

# Doorway Papers by Arthur C. Custance

Part III: The Rise of Science: The Relationship Between Language and World View

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## Chapter 8

### HOW WE SPEAK ABOUT THINGS: THE INFLUENCES OF DIFFERING LANGUAGES

We have referred to the absence of abstract terms in non-Indo-European languages, and their abundance in both Sanskrit and the European languages.



The specificity of non-Indo-European languages has long been a constant source of surprise to the Westerner who meets it for the first time. It must determine their thought processes. If it does, it certainly prevents them from abstraction of the common elements in many situations. Even so, it is conceivable that their non-abstract world-view could be a perfectly valid one.

*How do world views differ?*

A modern Chinese philosopher, Chang Tung-San, was quoted as having said recently: <sup>26</sup>

Take Aristotelian logic, for example, which is evidently based on Greek grammar. The differences between Latin, French, English and German grammatical forms do not result in any difference between Aristotelian logic and their respective rules of reasoning, because they belong to the same Indo-European linguistic family.

26. Tung-San, Chang: quoted by Warren Weaver, " Science and People", *Science*, vol.122, Dec., 30, 1955, p.1258.

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Should this logic be applied to Chinese thought, however, it will prove inappropriate. This fact shows that Aristotelian logic is based on the Western system of language. Therefore we should not follow Western logicians in taking for granted that their logic is the Universal rule in human reasoning.

H. M. Tomlinson put it very appropriately when he said, "we see things not as they are, but as WE are."<sup>27</sup>

I am not acquainted with more than a few Middle-East languages -- and this only to the extent of having spent some years in the formal study of them. But I never learned to think in them -- an essential if one is to claim to have in any sense mastered a language. Some of those studied were, however, non-Indo-European, including Hebrew, Aramaic, and two in the Cuneiform Group. One is therefore forced to depend largely upon the conclusions of others in this area. However, there is no lack of authority for the statement that Sumerian, Egyptian, Chinese, and some

at least of the Semitic languages show a marked specificity and a lack of words for generalized concepts.

### *How vocabularies differ*

Thus Cassirer describes many of the languages of the American Indians, pointing out that they have <sup>28</sup>

. . . . an astounding variety of terms for particular actions, for instance for walking or striking. [Striking] a blow with the fist cannot be described with the same term as a blow with the palm, and a blow with a weapon requires another name than one with a whip or a rod. In his description of the Becker language, one idiom spoken by an Indian tribe in Central Brazil, Karl von den Steiner relates that each species of parrot and palm tree has its individual name, whereas there exists no name to express the genus 'parrot' or 'palm.' "The Bakairi," he asserts. "attach themselves, so much to the numerous particular notions that they take no interest in the common characteristics. They are choked in the abundance of the material and cannot manage it economically. They have only small coin, but in this they must be said to be excessively rich rather than poor."

In primitive civilizations the interest in the concrete and particular aspects of things necessarily prevails. . . . An interest in mere 'universals' is neither possible nor necessary in an Indian tribe.

27. Tomlinson, H.M., quoted by Warren Weaver, *ibid.*, p.1258.

28. Cassirer, E., *Essay on Man*, New Haven, CT, Yale University Press, 1948, p.135.

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It is enough, and it is more important, to distinguish objects by certain visible and palpable characteristics. In many languages a round thing cannot be treated in the same way as a square or oblong thing, for they belong to different genders. . . . In languages like the Bennett family, we find no less than twenty gender classes of nouns. In languages of aboriginal American tribes, as for instance the Algonquin, some objects belong to an animate gender, others to an inanimate gender.

The same slow process from concrete to abstract names can also be studied in the denomination of the qualities of things. In many language we find an abundance of colour names. Each individual shade of a given colour has its special name, whereas our general terms - blue, green, red, and so on - are missing. Colour names vary according to the nature of the objects: one word for grey for example may be used in speaking of wool or geese, another of horses, another of cattle, and still another in speaking of the hair of men and certain other animals.

Different numerals are used in connection with different classes of objects. Hammer-Purgstall, according to Cassirer, has written a paper in which he enumerates the various names for the Camel in Arabic. <sup>29</sup> There are no less than five to six thousand terms used in describing a camel; yet none of these gives us a

general biological concept. All express concrete details concerning the shape, the size, the colour, the age, and the gait of the animal. In Hebrew the same phenomenon often occurs, as in Job 4:10, 11 where the English has the word 'lion' five times, but the original Hebrew uses a different word every time! The old lion, the young lion, the roaring lion, and so forth, are not the same thing at all. . . .

