

## REMARKS ON TESTING CRANIAL INJURY CASES

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The publication of Earl's "Subnormal Personalities" has drawn attention to the views of a psychiatrist who has been described as "one, who had, perhaps, the most original mind of those who have up to now engaged in the study of subnormality."

The following "Remarks" were probably never intended for publication. They were written in 1940, stimulated presumably by the "Study of the Impairment of 'Abstract Behaviour' in schizophrenic patients" (Bolles and Goldstein, 1938, *Psych. Quarterly*), and were more in the nature of "thinking aloud" than presenting a carefully worked out argument. The paper contains, however, so much stimulating and challenging thought regarding the interpretation and application of test results that we feel that it merits a wide audience and we publish therefore this posthumous paper which gives incidentally some glimpses of C. J. C. Earl's caustic wit.

On the main problem my views on intelligence are those of Goldstein, but with certain reservations. I do not accept as inevitable the limitations of his method of examination, though I know it is far the best to date. The following remarks are made in the hope of broadening our views and improving the method. Elsewhere Goldstein stresses the point that you only find what you look for. Does he look for enough? He divides thinking into categorical and concrete and pays no attention to intermediate types nor to the possibility of quite different ones. I personally dislike abstract dichotomies and believe them dangerous, and I hope it may be possible to make a diagnosis before the level of failure of physical orientation is threatened, i.e., before the organism is threatened with catastrophe in its physical environment.

Philosophically there is no proof that categorical thinking is the "highest" function of the nervous system and its **only** "highest" function. Examining the nature of thinking one finds that subject to the limitations of human thought the essence of cognition is meaning. We may identify meaning here with McCurdy's use of it in his pattern psychology. Meaning depends on the richness of the imagery related to what is in the focus of consciousness, not whether that relationship is logical or not. Logic cannot be separated from emotion except epistemologically. We deal here not with separate categories such as concrete-categorical, affective-intellectual, and so on, but with a psychical matrix. Intelligence is merely a term for the complexity of that matrix unless you accept an arbitrary definition and spend the rest of your life playing a game of chess according to the rules you have devised for yourself. Individuals vary not only in the global sense but in the proportionate richness of the cognitive and affective sides of the matrix. The two tend to go together approximately but not always. The epileptic and the constitutional hysteric, for instance, may be intelligent in a sense.

On the Terman Test they **are** intelligent, yet one talks of their shallow or sterile intellect and one talks rightly. Their emotional resonance is nil and their intelligence suffers for this. I have used tests on these people and I know. On the other hand many stupid people are intellectually poor, but their richness of affect helps them out. We must therefore consider complexity not only of cognitive but of emotional process and where "process" is impoverished we must assume affect and vice versa.

Turn now to emotional meanings. We start with an extremely crude level where a certain smell means "danger" or "food" or a certain sight means "sex." Or where washing the hands means relief from guilt, or even where flicking the fingers (in idiots) carries an emotional meaning too primitive for language to con-

vey. These are the "unconscious," "archaic" or "primitive symbolic" meanings. Is it certain — as Goldstein seems to think — that higher process necessitates a change in type from these meanings? Quite certainly the most logical categorical process has an emotional charge. You have only to talk to a fervent mathematician to suspect a neurotic basis for equations, and is it certain that (ab—pq) etc., is any more intelligent than "the white moon is sinking behind the white wave." ? Both need intelligence for their comprehension. Must we weigh both in the same psychological scale? We can only do so by abstracting an intellectual element from each and thereby creating a new abstraction to be called "intelligence." Why bother? Why not say both are highly complex processes of symbolism? One deals in the logical field — the other in the non-logical. Both use categories but they are categories of a different type.

Some years ago I travelled from Norwich with a fellow lecturer from a British Association meeting. I had lectured on Emotions of Imbecile Children; he on Statistical Techniques in Spiritualism. We found a common ground for talk in the relationship of emotion to intellect to the para-psychic to God (if any, for he was a mathematician). He was, I think, a little mad and some of his talk was pure algebra, but he was intellectual and interesting. I discussed mysticism (of which I know nothing) and supposed the apotheosis of archaic process through some other medium than logical thinking or contact with objective reality, and I pointed out the non-objective nature of noumena. He became wildly excited and after an overture on Einstein he produced a wonderful theory which has stayed with me ever since. He started from the Unity of Being and the Divine Purpose (always if any — for he was a mathematician) and went on to a wonderful theory of the existence of a general scheme of logic—probably beyond human understanding—of which Aristotelian logic is only a special case. I am afraid that the Thomists would disapprove. But consider the possibilities! We finally reached London drunk with debate and I nearly started contemplating Nirvana on Liverpool Street Station platform.

