Bloomfield: The Father of

Linguistic Science

By Prof. Mohammed Nagm

Bloomfield: The Father of Linguistic Science

By Prof. Mohammed Nagm

Any study of Bloomfield can never fail to mention his contribution to linguistics as a science. Throughout his whole life, his main purpose was to develop linguistics as an objective discipline. He appealed to all students of language to develop unprejudiced and impartial attitudes to their colleagues. Thus, he disliked the word "school" and regarded it as an impediment to language study. As Fries (1961: p. 196) has put it:

> He despised "school", insisting that the usual attitude of the adherents of "school" strikes at the very foundation of all sound science. Science, he believed must be cumulative and impersonal. It cannot rest on private theories. To Bloomfield one of the most important outcomes of the first twenty-one years of the Linguistic Society of America is that it had saved us from the blight of the odium theologicum and the postulation of "schools". His own statement concerning schools represents his experience and practice: When several American linguists find themselves sharing some interest of opinion, they do not make it into a King Charles' Head, proclaiming themselves "a school" and denouncing all persons who disagree or who merely choose to talk about something else...

Bloomfield was an active member of the following professional organizations: the Linguistic Society of America, The American Oriental Society, The American Physiological Association, The American Ethnological Society, The Modern Language Association of America, The American Association for the Advancement of Science, The Society of the Advancement of Scandinavian Studies, The International Phonetic Association, The American Philosophical Society, and The Royal Danish Academy of Science.

Bloomfield began his career as a scholar of Indo-European historical linguistics and trained himself not only in Indo-European languages but also in all different languages, acting different from some fanatics, who refused to learn any non- Indo-European language. However, he shifted his interest to descriptive linguistics making use of his historical background. He engaged in first-hand descriptive field work with Menominee (1920-1921) and later with Cree and Ojibwa, stimulated by both Sapir and Boas of whom he said (1943: 198):

> Perhaps his greatest contribution to science, and at any rate, the one we can best appreciate, was the development of the descriptive study... The progress which has since been made in the recording and description of human speech has merely grown forth from the roots, stem, and mighty branches of Boas's life work.

Bloomfield's contribution to linguistic science has been widely acknowledged. Fries (1961) emphasizes his influence as the founder of the bloomfieldian school of linguistics and Hymes and Fought (1975) regard him as the father of American Structuralism which, according to them, has been continued even by Bloomfield. Walterman (1963: 96) regards the period from 1933-1950 as the Bloomfieldian era in the history of American linguistic scholarship and he quotes Bloch (1949) as saying:

> It is not much to say that every significant refinement of analytic method produced in this country since 1933 has come as a result of the impetus given to linguistic research by Bloomfield's book *Language*. If today our methods are in some ways better than his, if we see more clearly than he did himself certain aspects of structure that he first revealed to us, it is because we stand upon his shoulders.

It is the purpose of this paper to show Bloomfield's contribution to the science of language under the following headings: His appeal to behaviourism, his attitude to meaning, his theory of sound change and his linguistic descriptive statements.

Psychology, Mentalism and Behaviourism

A comparative study of Bloomfield's (1914) *An Introduction of the Study of Language* and his (1933) *Language* shows a development of his attitude toward the role of psychology in the study of language in favouring a mechanistic behaviouristic approach to a mental one, from Wundt to Weiss. In (1914: 71), for example, the following statement shows his preference

for a mentalistic approach to language:

> The best evidence of the purely associational nature of linguistic forms lies in their change in history. Linguistic phenomena without consideration of their mental significance are unintelligible or rather, what is worse, liable to a post factum logical interpretation which substitutes for the actual state of things our reflection upon them... The word is thus psychologically a complicative association of those perceptual and emotional elements which we call its meaning or experience-content with the auditory and motor elements which constitute the linguistic symbol...

But in *Language* (1933) Bloomfield showed a marked change in his attitude to mentalism. As Bloch (1949: 93) has summed it:

> In his long campaign to make a science of linguistics, the chief enemy that Bloomfield met was that habit of thought which is called mentalism: the habit of appealing to mind and will as ready made explanations of all possible problems. Most men regard this habit as obvious common sense; but in Bloomfield's view as in that of other scientists, it is mere superstition, unfruitful at its best and deadly when carried out into scientific research.