In the new enlarged edition of H. G. Wells's *Outline of History*, brought up to date by Raymond Postgate, there is a useful statement respecting the difference between the Chinese language, and the English, for example. Thus, speaking broadly of South-eastern Asia where there is a group of related languages including Chinese, Burmese, Siamese, and Tibetan, this statement is made: <sup>30</sup>

29. Hammer-Purgstall: quoted by Cassirer, *ibid*, p.135.

30. Wells, Herbert, O, *Outline of History*, edited by Raymond Postgate, New York, NY, Doubleday, new enlarged edition, 1949, vol.1, p.150.

The difference between any of these Chinese tongues and more Western languages is profound.... The relation of words to each other is expressed by quite different methods from the Aryan methods. Chinese grammar is a thing different in nature from English grammar; it is a separate and different invention. Many writers declare there is no Chinese grammar at all, and that is true if we mean by grammar anything in the European sense of inflections and concords. Consequently any such thing as a literal translation from Chinese into English is an impossibility. The very method of the thought is different.

Their philosophy remains still largely a sealed book to the European on this account, and *vice versa*, because of the different nature of the expressions. We may give an illustration of this profound difference in method. The four Chinese characters indicating "affairs," "query," "imperative," and "old," placed in that order for example, represent the sentence "Why walk in the ancient ways?" The Chinaman thus gives the bare cores of his meaning: the Englishman gets to the sense by bold metaphor.

This quotation underscores, I think, the observation made by Multhauf in his review of Joseph Needham's work.

The difference in grammar and philosophy of non-Indo-European languages has been illustrated very forcibly by Levy-Bruhl. Without indicating the exact reference by page number, the following is a summary of his chapter on "The Mentality of Primitives in Relation to the Languages They Speak." <sup>31</sup>

The Klamath language, which may be taken to represent a large family of languages in Northern Australia shows a well marked tendency to delineate pictorially what it is desired to express. Thus a motion performed in a straight line is referred to differently from a motion performed sideways or obliquely or at a distance from the one speaking, circumstances which it would seldom occur to us to incorporate into the verbal form.

In the language of the Yahgans, there are 10,000 words, the number of which is considerably increased by the use of prefixes and suffixes to indicate where one

comes from or is going to, either north, south, east or west, and from above, below, outside or inside. According to one of the best authorities on the Yahgan of Terra del Fuegia, T. Bridges, these differences are almost inexhaustible. That is to say, they are not

31. Levy-Bruhl, Lucien, *How Natives Think*, translated by Lilian A. Clare, London, UK, Allen and Unwin, 1926, chapter 4, p.139-173.

limited merely to the points of the compass, but are influenced also by other circumstances surrounding the coming or going of the individual referred to, such for example as the time of the day.

At the other end of the world in South Africa, Livingstone found that verbs possessed the same power of expressing delicate shades of meaning. He is quoted as having said that it was not the want, but the superabundance of names that misled travellers. The terms used are so multifarious that even a good scholar will at times scarcely be able to catch anything more than the general tenor of the conversation. A score of words will be used to indicate different varieties of gait. One may walk leaning forward or backwards, or swaying from side to side, loungingly or smartly, staggeringly, swinging the arms or only one arm, head up or down or some other way. For each of these modes of walking there is a particular verb form, a clear indication that the people who use these forms of speech have overlooked what is common to the situation, i.e., 'walking,' and have been overcome by what is distinctive in each situation.

As Levy-Bruhl says, from these and many similar facts it is clear that the languages of primitive people express their ideas of things and actions in the precise fashion in which these are presented to the eye or the ear. They have a common tendency to describe, not the impression which the subject receives, but the shape and contour, the position and movement, the way of acting of objects in space -- in a word, all that can be immediately perceived and delineated. They try to unite the graphic and plastic elements of that which they desire to express, namely, the unique in each situation.

The Bantu native, for example, will scarcely ever be heard to use a vague expression such as "he has lost an eye." But having noticed which eye it was, and pointing to one of his own, he will say, "This is the eye he has lost!"

