

- To replace the Conceptualization Centre in the speech schema by arbitrary, localized apperceptions
- Registration and objective in the speech schema
- Generalization of the speech schema
- Types of movement: expressive, reactive, and initiative movements
- Disturbance of secondary identification is induced by psychosensory, psychomotor, or intrapsychic means

Lecture

Gentlemen!

So far, restricting our attention to the area of speech, we have contrasted brain disease and mental illness. Speech pathology is one of the best understood topics amongst brain diseases. Likewise, spoken expressions encompass so many of the symptoms of mental illnesses that by themselves they entitle us to view mental patients from this sole perspective. Nevertheless, I hope that in the following more extensive discussion, your understanding will be aided by starting from the simplified conditions of our example.

We must examine further the (arbitrary) fiction of the notional Conceptualization Centre *B*. As our knowledge of aphasia has developed, this preliminary term was clearly essential at an

initial stage of our understanding. In the last lecture, I was able to take you back to its true meaning, but only in outline. Let me explain this allusion in more detail.

As already mentioned when discussing the central projection field, we can take it as established that memory traces and ideas are localized, that is, they are linked, according to their content, with different locations in the cerebral cortex. Apart from such localization in the aphasia schema, one can reasonably regard the receiver and sender of those telegrams as being linked to the notional Conceptualization Centre *B*, that is, with all the rest of the cerebral cortex and, as we shall see, its system of association connections. This would artificially separate the two projection fields *s* and *m* from the totality of all other projection fields. Such separation within the cortex is the basis for differentiating the areas for the two projection fields *s* and *m* (whether we stress their subcortical links or their transcortical links beyond the projection fields). In this illustration, the anatomical view was that the aggregate of transcortical pathways *sB* and *mB* formed discrete pathways vulnerable to discrete lesions localized to the neighbourhood of the two projection fields, while beyond there the pathways had to be seen as radiating out to many disparate areas of the cerebral cortex. The discovery of the clinical picture of transcortical motor and sensory aphasia seemingly relied by sheer chance on the fact that these lesions appeared to occupy

precisely the postulated site. It is easily grasped that these rare cases were initially attributed to focal diseases of the brain. On the other hand, observation of the patient I already introduced to you proved that such clinical pictures can arise during the course of a typical mental illness, thus forming a natural transition to mental illnesses.

It is essential for our purpose that we go beyond such rare occurrences. However, if we stay with that initial example, and hold fast to the principle of localized representation, then we can conveniently split the centre *B* into two localized representations linked by an association pathway: We shall call them *A* and *Z*. *A*, the *source representation* [W], is linked with the sensory speech field by an association pathway *sA*. *Z*, the *destination representation* [W], is linked with the motor projection field for speech by an identical pathway *Zm*. *AZ* is the association pathway between *A* and *Z*. Altering the schema in such a way corresponds to some extent to processing of an arithmetical problem presented to a patient: Understanding the problem takes place as registration, in *A*; the solution corresponds with the destination representation *Z*; and only when the solution is found does activation of *m* take place. Between task and solution, complex thought processes can proceed, from which it becomes clear that the association pathway *AZ* itself can be regarded as subdivided many times over. We need not assume that the entire process normally follows a set pattern, virtually in preformed pathways, so that the result is predictable. However, we can tentatively assume that it behaves in just this manner in response to any random question; understanding the question is represented in *A*, the meaning of the answer by *Z*, and the intermediate in-series pathway *AZ* makes sense of the case, so that the answer develops from a more or less simple deliberation. If we do not expect a speaker to lead us astray, then we must recognize that in this case, in a normal person, answers will arise in a totally determined manner, to be predicted with approximate accuracy. The regularity hereby observed is based, as we shall see later, on the principle of 'well-worn pathways' [Ed].

This example provides opportunity for expansion, which can become a founding principle for

the entire symptomatology of mental illnesses. Instead of projection fields of speech, we have only to insert any other projection field. In place of spoken expression, substitute any randomly expressed movement, and *m* represents the projection field in question, depending on whether the movement takes place in arm, leg, trunk, etc. As is generally known, central projection fields for such movements are contained in the so-called motor zone of the cerebral cortex. Instead of the sensory speech field, the projection field for any arbitrary sensory awareness could take its place. Just the same takes place in vision, for example, as in understanding the speech sounds a person utters. By this means, primary identification occurs in the central projection field of the visual system, in order to comprehend what is seen; but transmission is required to other projection fields (for secondary identification). Without this secondary process, the visual impression is lost to the recipient, remaining unintelligible, just as in the case of transcortical sensory aphasia for the sense of hearing. The same is true for all sensory impressions, as a little thought will confirm.

We quickly see that such a generalization is permitted—indeed recommended—by a more detailed look at our original example. The answer that I expect from the patient need not be spoken—it can be given to me in writing or through silent facial expressions and gestures, or by employing any arbitrary response. Depending on the muscles used for performance, the projection field *m* will have different impact, and correspond with different cortical sites. In other words, my question and my task can be carried out without a word being uttered, whether in writing, or through the spoken word, by expressive hand movements and so on.