In his second chapter of *Language,-0369+-* he employs a mechanistic model for the interpretation of language in a stimulus response framework and he warns us against a mentalistic view (1933: 38):

The danger...lies in mentalistic views of psychology which may tempt the observer to appeal to purely spiritual standards instead of reporting the facts. To say, for example that combinations of words which are "felt to be" compounds have only a single stress, is to tell exactly nothing, since we have no way of determining what the speaker may "feel". The observer's task is to tell us, by some tangible criterion, or if he found none, by a list, which combinations of words are pronounced with a single stress.

In order to explain the role of a mechanistic behaviouristic approach to language, he tells the following story in chapter II:

Suppose that Jack and Jill are walking down a lane. Jill is hungry. She sees an apple in a tree. She makes a noise with her larynx, tongue and lips. Jack vaults the fence, climbs the tree, takes the apple, brings it to Jill, and places it in her hand. Jill eats the apple.

Bloomfield regards all those events which precede Jill's speech as the speaker's stimulus and the practical events which follow the speech as the hearer's response. Thus, it is the speech act that mediates between the stimulus to one mechanism and the response in another. The speech act is a linguistic substitute response which in turn acts as a linguistic substitute stimulus on the hearer and results in a response on his part.

The science of physiology and physics appealed to Bloomfield in his description of language in general and to the Jack-Jill incident in particular:

> Thanks to the science of physiology and physics, we know enough about the speech-event to see that it consists of three parts: (Bl) the speaker, Jill, moved her vocal cords, her lower jaw, her tongue... Jill has not one but two ways of reacting to a stimulus:

$$S \longrightarrow R \quad \text{(practical reaction)}$$

$$s \longrightarrow r \quad \text{(linguistic substitute reaction)}$$

(B2)   The sound-waves in the air in Jill's mouth set the surrounding air into a similar wave-motion.

(B3)   The sound waves in the air struck Jack's ear-drums and set them vibrating. This hearing acts as a stimulus to Jack.

He continues to explain language acquisition in the S R formula. He describes how a child learns the word "doll" by first having as an inherited trait the ability to say "do" by just babbling. Whenever the child hears similar sounds, he will say "do" and so he begins to imitate. The mother may say "doll" whenever she gives him the doll. The sight and handling of the doll and the hearing and saying of the word "doll" occur repeatedly together, until the child forms a new habit. The sight and the feel of the doll suffice to make him say "do". He has now the ability to use a word. The child's speech is perfected by its results. His perfect attempts at speech are likely to be fortified by repetition, and his failures to be out of confusion.

Besides stressing objective observation as it has been shown, Bloomfield also calls for experiments because observation alone is not enough for our purpose of study as when studying the nervous system for example and he completely condemns introspection. The linguist can do without statistics by appealing to the reader's common sense or to the structure of some other language or to some physiological theory.

Espers (1968: 187-188) sums up Bloomfield's objective attitude to psychology arguing that Bloomfield had the choice between two entirely different psychological languages: that of mentalism and that of objectivism. Espers continues to argue that Bloomfield

> chose the latter: first, because it obviated both obligation and the temptation to "interpret" linguistic observations in terms of the introspections (or mentalistic speculations) of individual linguists; and secondly, because it facilitated the linking of a purely linguistic set of postulates and definitions of psychology and the other sciences-a consideration particularly important for the definition of meaning. This second consideration of course implied several additional assumptions; namely, that psychology was going to continue to develop as an objective science, closely linked with the other natural sciences; and that both linguistics and psychology are at a stage of development which will permit the linkage of the two co-ordinating definitions to

be profitable to both sciences.

Bloomfield went so far as to say that he has excluded psychology from his study of language and that he refers to it only by way of elucidations, something that he could never do as we have seen. In his introduction to his book (1933) he claims:

> We can pursue the study of language without reference to any one psychological doctrine, and that to do so safe guards our results and makes them more significant to workers in related fields. In the present book I have tried to avoid such dependence...

Meaning

Because of Bloomfield's rejection of mentalism with its implications of speculation and introspection, he has been charged with or accused of excluding the study of meaning and that this neglect in the study of meaning that persists up to the present day is due to him. ButEspers (1968: 200-201) defends Bloomfield's position, thus, Espers explains how Bloomfield has been misinterpreted:

> Since "meaning" had traditionally been regarded as the "mental" aspect of language, Bloomfield's definition in non-mentalistic objective terms was interpreted by some linguists as neglect, denial or rejection of meaning.

Foughts and Hymes (1975: 1009) mention Bloomfield's surprise at these accusations and quote his answer:

It has become painfully common to say that I or rather, a whole group of language students of whom I am one, pay no attention to meaning or neglect it, or even that we undertake to study language without meaning, simply as meaningless sound...