Levy-Bruhl quotes one authority as saying that while it is our aim to speak clearly and precisely, the American Indian's aim is to speak descriptively. We classify, he individualizes. For instance, the Delaware word *nadholineen* is composed of *nad*, a derivative of the verb 'to speak,' of *hol*, a boat: and *ineen*, which

is the verbal termination for the first person plural. It means 'find the boat for us.' It is the imperative of a verb expressing 'I am finding the boat for you, him, etc.,' which is conjugated like any other verb but always signifies "find the boat" and expresses a particular act having no general meaning at all. It does not mean 'find

any boat.' This is quite otherwise in Indo-European languages. The Latin *aedificio* does not mean 'I build a special edifice.' It means simply a liberated concept free of all attachment to any special situation, simply 'I build.'

Again, while it cannot be denied that those who speak these languages have a concept of hand or foot, etc., yet their concepts do not resemble ours. The hand or foot they imagine is always the hand or foot of the particular person whose hand or foot it is, and who must be delineated at the same time. In many Indian languages of North America there is no distinct word for eye, hand, arm, or any other parts or organs of the body. If an Indian were to find an arm that had fallen from an operating table, he would say, 'I have found his arm.' The Baikiri of Brazil do not say "'tongue," but always add a pronominal adjective, 'my tongue', 'your tongue', etc. Similarly in the Marshall Archipelago there is no generic word for 'father', the word never being used except in conjunction and applied to a particular person. The concept 'father' unattached, simply does not exist. This has been found to be true in the north-eastern provinces of India, and even when the possessive form of the sentence rendered the attachment of a pronoun unnecessary, the tendency to specialization was so strong that it would still be added.

Levy-Bruhl points out that this is a very common feature in primitive societies and helps us to understand how it is that we find such complicated degrees of relationship between peoples and possessions. The European tries to conceive of these and rationalize them in the abstract, but the native never envisages them in this way.

In Australia there are no generic terms such as tree, fish, bird, etc., although specific words are applied to every variety of tree, fish, or bird. The Tasmanians had no words to represent abstract ideas and though they could denote by name every variety of gum tree or bush, they had no word for 'tree.'

In the Bismark Archipelago, there are no names for colours. Colour is always indicated by comparing two objects together.

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The South American Indian has particular names for every type of monkey and palm and such objects as interest them. But it is in vain to seek among them words for the abstract idea of 'plant' as opposed to 'animal.' In California, the natives have a separate name for every oak, pine, or grass, but no word for oak, pine or grass as a species.

The Australian aborigines have names for almost every minute portion of the human body, but in asking for the arm, the stranger would get the name for the upper arm, another for the lower arm, another for the right arm and another for the left. In this English sentence the word 'arm' occurs four times and once by implication. It would not occur more than once in Australian, if it occurred at all.

Turning to the north, the Lapps have a great many terms to denote various kinds of reindeer according to their age. There are twenty words for ice, eleven words for cold, and forty-one words for snow in all its forms!

In Southern Australia every range of mountains has its name and every hill in the range, so that the black man can state the precise mountain or hill in an extensive

range. They have names for all the conspicuous stars, for every feature of the ground, every swamp and every bend of a river, but no word for 'star' or 'hill' or 'river.'

In all these cases the conclusion that one must draw seems to be the same. These people are intensely aware of the individual, the unique, the specific: but they have not abstracted the general. They have not classified objects nor categorized experience. Everything known and experienced is concrete, isolated, uniquely individual. Moreover, it is a general rule that the more intense their interest, the more profuse their vocabulary. Thus the Aymara Indians of Peru, to whom the potato is of great importance, have over 209 words for it!

Miriam Chapin states that in one of the Australian dialects (the Kamilaroi) there are a dozen words for kinds of snakes but none for 'snake' as a concept.<sup>32</sup> In fact you just cannot ask a man if he has seen a snake. You have to ask him if he saw a Nurai or black snake, or a Kaleboi or brown snake - and trust that

32. Chapin, Miriam, *How People Talk*, Toronto, ON, Longmans Green, 1947, p.27.

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if it was a green snake he will think it interesting enough to mention the fact. Moreover, one could not actually ask about a snake at all, it would have to be **THE** snake - i.e., the one you are asking about!