I said earlier that our schema, with its modifications, can be used to derive the entire symptomatology of a psychiatric patient. I should have expressed myself more precisely, by referring to symptoms just in so far as they are shown in that patient's movements. However, this limitation is necessary only if we subtract from those movements (admittedly using layman's terms and manner of understanding) speech, facial expressions, demeanour, and all those gestures

included in such an expression. Yet even in those cases, everything can be reduced to movement, by which we assess the internal processing of a patient; and for scientific observation, to disregard this fact might be a real error. The more experience you have with psychiatric patients, and come to recognize their symptoms, the more you become convinced that, in the end, there is nothing else to find and observe, than movement, and that the whole pathology of the mentally ill consists of nothing more than peculiarities of their motor behaviour; for obviously, in a given case, a breakdown in movement can be just as characteristic as previously intact movements.

We exclude here only intentional movements of which other people are aware before they reach the consciousness of the patient himself or herself. If these movements amount to speech, we face the same situation although more tangibly and obviously than for other movements. Symptomatology of psychiatric patients therefore has movements as its focus, insofar as they appear to be functions of the organ of consciousness, in other words, the organ of association. Here we encounter the only limitation on the generality of the above sentence: Of course, some movements are independent of consciousness, such as those controlled by the autonomic nervous system, those of the heart, respiration, vessel walls, and viscera; and most reflex movements belong here. As we will see later, these movements can also be affected in mental patients, although they do not form the actual focus of observation. We will further find that, in odd cases, shifts of body temperature and, in almost all cases, of feeding pattern as expressed by body mass are important symptoms. However the exceptions are minor, and should be seen as secondary *sequelae* [Ed], which consistently depend on the patient's movements.

Provisionally then, we can draw an abstraction from the numerous exceptions, and can thus focus more closely on movements as functions of the organ of consciousness. This requires us to classify movements in a pragmatic way. We can conveniently differentiate between 'expressive movements' [Ed], 'reactive movements' [Ed], and 'initiative movements' [Ed]. As we shall see,

this classification clearly has the advantage of encompassing the totality of all possible movements, and is thus preferable to Meynert's [1] classification (however far-reaching and fruitful the latter proves to be in other ways) into movements of defence and attack. However, our classification fails in one respect and needs improvement, in that sharp separation of the three different types of movement is often impossible. Inevitably some movements in one area fall also into another area, so that, depending on the observer's point of view, there is dispute over the class to which a particular example of movement belongs. Despite this, we provisionally retain the classification, because it proves useful in the psychiatry clinic.

By the term 'expressive movements' [Ed], we mean, above all, movements through which people's Affect and frame of mind can be recognized. Indeed, speech movements primarily serve this purpose, although not exclusively; and insofar as they serve such a purpose, we should include speech movements in the broadest sense, for example, wails and moans of pain. Most exclamations, as is well known, are words that serve this purpose very well. Laughing and whining are specific expressive movements, as are all facial expressions. Moreover, expression in the face, even when it is *not* [W] in motion, arises from particular muscle actions; likewise posture of the whole body, by the same token, is expressive, just as are words or facial expressions, in revealing a person's state of mind and emotional state. Movements of the entire body serving to express joy, cheerfulness, high spirits, satisfaction, scorn, anger, fear, grief, anguish, despair, hope, hatred, and love are familiar and sufficiently expressive that it would be superfluous to describe them here. Normally the face of an alert man is continually enlivened by an expression; so we recognize *lack* [Ed] of expression as a significant symptom.

'Reactive movements' [Ed] are those arising from actual external stimuli. When a person answers a question, apart from the content of the reply, the answer can always be viewed as a reactive movement. Moreover an answer that is not made up of words but of other gestures—when,

for example, the person questioned puts his finger to his lips in a meaningful manner—comes under the definition of a reactive movement. Failure to answer can, in many cases, be taken as a significant symptom. Amongst reactive movements of particular importance in the psychiatric clinic are behaviour of patients: during a physical examination; towards the minor services of the waiting staff; to requests of any kind; to the approach and reception of the doctor; and to the whole unfamiliar situation in rooms of an institution—these merit particular consideration. In addition, expressions of movement that are essential to gratifying bodily needs (even when they can be traced back to internal stimuli) must be regarded as reactive movements. It may, however, be equally valid to include the last-named class of movement amongst initiative movements, and again, many previously mentioned movements can be classed as expressive movements. In any case it can be reiterated that, in psychiatric patients, absence of reactive movements is often just as characteristic and valuable as a symptom, as their aberrant modification.