In *Language* (1933: 140), Bloomfield's attitude to meaning is the weak point in his study of language until human knowledge advances beyond its present state. He argues (p. 139):

We can define the meaning of a speech form accurately when this meaning has to do with some other matter of which we possess scientific knowledge.

He contends that we cannot define the word "love" for example because we have no precise way of defining it. He regards the study of meaning a weak point in the study of language:

Physicists view the colour spectrum as a continuous scale of light waves of different lengths, ranging from 14-72 hundred thoundths of a millimeter, but languages mark off different parts of this scale arbitrarily and without precise limits, in the meanings of such colour names as violet, blue, green, yellow, orange, red and the colour names of different languages do not embrace the same gradation.

He continues to argue that the study of meaning will improve when human knowledge advances very far beyond its present state.

Foughts and Hymes (1975: 1010) quote Strak (1972: 411):

> For Bloomfleld a linguistic form, whether a morpheme or a tagmeme, is not a meaningless shape, as we know it to be, but a correlation of units of form with units of meaning.

In Bloomfield's chapter on "The phoneme" he urges us to leave the area of pure phonetics in our attempt to study the distinctive features of a language to distinguish phonemes (p. 77):

> To recognize the distinctive features of a language, we must leave the ground of pure phonetics and act as though science had progressed far enough to identify all the situations and responses that make up the meaning of speech forms. In the case of our language, we trust to our everyday knowledge to tell us whether speech forms "are the same" or "different".

Sound Change

Bloomfield held the neo-grammarian belief that sound change is regular and independent of non-phonetic factors such as meaning, frequency, homonymy... etc. Fries (1961: 200) quotes Bloomfield's stance (1912: 623-624) that the process of sound change is independent of meaning:

> (it is) Needless to state that sound change and analogy are not, as far as we know, subject to our needs or expression, but are respectively psycho-physiological and psychological processes that occur

involuntarily and can not be directed by our needs and desire. They are processes that constantly alter the form of our speech material.

He rejected the view of the opponents of the neo-grammarian who treated the residues of the law of sound change as sporadic. In *Language* (1925: 130), he defends his position rigorously and uncompromisingly:

> A principle such as the regularity of phonetic change is not of the specific tradition handed on to each new speaker of a given language, but is either a universal trait of human speech or nothing at all, an error.

In his book *Language*, he focuses on historical linguistics and devotes a whole chapter to phonetic change (1933: 346- 368). He attacks the proponents of sporadic sound change who discard such etymologies as *Latin dies*: *English day*, and retain only a few, where the resemblance is most striking, as Latin habere: Old High German *habēnan*, Sanskrit: [ko:kilah], Greek: [kokkuks], Latin cuculus: English cuckold. He objects to this interpretation (365-366):

> If we suppose that a form like "cuckoo" resisted the pre-Germanic shift of [k] to [h], we must suppose that during many generations, when the pre-Germanic people had changed their way of pronouncing primitive Indo-European [k] in most words and were working on through successive acoustic types such as say, [kh-kx-h], they were still in the word cuckoo pronouncing an unchanged Indo-

European [k]... We should have to suppose, therefore, some later change brought the preserved Indo-European [k] in cuckoo into complete equality with the Germanic [k] that reflects a primitive Indo-European [g]...

Linguistic description

Walterman (1963: 90-91) refers to Bloomfield's insistence on the physical formulation of linguistic description, noting that Bloomfield improved upon Grimm and the neo-grammarian in one highly important way; he restated their findings in physical terms, that is, in the language of scientific description by eschewing figurative, metaphysical expression in favour of everyday words of the physical words. Walterman quotes Bloomfield's rehearsing of the neo-grammarian postulate as an example:

> In the 1970's, when technical terms were less precise than today, the assumption of uniform sound change received the obscure and metaphysical wording, phonetic laws have no exception: it is evidence that the term "laws" have no precise meaning for a sound- change is not in any sense a law, but only a historical occurrence. The phrase "have no exception" is a very inexact way of saying that non-phonetic factors, such as the frequency of meaning of a particular linguistic forms, do not interfere with the change of phonemes (*Language*: 354).

Walterman also favours Bloomfield's restricting himself to speech forms of maximum response-uniformity.

Fries (1961: 210) also argues that Bloomfield was a formal linguist. He describes Bloomfield's style as impersonal, precise and single. He supports his contention stating that

> In every speech community there are certain speech-forms toward which our response is relatively constant and uniform. The physicist, physiologist, and psychologist who study the situations in which these speech-forms are uttered and the responses which a hearer makes of these speech-forms, may not find the simple at all, but that is non of our present concern.