### *The "tyranny of words"*

From all this it is clear that at least in so far as primitive non-Indo-European languages are concerned word-forms are a barrier to the development of the kind of mental constructs essential to scientific thinking. We may be permitted to draw the conclusion perhaps that since the high civilizations of non-Indo-European origin also took this same view of Nature and stopped there, that their languages were similarly structured and a barrier to further development. This seems certainly to have been the case with the high Middle American Cultures whose languages are still preserved in large measure in Mexico and in the Peruvian highlands. At any rate, of all the Middle East civilizations one generalization can be made, namely that they did not categorize. On this point, Farrington has said:<sup>33</sup>

It may be remarked . . . that we have as yet no proof, in all this evidence from technique, of the attempt to organize even a particular branch of knowledge in a scientific way. The technical achievement itself is not proof of the power of conscious abstraction, of the capacity to detect general laws underlying the variety of phenomena and to utilize these general conceptions for the organization of knowledge.

To put the point in another way, we have no evidence . . . that they were attempting to classify . . . that they were asking how one thing could apparently change into another, how bread for instance, which a man ate could turn into flesh and blood. . . . We have no certain proof . . . of that kind of curiosity and that gift for speculation which are necessary for the creation of science in the full sense.

In this statement Farrington has in mind particularly the Egyptians, but because the tenor of his remarks shows that he was only using them as an illustration of the Middle East in general, I have taken

33. Farrington, B., *Science in Antiquity*, Oxford, UK, Home University Library, 1947, p.15.

the liberty of omitting their name in the quotation. In any case Frankfort follows Farrington in this view, and explicitly extends it to the Mesopotamian plains, as well as to the Hebrew people.

In the case of the American Indian and his differentiation by words between a man walking and a man running, it is clear that the Indian is noticing the distinct aspect of the situation, the walking as opposed to the running, not the fact that a man is involved in both instances. Because we notice what is common to the two situations, our sentence would contain (and does contain in the illustration above) the word 'man' as a common subject. In Cuneiform there is the same tendency to be concrete; for example, there are at least nine words which are completely different in form, for the word 'force' in Assyrian, which are to us readily replaced by the single word. We note the underlying concept of the word and make it apply to nine different situations at least, simply because these situations seem to us to have this concept in common. We speak of using force (physical), of a forceful personality (will), of the force of an argument (logic), of a force of men (number), and of the force of a play (its dramatic impact). And so on. An Assyrian would evidently not have made this 'mistake.' To him, this would have seemed hopelessly confusing for evidently he would not have seen that there really was anything common in these concepts. Nor would a modern Hopi.

It is because words were so wedded specifically to situations that belief in word-magic arose. The word is the thing, the situation, the person. Names are people. It is not merely that people have names. This is the essential foundation of libel in a social context, and of blasphemy in a religious one. To change a name is literally to change the person, and in many unexpected ways this concept is found all over the world, even in a psychiatric ward in America where it cannot possibly have been 'learned' from someone else. <sup>34</sup>

According to Cassirer, Roman slaves had no name, because they were literally nonentities, a consideration which Roman law took into account. <sup>35</sup> In almost all primitive societies, a man's real name is known only to a few very close friends. A man goes by a nickname most of the time - a word, chosen by his fellows or himself, standing for the whole man in a unique situation. His real name is kept secret, for whoever can get hold of it, has obtained power over the possessor just by speaking it.

34. Bettelheim, Bruno, "Schizophrenic Art: a Case Study," *Scientific American*, Apr., 1952, p.30-34, especially p.32.

35. Cassirer, Ernst, *Language and Myth*, New York, NY, Dover Publications, 1946, p.51.

We have a number of pottery bowls which Egyptian kings of the Middle Kingdom had inscribed with the names of hostile tribes in Palestine, Libya, and Nubia, with the names of their rulers, and with the names of certain Egyptian rebels. These bowls were then smashed at a ritual in the express hope that, like the vessels, the owners of the names would similarly be destroyed.

This has been one of Cassirer's greatest concerns -- the wedding of the word to the person or the thing, or even the whole situation. The bondage, at least among primitive people, he holds to be absolute. The attention is riveted to the immediate experience; the sensible present, as he puts it, is so great that everything else dwindles before it. A person whose apprehension is under this kind of 'spell,' is as though the rest of the world were annihilated. Any possibility of noting things in the present situation as being related or common to situations elsewhere experienced cannot possibly be recognized because the other situations no longer exist at all. So Cassirer says: <sup>36</sup>

The ego is spending all its energy on this single object, lives in it, loses itself in it. Instead of widening of intuitive experience, we find here its extreme limitations; instead of expansion that would lead through greater and greater spheres of being, we have here an impulse toward concentration; instead of extensive distribution, intensive compression.