Amongst ‘initiative movements’ [Ed] we refer to all movements driven by personal motives, rather than by an external stimulus. This negative definition includes some expressive movements, and some reactive movements. In consequence, for expressive movements, we should always assess the extent to which they belong with initiative or reactive movements. One might ask whether there *are* [W] actual initiative movements, that is, ones which arise without *any* external stimulus, since usually some kind of external trigger can be found for virtually any spontaneous action. However, since such events often are no more than opportune moments connected to prevailing internal motives, identifying them as initiative movements can be justified. In general, initiative movements tend to consist of whole series of individual movements, and can then be referred to as actions. The whole behaviour, demeanour, and ‘the doing and the allowing’ [W] of an individual in given situations—collectively, all his expressions by means of movement—insofar as they are neither expressive nor reactive movements, belong amongst the initiative movements.

Nervous excitation, which takes place along the pathway $sAZm$ can be likened to a reflex process, and we can designate this pathway as a ‘psychic reflex arc’ [W]. The movement activated from m then appears as the result—a discernible consequence—of this activation. Clinical methods in psychiatry consist of studying the end result in order to reveal the process from which it originates.

You will notice at once that it is actually only reactive movements that can be compared with reflex processes in the manner outlined. These may, as in the initial example, be a spoken word or other arbitrary movement; it is always taken as completely spontaneous, yet still the consequence of an external stimulus—one based again on motor processes. However, one can ask: What is the situation for the other types of movement—expressive movements and initiative movements? Obviously, these can be seen from the same perspective; for, quite apart from the question raised about initiative movements, whether they arise totally without external triggers, we can fairly replace external stimuli by memory traces of past stimuli. When an external stimulus is absent, we can regard such memory traces as initial links, with movement as the terminal link in the psychic reflex arc. We can even go so far as to regard movement in progress as evidence of this assumption. Movement without *any* [Ed] kind of cause is inconceivable; yet a visible cause *is* [W] clearly absent. Therefore only a form of ‘energy’, accumulated somewhere, can induce movement that does actually arise. As we will see later, memory traces *are* [W] such sources of accumulated energy.

From these preliminary remarks we can add to our learning about aberrant disturbance of movement observed in mentally ill people. They are all based on disturbance of secondary identification, as demonstrated above. However, I remind you that we have considered not only the relationship from s to A , the projection field nearest to registration, but also the activation of Z to the motor projection field m , operating in the reverse direction. We were justified in this shift because the pathway Zm is an association pathway, as is sA , and the physical processes taking place through such association pathways should always be the

same, regardless of their direction. In like manner we can also include the relationship between *A* and *Z* for secondary identification.

Since all these are nerve pathways, abnormalities of excitability or ability to conduct signals are always the sole basis for disturbance of secondary identification. Three cases cover all possibilities: reduced excitability or conduction ability; increased excitability; and aberrant excitability. We label the pathway *sA* as psychosensory; *Zm* as psychomotor; and *ZA* as intrapsychic. The possible cases can then be summarized as follows:

Psychosensory	Psychomotor	Intrapsychic
Anaesthesia	Akinesia	Loss of function
Hyperaesthesia	Hyperkinesia	Hyperfunction
Paraesthesia	Parakinesia	Parafunction

One could dispute this tabulation on the grounds that these are nothing more than disturbances of movement we encounter in mental patients, as I myself emphasized, and that therefore, the totality of symptoms is exhausted just by three cases—hyperkinesia, akinesia, and parakinesia. This objection is partly true, and requires a thorough explanation. The easiest way to do this is to return to our starting point, the example of speech. When a patient is silent and we would expect him or her to speak, we can interpret this symptom as a circumscribed form of akinesia restricted to speech. If the presenting symptom is an urge to talk, then by the same token this is a circumscribed form of hyperkinesia. If, on the other hand, his or her response is nonsensical speech, we could rightly regard this as a symptom of parakinesia. Here, however, one would need a more detailed account for each of these, because misunderstanding is to be expected.

We will always be forced, on practical grounds, to distinguish two totally different aspects of speech: active movement as such, and the content of the spoken words. However, since there may be abnormalities of active movements or, as we can label it, the formal part of speech, then it is more accurate to use the word parakinesia only in this narrower sense. Examples are the symptom of compulsive speech and the monotonous word repetition—the so-called verbigeration. The same reflection that the content portion must be differentiated from the formal part of a movement applies to all expressive movements, and also to reactive and initiative movements. Since patients may gabble a great deal of nonsense using formally correct speech, then the feelings expressed, despite having quite correct form, can still be aberrant; and so can their actions be formally correct but incorrect in content. In these cases therefore, we need not assume any disturbance of psychomotor identification, but are forced to seek disturbance further back in the reflex arc. This corresponds to common idiom, and the habit of completely ignoring a patient's mechanism of sharing his or her internal thoughts, expressing feelings, and so on as self-evident. After this discussion, it becomes comprehensible that, among mentally-ill persons, we frequently see symptoms of disturbed content identification, even though the movement mechanism itself is fully intact.

Reference

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