Now come back to intelligence. The conventional analogy is of a vertical — probably dictated by thinking of the cortex. The higher the vertical the more intellectual the process. The higher you go the fewer. But the cortex is non-specific, i.e., there is no reason to suppose that the most complex areas are designed for logical categorical thought only, but merely for the most complex degree of thought of any kind. In other words the highest areas are only quantitatively different from any other areas in the nervous system, as everyone knows since Henry Head (R.I.P.). Goldstein has yet to prove that his categories are the *only* highest.

Now if someone were extremely complex in neural organisation and yet quite unpractised or unacquainted with Aristotelian logic, what would happen? This is not a mere rhetorical question. It is fantastic to suppose that the cortex of human intelligence made a sudden jump in the 6th Century B.C. when the first Greek philosophers appeared. What is the position of Hindu philosophers, or European Mystics or Poets, etc.? The answer must be that the cortex determines the complexity of process but not its nature. And the same must be said of intelligence, unless we accept Terman and Spearman, who merely rehash St. Thomas Aquinas and do it badly. "The white moon" is far more complex than "You are the cream in my coffee," but it does not enter the field of purely logical relationships, although one can make a logical analysis of the symbolism of either line. With what results the reader, as a literary man, will know. So the poet may be as intelligent, i.e., as complex, as the scientist, the Priest of Ra as the Jesuit, and the Buddhist adept as the engineer and so on. The appreciation of abstract complexity is the essence of the thing, but not necessarily the categories of Goldstein.

This is more important for cranial injury work than it sounds. The brain has to be pretty hard hit when a man fails to put four blocks together or to sort coloured wool. If we could investigate other categories might we not pick things up much sooner? Must we stick to Goldstein's plane, or what would be the effect of brain injury respectively on W. B. Yeats, Arthur Askey, Epstein, Einstein, a private soldier, a mentally defective child, Dr. Aubrey Lewis, Professor Spearman and C. J. C. Earle? Must we reduce them all to a common level before we start? For if so, our neuro-psychiatry will remain punk! And must we wait until we understand the problems properly before we start? If so there would be no medicine today and precious little science. "You must not bathe until you have learnt to swim."

In other words if we take Goldstein seriously we **must examine affective complexity as well as cognitive**. And we should examine both together if we can. The only method at present for doing this is the Rorschach Test and I am not disturbed because it is not fully understood. Nor because it has been played with by fools; I note that Goldstein keeps a tame Rorschach Expert on the premises, and I believe that Piotrowski's Rorschach technique is as good **diagnostically** as Goldstein's method. Certainly I would rely on my own Rorschach findings rather than on the battery that Bolles and Goldstein used.

Now let's come back to poetry and science. When Goldstein talks of "consciousness" and "attitude" he means roughly "objective" and "subjective." Attitude, being affect-laden, may be regarded (for simplicity, though it is a fallacy here) as primary. We may talk of intelligent behaviour as depending upon and/or originating from the "Mass of conative affective similars and dissimilars" of Thurstone, the "flux of unconscious imagery" of McCurdy, or the "unconscious" of Freud (whichever we do we must, as scientists, tie it all down in the end to bodily orientation and movement). We talk of our simplest system of imaginal relationships as "magical" and as "becoming logical" as we go higher. But do they become "logical" because "logical" is in a higher category than "magical"? Or only because "logical" is more directly related to objective reality? May there not be another direction which imaginal process can take as it acquires complexity? What of the complexity of thought of a Buddhist trained to regard our objective reality as Maia or illusion?

All of this as an introduction has run away with the argument, but it is always in my mind when I talk of intelligence and it is a sufficient reason for me to believe no patient to have been tested unless a Rorschach has been done. A practical man may object that there will be few poets or mystics at a psychological test centre and for this one may thank God, but there may be simple country folk, and these have always interested me. I fancy they do not sort out their mental processes as we do. In them consciousness and attitude fuse almost completely. This applies to all simple folk, but I take the country man because he is likely to be potentially very intelligent and yet quite illiterate, especially in Ireland. When a Sligo peasant tells you it will rain he does not know whether he thinks this or only feels it; and if you cross examine him he rationalises. He is unaccustomed to logical expressions. Yet these same peasants, or some of them, have entered seminaries and become very distinguished Thomist Doctors. What function does the cortex of the "identical twin" of such a man fulfil? I believe that it could carry the highest intuitive, effective, mystical or Eastern categories of complexity. To say that it remains inactive is to deny science and God in one sentence.