In such an attitude of mind there is no room for other relevancies, no energy for abstraction, no search for classes, no creation of generalizations, no perceiving of categories.

In some strange way, Indo-Europeans somehow *broke* this bondage, this "tyranny of words", <sup>37</sup> as it has been called. With us the word or sound or symbol stands *for* the object or situation, i.e., in place of it. It stands between us and the thing as a handle by which we can grasp it and manipulate it. We hold the situation, rather than being held by it.

In other Cultures, the symbol was (or is) the thing. This is what largely accounts for the extraordinary profusion of signs and symbols in the lexicographies of all these high Cultures of non-Indo-European origin

36. Cassirer, E., *ibid.* p.33.

37. Chase, Stuart, *The Tyranny of Words*, New York, NY, Harcourt, Brace, 1938.

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which developed writing. This applies to the Sumerian cuneiform and its successors the Babylonian and Assyrian, to the Egyptian hieroglyphics, to the Hittite script, to the Chinese, quite possibly to the Indus Valley script, and similarly to that of the Mayas of Central America. They might simplify each character a little to save labour -- but they did not reduce the number of signs, except perhaps where some sign was no longer used or required. In fact they became in China almost unmanageable by reason of their number, one estimate being around 25,000 to 30,000 ideographs. <sup>38</sup> None of these people reduced their signs to an alphabetical form, they could only go on adding or multiplying by combination.



It has been said that there is no 'spelling' in Chinese, and there was no 'spelling' in this sense in Cuneiform either. Such languages do not become vehicles of Philosophy or Science, though they are quite adequate for Technology.

*Why this language bifurcation?*

And so we come finally to the question of why this linguistic bifurcation of mankind exists. Is it genetically determined or merely culturally determined? Is there some feature of the actual brain structure that was acquired and inherited, in spite of current opinion to the contrary about the possibility of such things being inherited?

*Speech modifications in illnesses*

There has, for many years, been a recognition of the fact that mental illness can result in some strange forms of modified speech. Douglas G. Campbell and C. R. Congdon, psychiatrists in Chicago, some twenty years ago began a series of experiments to see whether some forms of mental illness might not in fact stem from 'ties' wrongly established between words and things. According to one report, these experiments

38. Linton, Ralph, *The Tree of Culture*, New York, NY, Knopf, 1956, p.113.

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proved "astonishingly successful." By disconnecting such ties, the response of some patients was both sudden and dramatic. <sup>39</sup>

The extent to which such mental illnesses result from, or are reflected in, speech impediments is remarkable. On this point, Cassirer has this to say: <sup>40</sup>

Recent research in the field of the psychopathology of language has led to the conclusion that the loss, or severe impairment of speech caused by brain injury is never an isolated phenomenon. Such a defect alters the whole character of human behaviour. Patients suffering from aphasia or other kindred diseases have not only lost the use of words but have undergone corresponding changes in personality. Such changes are scarcely observable in their outward behaviour

But they are at a complete loss as soon as the solution of the problem requires any specific theoretical or reflective activity. They are no longer able to think in general concepts or categories. Having lost their grip on universals they stick to the immediate facts, to concrete situations. Such patients are unable to perform any task which can be executed only by means of a comprehension of the abstract.

Sometime later, Cassirer points out that in cases of aphasia it has often been found that patients had not only lost the use of special classes of words, but at the same time exhibited a curious deficiency in their general intellectual attitude. When such people were confronted with problems requiring the abstract mode of thinking,

they often experienced great difficulty. They could no longer think *of unreal things.*'

He illustrated this with the case of a patient suffering from hemiplegia, from a paralysis of the right hand, who could not utter the words "I can write with my right hand." He even refused to repeat these words when pronounced for him by the physician. <sup>41</sup>

Curiously enough there is a striking parallel instance of this strict attention to truth in the case of Laura Bridgman, a blind and deaf and dumb girl, somewhat in the same situation as Helen Keller.

39. Campbell, Douglas, and C.R. Congdon: reported by Stuart Chase, *The Tyranny of Words*, New York, NY, Harcourt, Brace, 1938, p.86.