> We are concerned merely with the fact that our responses to certain speech-forms are relatively constant and uniform, and that these speech forms constitute the basis of scientific speech. Here again, there is no absolute boundary: the more constant and uniform our use of a speech form, the more.suited is this speech form to scientific reporting. Others things being equal, the more narrowly we restrict our scientific report to speech forms of maximal response uniformity, the better will be success of that report.

Bloomfield's 1926 and 1949 postulates show his favouring of explicit statements which make use of mathematics for elucidation and since, as he thinks, they help define our terms and decide what things may exist independently and what things are interdependent. He defines the morpheme (p. 305) as follows:

A minimum X is an X which does not consist of lesser X's. Thus if Xi consists of X2 X3 X4 then Xi is not a minimum X. But if Xi consists of X2 Xs or X2 of X] X2 or is unanalyzable, then Xi is a minimum X. A morpheme is a recurrent form which can not in turn be analyzable into smaller recurrent meaningful forms. Hence, any unanalyzable word formative is a morpheme.

Bloch (1949: 92-93) has praised very much Bloomfield's style as being clear and formal. As he put it:

> ... to the majority of linguists, the simple clarity of his diction first revealed in full the possibilities of scientific discourse about language. It was Bloomfield who taught us the necessity of speaking about language in style that every scientist uses when he speaks about the objective of his research: impersonally, precisely, and in terms that assume no more than actual observation discloses to him.

Conclusion

We might conclude this paper by turning to Fries' evaluation of Bloomfield's contributions to the science of language. Fries (1961: 217-222) thinks that Bloomfield not only dealt with the internal matters of linguistics as a science, the fundamental matters of the nature and functioning of human language and the basic principles underlying scientifically sound methods of analysis and descriptive statements, but that he was also much more concerned with the boundaries of that science and its place in society. Fries maintains that it

was Bloomfield, Boas and Sapir who convinced linguists that the Comparative Method is not the only scientific one and thus assigning even a more scientific status for descriptive linguistics since it does not only deal with the parole, the speech act of a community. Descriptive linguistics according to Bloomfield concerns itself more with *la langue*, the rigid system of patterns of contrastive features through which the individual speech acts of a speaker become effective substitute stimuli for the hearer. With this rigid system of patterns, we can predict the regular responses of the members of a linguistic community, when they are effectively stimulated by one of the patterns of the system.

Bloomfield's lifelong aim was to develop linguistics as a science not only by getting metaphysics introspection and too much emphasis on historical linguistics out of it, but first and foremost by setting the prediction of the regular responses of the members of a linguistics community and analyzing them in scientific statements as the purpose of linguistics. His attitude and his tradition have been continued by Hocbet, Harris and others in what we call the post- Bloomfieldian school. Fought and Hymes (1975: 1144) go so far as to say: "What Chomskey has done is to retain the scope of linguistics theory established by the Bloomfieldians".

To epitomize the whole issue and to put it in a nutshell, let us quote Bloch's evaluation of Bloomfield's contributions to the science of language (1949: 92):

There can be no doubt that Bloomfield's greatest contribution to the science of language was to make a science out of it. Others before him had worked scientifically in linguistics; but no one had so

uncompromisingly rejected all pre-scientific methods, or had been so consistently careful, in writing about language, to use terms that would imply no tacit reliance on factors beyond the rate of observation.

Bibliography

Bloch, B. 1949. Leonard Bloomfield. *Language*. 25.87-98.

Bloomfield L.1914. *An Introduction to the Study of Language*. New York, Holt.

- 1929. Set of Postulates for the Study of Language. *Language 2*. 153-164.

- 1933. *Language*. New York, Holt.

- 1943. Franz Boas. *Language* 19-198.

Espers, E.A. 1968. *Mentalism and Objectivism in Linguistics*: The Source of Bloomfield's Psychology of Language. New York, American Elsevier.

Fries, Charlis C. 1961. The Bloomfieldian School. In *Trends in European and American Linguistics*. Ed. By Christine Mohrman et al 1962. Spectrum Publishers. Hymes, Dell et al. 1975. American Structuralism. *In Current Trends in Linguistics*, ed. By Hans Arsbeffet al. Paris, Mouton.

Walterman, J.T. 1970. *Perspectives in Linguistics*. Chicago, University ofChicago Press.