Speculating with the freedom born of ignorance on the difference between complexity in "logical" thought and "magical" or "mystical," I would fancy that the latter proceeds by colligation, though it may make use of material learned logically, while the former proceeds by relation, though it certainly makes use of

beliefs held magically. Psycho-Analysts, Statisticians and other reptiles are examples of this. In logical thought symbols are related in a certain way, and each symbol has only one meaning at any one time. Logical propositions commonly start "Let x represent" and "x" may represent potatoes or petticoats, but only one at any one time. Starting thus simply one may reach the heights "per algebra ad astra."

Turn now to complexity of non-logical thought. Consider the writings of Æ. The thoughts conveyed are essentially abstract. They are conceptual in that they deal with a class of (mental) objects and not with a simple object. But the relationships which bind those objects into a class lie beyond the field of logic. The supreme example is the Buddhist discipline of the symbol Om. Æ discussed this at length with me and I only understood about one tenth of it, but I did realise that the common statement that the oriental mystic either believes that there is virtue in the repetition of the invocation itself, or uses it as a means of self-hypnosis, is quite wrong. By the practice of his discipline (which may be his logic), the symbol acquires for him a colossal degree of meaning by colligation, or by what we call colligation for want of understanding of the exact nature of the process. But the complexity of the process is as great as that of the Quantum theory.

Lastly one cannot deny the possibility of pure meaning, carried without symbols. The work of the Wurzburg school suggests it, and it may be the final secret of mystical experience. One must therefore distinguish between:—

- (a) Biologically adapted behaviour.
- (b) Aristotelian logical thinking.
- (c) Complexity of mental process, whether of a logical order or some other.
- (d) **Inherent** endowment.

The claim of many Test Psychologists to measure (d) is absurd. It is probably also fallacious to measure (a) because of the entry of social factors in civilised man; (b) can only be measured relative to a norm if the individual under test has had the life experience of the exact group taken as the norm. You can measure (c) if you like or if you think you can. I will certify you afterwards. The fact is we cannot and do not measure intelligence.

Bolles and Goldstein worked with classical cases and showed the inability of schizophrenes to take the abstract attitude. There are some criticisms of this work. Their mental defectives were all over thirty years of age and no further diagnosis is given than a Terman age. On Kohs' Block they were all said to be impressed with and concerned with colour to the exclusion of form more or less, but we are not told why. If they were simply schizothymes slightly deteriorated, as defectives so often are at that age, this may have been a sign of extra-tension, but it may have been syncretism as well and I think it was in some cases. Certainly my high-grade defectives are different. For many reasons I think it wise to be very careful indeed in attributing their results to pure low intelligence. Omitting the mental defectives, have they really shown an inability to take an abstract attitude? From their protocols I am doubtful. What is proved is an inability to shift from category to category, i.e., from form to colour. Even the demented schizophrenic can make a categorical concrete judgment in many cases, but having made it he cannot shift. When he is forcibly shifted, so to speak, he can again judge in the new category.

I think they deal with cases too advanced. I think that the earliest sign is an inability to shift from concrete to abstract, from objective to subjective, or vice versa. Now most normals can do this quite well, although the ability is enormously influenced by training (scientists are an example, and even where their ability to take a highly objective attitude without subjective influence is often confined to

their own science. One quite frequently meets scientists who have political views. (for instance). And normals know what attitude they are taking at any given moment. Schizophrenes do not and that is the essence of schizophrenic thought. Defectives of the higher grade also know what attitude they are taking unless the situation carries a high emotional charge, and even normals may break down here of course. Politics and economics are full of examples.