40. Cassirer, E., *Essay on Man*, Yale University Press, 1944, p.40, 41.

41. Cassirer, E., *ibid.*, p.57.

One of her teachers, according to Cassirer, remarked it "was very difficult in the beginning to make her understand figures of speech, fables, or suppositions cases of any kind . . . ." Her teacher then states that Laura Bridgman could not extract herself from problems in arithmetic proposed to her. If she had not actually bought two apples for five cents each, it simply did not 'cost her 10 cents,' and she rejected the hypothetical problem intended to teach her how to add! One question she rejected because she never drank the liquid (cider) involved in it. Now this does not mean that there was anything positively wrong with her brain. It indicates only that in a certain stage of under-development, even an adult may find it impossible or very difficult to escape into the abstract and deal with hypothetical situation.

*Abstraction located in the frontal lobe of the brain?*

Now Goldstein and Gelb have done a lot of research in the field of brain surgery. After some operations they found that patients can no longer deal successfully with merely 'possible' situations. Speaking more particularly of lobotomized patients they report that such subjects are no longer capable of grasping what is abstract. They explain what they mean thus: <sup>42</sup>

This demands the ability to live in two spheres, the concrete sphere where real things take place, and the non-concrete sphere - the merely "possible" one

This the patient is unable to do. He can live and act only in the concrete sphere.

In a subsequent paper, Goldstein reinforces his statement about the loss of the power of abstraction in lobotomized subjects. He writes: <sup>43</sup>

The assumption that lobotomized patients suffered no loss of mental capacity was based on their performance in conventional intelligence tests. Apparently the operation did not reduce their intelligence quotient.

42. Goldstein and Gelb: quoted by Cassirer, *E., ibid.*, p.58.

43. Goldstein, Kurt, "Prefrontal Lobotomy: Analysis and Warning," *Scientific American*, Feb., 1950, p.44.

[However] analysis has shown that the capacity to assume the abstract attitude, also known as the "conceptual" attitude, a prerequisite of normal human behaviour, acting voluntarily, taking the initiative, shifting voluntarily from one activity to another, making adequate choices, classifying objects or ideas, grasping the essentials of a complex situation, synthesizing new ideas, reacting correctly to objects or situations with which one is not directly concerned, detaching one's ego from the outer world, and reacting in an objectively correct manner . . . it is exactly in the problems or tasks which require these abilities that we find patients with gross frontal lobe lesions defective. Indeed, such a patient may show some peculiarities even in concrete behaviour when the latter becomes dependent on abstract considerations.

Much work has been done in this area which has strongly tended to confirm the theory that the power of abstraction lies chiefly in the frontal lobes and that people who do not exercise this faculty are not using this area of the brain to any great extent.

Confirmation of this assumption has come unexpectedly from Africa. A few years ago J. C. Carothers was asked to design a series of tests by which to determine the suitability of African natives applying for positions as assistants in the Medical Research Laboratory, Nairobi. These tests were to give some indication as to the dependability of the native in certain situations which could be expected to occur in the labs. Carothers made several discoveries in this undertaking, and published his conclusions in a paper entitled "The Frontal Lobe Functions and the African."<sup>44</sup>

He reported that "certain facts emerged which forced his attention to a striking resemblance between African thinking and that of leucotomized Europeans." This led him in due course to make certain deductions about the neurophysiological basis of African thinking and character and about the functions of the frontal lobes in general.

44. Carothers, J. C., "The Frontal Lobe Functions and the African" in *The Journal of Mental Science*, vol.97, Jan., 1951, p.12 ff.

To begin with, he decided to see in what kind of situations the African native would "let one down."<sup>45</sup> A questionnaire was sent to three employers of Africans in considerable numbers, including natives of all levels of education and sophistication. The results were very interesting as shown by the sample illustrations Carothers gives. Particular note is made of the absence of any well developed power of abstraction. One specific failing was in not seeing an event as an element in a total situation and as having a variety of relevant relationships. Routine was continually followed unreasoningly.

For example, three native overseers were in charge of a game being played by number of mentally deficient patients. While the game was in progress, one of the patients ran away. All three native overseers took off after him, leaving those who remained entirely unattended. He also mentions a lack of interest and attention unless the situation appealed in a directly personal and *emotional* fashion.

On the other hand, their quickness to learn by hearing or sight is referred to with some surprise, and they have a remarkable ability to grasp, work out and create intricate relations in the auditory sphere. Carothers sums up this section of his paper with the observation, "The African is hardly in fact an individual in one sense of the word, but a series of reactions."<sup>46</sup>

The author then turns to a consideration of the Leucotomized European Personality. He notes the same general pattern of behaviour appearing in persons who were not known to have so behaved previously, and says for example:

When the leucotomized patient shows a personality change at all, it is in the direction of a *failure to see* an event as an element in a total situation and as having a variety of relevant relationships.

