise absolutely indispensable for the correct course of the cognitive (gnostic) process.

The subjects investigated are in a position in some instances (in 16 of our series) to be conscious of the stimulus — verbal or concretely imaginative (i. e. merely the afferent tract of the reflex arch), comprising also the achievement of its notional generalization regardless of whether or not a conditioned reflex was developed. In another group (15 patients) conscious perception occurs not of the essence of the complex stimulus as a whole, but rather of individual properties of the same: a generalization is developed exactly of these properties without reaching to the formation of the corresponding idea (for animals this is usually the property mobility, for living creatures in general — growth, for domestic needs — utility and the like). It is rather difficult to reach a decision in these cases whether the temporary association is established merely with the individual property or else the production of a notion results which remains as unrelated, outside the field of clear consciousness.

In 20 patients the conscious perception of the conditioned reflex as a whole was impaired. Irrespective of the impeccable reaction, the verbal account in some of them was entirely impossible, whereas in others — incorrect. In the latter case, usually, the correct assessment of the stimulus proper

suffered as well as the relationship between the same and the response reaction. Most frequently, the impairment referred to was noted in generalization of complex visual images of animals and inanimate objects and secondly, of verbal images. This is obviously, due to the greater vicinity of the second signal image to the notion. It is interesting to point out, furthermore, that in erroneous verbal account the patients which have understood the need of establishing a regular liaison between a group of stimuli and type of reaction, become mistakenly "conscious" of this relationship and thereby produce generalized groups on the basis of not essential or even not existing signs, eventually received from an individual stimulus, referred to the entire group. It is worth to note that in this case, the examinees virtually, react to the true generalization of ideas (of which, however, they are unconscious) and by no means to the grouping of stimuli, not corresponding to reality and performed during the verbal account (for instance, plants are identified with foodstuff although, among them there are also guelder rose, birch and the like; the stimuli are grouped by the noun gender although, in practice, their meaning essence is reacted to; the visual images are grouped by colours, the verbal — by phonetical peculiarities and so on). Hence, "subconsciously" not merely elementary, temporary associations might be produced between a specific stimulus (for instance, a bell) and a simple act (for instance, pressing the button), but also rather complex mental processes of analysis and synthesis, reasoning and deduction might be performed.

Of still greater interest is the last group of 25 patients with which, during the verbal account it was established that the corresponding conditioned reflex was developed without finding expression in the necessary verbal-expressive or motor reactions in the course of the experimental investigation proper. In some of the patients we are prone to accept that the conditioned reflex was developed at the end of the testing session (in similar cases, the examinees usually state that they "only now" have understood what they were expected to do or say). More frequently, anyway, the patients state in their verbal account that they have reacted in an indispensable pattern, clearly formulating the drafted by the experimentator temporary association, regardless of the fact that during the examination, their responses have been "arbitrary", chaotic. In this case the interference should be assumed of two defective mechanisms: on one hand, the developed in the second signal system temporary association does not find adequate expression in the response reaction; on the other, the possibility for control by way of opposite association is impaired — the patient fails to become conscious of his own reactions correctly. This is an indication that the dissociation between the functions of the two signal systems might be two-fold: not merely the processes in the first signal system might remain outside the conscious perception, but the formation of new temporary associations might be accomplished at the level of the second signal system, without this inducing an adequate reflex in the first signal system and in the subcortical motor mechanisms. Moreover, the patient might be unconscious or mistakenly conscious of his own speech-expressive reactions.

And yet, the barrier between the conscious and unconscious is by no means unsurmountable. It is emphasized, on the basis of personal experience that

with long-term investigation and adequate allusion on behalf of the experimenter, the unconscious could easily become conscious, and the errors made accordingly corrected.

The pathopsychological observations reported might have an essential bearing not merely on psychopathology, but on general psychology as well. It is sufficient to make analogy between the data herein reported and certain characteristic features of psychic life during sleep to find out that they are inherent not merely to the state of schizophrenic "splitting".

Thus, outside the field of clear consciousness new conditioned associations, comprising also conditioned-conditioned second signal associations (which are the basis of the inductive conclusion), might be accomplished. On the other hand, the failure in realization of response reactions is possible in properly developed complex associations. In our opinion, the latter fact is not an indication that an independent unconscious category is formed. Not being conscious of the conditioned reflex as a whole or of single elements of the same constitutes merely a step in the process of developing complex conditioned reflexes, its lower phase, which in conformity with rule, proceeds into the stage of conscious state. The passage of the social experience, accumulated and concentrated within the respective cerebral traces, from the unconscious to conscious and vice versa — this is a perpetual dynamic equilibrium on which our psychic life is based.

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О ВОЗМОЖНОСТИ НЕОСОЗНАВАНИЯ ПРОЦЕССОВ В ПРЕДЕЛАХ ВТОРОЙ СИГНАЛЬНОЙ СИСТЕМЫ

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РЕЗЮМЕ

Проведено исследование 230 больных параноидной шизофренией при помощи собственной методики для образования условных рефлексов с участием второй сигнальной системы. На основании некоторых из полученных результатов, автор делает вывод, что создание новых, в том числе и сложных условно-условных второсигнальных связей, может происходить и вне поля ясного сознания. С другой стороны, при правильно образованных сложных связях, могут остаться нереализованы ответные реакции. Эти явления толкуются не как формирование отдельной категории бессознательного, а как этап, как более низшая стадия в процессе образования сложных условных рефлексов, которые закономерно переходят в стадию осознания.