Bolles and Goldstein dealt with cases to some extent deteriorated. In the non-demented case the essence was expressed in a French Paper about five years ago. The writer said that the schizophrenic failed to distinguish between symbol and reality. As an example a schizophrenic boy of seven whom I saw played quite intelligently with clockwork toys. I had to wind them up for him because they were stiff. His behaviour did not differ from that of any other seven year old till he suddenly asked me to wind up a picture of an engine and make that go too. He had suddenly failed to distinguish symbols from concrete reality. Later on, having been talking to me and playing for some time, he lapsed into a subjective or dissociated state. I dropped a whole pile of telephone directories on the floor behind him, but his attitude did not shift.

Probably the very earliest of all signs is the failure to shift from subjective to objective and vice versa. If you present concrete objects, as Bolles and Goldstein and Vigotsky did, you tend to set up a concrete attitude in any patient. If his subjective attitude is too strong he may never even reach this stage. If he reaches it and then fails to shift to an abstract attitude you cannot say that he is incapable of abstract thinking, nor that his abstract thinking, as such, is poor. **All you can say is that he cannot shift.** And I think that the same thing happens in many peculiar temperaments and in some organic lesions. And I am sure this is what one should look for. Also the inability to recognise the failure to shift.

I think this loss of flexibility is more important than anyone has ever recognised and is common to many types of case, though the types differ in their cause and in the reaction to the loss, probably also in its mechanics.

Coming to more familiar ground from my point of view, the irregularity of development of the defective which I believe to occur may not be a developmental thing at all. The real intellectual defective fails to shift from concrete to abstract because he is incapable of abstract process. Not all cases show this. One boy, Harry, failed a lot because of syncretism. But was he syncretic because of incapacity for abstraction or because of a regressively determined emotional attitude interfering with a true objectivity? Certainly his failure in the Dearborn Test was emotional, i.e., anxious — to a great extent. Very good! Whatever the reason, he is syncretic and largely concrete. But in the Rorschach he suddenly produces the response of four hedgehogs drinking in Card 9. A superior original response! And the ship in full sail for Card 8. A first rate response, definitely abstract, in a card where there are difficulties of giving W!

Harry, like others, is capable — in certain circumstances — of a very high perceptual level and of abstract thought. Is inability to shift caused by interference from the subjective attitude? I believe it to be largely so.

Take Jack, a compulsive boy. Does he fail at the Dearborn formboard because he is compulsive, or does he become compulsive because of the difficulty of the formboard? His everyday attitude is not noticeably compulsive at all. Has an intellectual task some catastrophic significance for him which starts the compulsive trend? His sex life was compulsive and that compulsion was very easily broken (or more properly speaking — reversed). Must we not say that in both boys the defectiveness is not of potentiality but of **control**. That interference occurs, flexibility of attitude is lessened, and with it adaptation?

Take a third boy, Michael, who is good on the Dearborn Board. He does not fail in the abstract attitude at all, but in the subjective. Intellectual tasks have no terrors for him and he is highly adaptable, but in his subjective attitude he is hopeless. I suspect that like many schizothymes he tries to be logical in his emotion. Which is possibly why he is so anxious to be beaten for his sexual offences.

In the Knobs Test his adaptability found a way out. He licked the middle finger of his right hand and moistened each correct knob, when he found it in the second trial. Thereafter he leaned back and squinted along the knobs and picked the one which shone most. He told me the trick afterwards. Yet when his logic or adaptability breaks down he becomes pure baby.

Another type is the "viscous." He fails by a sort of perseveration of attitude. Push him into the right attitude and he is alright. The change over is the trouble.

Interference in neurotics comes when the subjective attitude surges up. Suppose a man to have a neurosis connected with a "beetle." If he is not intelligent he will find an intellectual test hard and may make the association "difficulty — unpleasant — the beetle," and away he goes. If he is intelligent he may probably say "Thank God, this is purely logical — no beetle here," and do very well. I believe many academic psychologists are taking just that attitude, which is why nothing will make them investigate personality except in mathematical symbols.

The earliest signs in intellectuals should occur in the subjective attitude and may occur in concrete before abstract things. The same will apply to the unstable as to the neurotic. The intelligent will be less bothered by the intellectual situation than the non-intelligent.

Lastly, methods: First of all orientation. Is one going to test "abstract thinking," "personality" or some other concept, or is one to go on testing Bill Brown and Jack Smith? When I started testing I was not aware of the huge difference, and I wasted a lot of time. For years now I have tested Bill Brown and Jack Smith and my views on psychological concepts have always started from the patient. I never let my view of the patient start from the scientific concept. If you want results of clinical value and want them reasonably quickly you have to start this way.

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