Under the heading "Some Deductions," Carothers reports:

Except in so far as the African's ritual training mitigates some of the more socially flagrant symptoms (e.g., rudeness, and tactlessness) and except that the African shows no lack of verbal ability or of fantasy, the resemblance of the leucotomized European patient to the primitive African is, in many cases, *complete*.

45. Carothers, J. C., *ibid.*, p.25ff.

46. Carothers, J. C., *ibid.*, p.33.

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He also adds this little note of an interesting and rather surprising circumstance:

It seems also not without significance that at least one of the few Europeans leucotomized in Kenya, has since his operation, consorted much more happily with Africans than with Europeans, in marked distinction from his previous behaviour and to the great embarrassment of his relatives.

His final conclusion is summed up as follows: <sup>47</sup>

It is considered, on the evidence of leucotomy in Europeans, that all the observed African peculiarities can be explained as due to a relative idleness of his frontal lobes.

It seems particularly desirable at this point to emphasize that there is no justification for supposing that the European abstractive mentality is superior. It is different, but it is not necessarily superior; for without the fruition in Technology, of the much less abstractive but more practical mentality, of the African (for example in the working of iron), Europeans would quite probably have created a society as physically impoverished as India has been in the past. The emphasis must be on the

*difference*, not on the superiority of one type of mind as opposed to the other. It may well be that the human mind is limited in such a way that, except on rare occasions, the frontal lobes inhibit some other part of man's mental faculties, and *vice versa*. Leucotomy in this case, merely undoes as it were, the cultural impress of European civilization.

Furthermore, it has been demonstrated from tests given to soldiers with severe wounds, causing injury to the frontal lobes, that there is no apparent loss of intelligence as a result. <sup>48</sup> These tests were administered ten years after the injury, allowing plenty of time for the defect to become evident. Other kinds of tests however did show some decrement in intelligence where the tests involved the use of language, and certain kinds of brain injury had been sustained.

47. Carothers, J.C., *ibid.*, p.46.

48. Reported in *Science News Letter*, June 8, 1957, p.360, under the title, "No Intelligence Loss from Frontal Lobe Injury."

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That one area of the brain might exercise some dominance over another is not strange. Experience teaches that too much reflection can confuse issues, both inhibiting action, and preventing insights. Sometimes one has to forget a problem entirely, in order to solve it. Shakespeare was quite justified in saying, "And thus the native hue of resolution, is sicklied o'er with the pale cast of thought," and it is common enough to find that some people act first and think afterwards, whereas those who think first often get no further than the thought. The division might well be, in a very general sense, between the doer and the thinker, even perhaps - between the extrovert and the introvert.

So strongly was Carothers convinced that this kind of bifurcation could be justified, that he wrote a further Paper on the subject which he titled "The African Mind, In Health and Disease: A Study in Ethnopsychiatry," <sup>49</sup> which was published by the World Health Organization, and was reviewed favorably in the *Journal of the Royal Institute of Public Health and Hygiene*. <sup>50</sup> Evidently he succeeds, in the reviewer's opinion, in sustaining the implication of his title which assumes the existence of something that may properly be called an African MIND, in spite of the admitted "diversity of tribes and races" on that Continent.

Walter Freeman and James Watts have similarly observed this relationship between the frontal lobes and behaviour, and they express the opinion that in some way foresight and insight are affected by the operation of frontal lobotomy. <sup>51</sup> They hold that, in the frontal lobes there resides the synthesizing faculty, the ability to assume an attitude of insight into a total situation. When Europeans are operated on in this way, they seem to be able to conclude their thinking processes more quickly than a normal person, not taking time to "finish up" thought, as the authors put it. Consequently it is felt that the frontal lobes operate for the

49. Carothers, J.C., "The African Mind in Health and Disease: as Study in Ethnopsychiatry," published by the World Health Organization, Monograph Series No. 17, 1953.

50. Reviewed in *Journal of the Royal Institute of Public Health and Hygiene*, Nov., 1953, vol.16, p.307-308.

51. Freeman, Walter, and James Watt, "Behaviour and the Frontal Lobes," in the *Transactions of the New York Academy of Sciences*, May 15, 1944, p.284-310.

"consummation of thinking." Patients are "quite adequate at the concrete social level" but lack a certain attitude towards the future that is characteristic of the mature individual. They tend to be improvident, having little regret for the past or concern for the future. They live very much in the here and now. This is quite similar to the attitude towards life of primitive people as a whole, in whom there is otherwise no evidence of mental ill-health.

Ralph W. Gerard has done a great deal of experimental work in this area, especially with animals. He has taught white rats to run a maze and then subjected them to considerable surgery of the brain which apparently had little effect upon the power of memory. He concludes that any part of the brain seems able to take over the duty of any other part, and as he puts it: <sup>52</sup>

It remains sadly true that most of our present understanding of mind would remain as valid and useful, if for all we knew, the cranium were stuffed with cotton wadding. In time the detailed correlation of psychic phenomena and neural processes will surely come, but today we are hardly beyond the stage of unequivocal evidence that the correlation does exist. . . .

This caution is necessary, because there may be quite other reasons why pre-frontal lobotomy or leucotomy results in the kind of personality changes which have been noted. Moreover it is not essential to my thesis to establish this connection in any case. But certainly this is a remarkable parallelism between non-Indo-European thought patterns as reflected in their language, and those of leucotomized European patients.

As Gerard admits: <sup>53</sup>

Halsted has found a striking defect, in patients whose frontal lobes have been partly removed, in the ability to make categories. A normal adult, given a miscellaneous collection of familiar objects and asked to group them in as many ways as possible, can set up dozens of categories for grouping, by colour, shape, material, and so on. The operated patient can make few if any groups.

52. Gerard Ralph W., "The Biological Basis of Imagination," *Scientific Monthly*, June 1946, p.487.

53. Gerard, Ralph W., *ibid.*, p.489.

Further evidence of the correctness of this association is given by Frank I. Otenasek, in an issue of the *Bulletin of the Isaac Ray Medical Library*. He warns that "reports on the results of lobotomy as found in the literature are confusing." <sup>54</sup> But he feels that certain things can be stated with a fair degree of assurance. Two lobotomized patients will be more similar to each other after the operation than before: interest and initiative are reduced: lack of personal restraint (a kind of childishness) is evident: matters worthy of earnest attention are joked about instead:

persistence is reduced and prolonged attention becomes very difficult: etc. He also notes the following, which is directly relevant to this thesis: <sup>55</sup>



In other instances description has been made of substitution of the concrete and immediate, for the abstract or real meaning. . . . There is a tendency for thinking to be concerned with the factual rather than the abstract. Decisions are made along practical lines . . . introspection no longer interests the patient.

*The relationship of language and awareness (world view)*

I do not suggest that there is any more than a very tentative clue here. It could be that the adoption of a European language by a native would effectively change his awareness also. It seems, in fact, most probable. And it could be that a European by birth who had been brought up to speak no other language than some African dialect, would share their particular form of *awareness* and would thus appear to be not unlike the European leucotomized patient. There must surely be plenty of cases where this has happened which would go a long way towards settling whether the native thinks as he does because of a form of mental 'deficiency,' or merely because his thought patterns have been predetermined for him by the language he inherited as a child, and that he therefore has little or no need to use the frontal lobes.

54. Otenasek, Frank J., "Some Considerations of the Total Personality in Prefrontal Brain Surgery," *Bulletin of the Isaac Ray Medical Library*, published by Butler Hospital, Providence, R. I., vol. 1, Oct., 1953, p.83ff.

55. Otenasek, Frank J., *ibid*, p.94.

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Once such a pattern of thinking had been established in the childhood of any Culture and the language had become structured more or less firmly, this would guarantee the preservation to a large extent of the form of world-view.

Benjamin Lee Whorf puts the question this way: <sup>56</sup>

How does such a network of language, culture, and behaviour come about historically? Which was first, the language patterns or the cultural norms? In the main they have grown up together constantly influencing each other. But in this Partnership, the nature of the language is the factor that limits free plasticity and rigidifies channels of development in the more autocratic way, This is because language is a system, not just an assemblage of norms.

56. Whorf, Benjamin Lee, *Language, Thought, and Reality, Selected Writings of Benjamin Lee Whorf*, edited by John B. Carroll, Boston, MA, Massachusetts Institute of Technology Press, 1956, p.156.

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