THE PHONEME, MEANING, AND PATTERNING

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One of the most important concepts discovered by Modern Linguistics is the concept of phoneme. I am not going to discuss all the steps that led to its conception, but will concentrate on the far-reaching effects that this discovery has produced and yet may produce in the general field of linguistic science, language teaching, and language learning.

Paralleling this, we have the concept of levels, of linguistic levels, which shows us that language, as Benjamin Lee Whorf has said, is in itself so little known, so ordinarily taken for granted, that we know everything of it, when we are really groping at its full significance. He says:

"We must find out more about language! Already we know enough about it to know it is not what the majority of men, lay or scientific, think it is. The fact that we talk almost effortlessly, unaware of the exceedingly complex mechanism we are using, creates an illusion. We think we know how it is done, that there is no mystery; we have all the answers. Alas, what wrong answers. It is like the way a man's uncorrected sense impressions give him a picture of the universe that is simple, sensible, and satisfying, but very wide of the truth". (1).

The first researcher who had some glimpses of the fact of the **phoneme** was Baudouin de Courtenay, who stated the fact in his book **Versuch einer Theorie der phonetischen Alternationen** (2). He had some hints about the impending fact of the phoneme; he arrived at the idea that under certain conditions some sounds, **certain specific sounds**, could alternate or

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(1). — "Language, Mind, and Reality", **Language, Thought, and Reality**, ed. John B. Carrol (New York: Massachusetts Institute of Technology, 1958), p. 250.

(2). — (Strassburg, 1895). [Unable to give exact quotation due to inexistence of a copy].

vary. But actually, he did not get to the concept of the phoneme.

In 1921, Edward Sapir, German by birth then living in the United States, wrote a book called: **Language, An Introduction to the Study of Speech** (3). Drawing from Franz Boas the importance of the study of primitive languages, he started linguistic research working with American Indian languages. His main contribution to linguistic science is the notion of patterning: (4) the reduction of linguistics to an exact science, where linguistic facts can be analyzed and **predicted,** based on the distribution of patterns. But still he did not realize what was this linguistic unit, the phoneme, and other important units that came out as a result of the emergence of the concept of the phoneme. Sapir also wasn't quite free from the importance of meaning in language research, as his chapter on the elements of speech (5) testifies (6).

The father of American Linguistics, Leonard Bloomfield, was the first to arrive at the discovery, or at least he is the one who is responsible for the apprehension of the first facts about the concept of the phoneme. In the chapter dedicated to the facts of the phoneme, from his famous book **Language,** he says:

"The fact that two utterances of the syllable **man** with different pitch-schemes are "the same" speech-form in English, but "different" speech-forms in Chinese, shows us that the working of language depends upon our habitually and conventionally discriminating some features of sound and ignoring all others. The features of sound in any utterance, as they might be recorded in the laboratory, are the **gross acoustic features** of this utterance. Part of the gross acoustic features are indiffe-

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(3). — (New York: Hartcourt, Brace & Co., 1921).
(4). — See "The Sounds of Language", op. cit., p. 42 and ff.
(5). — "The Elements of Speech", op. cit., p. 24 and ff.
(6). — Although Edward Sapir arrived at the fact of "individual sounds" these do not represent the same concept that I have in mind. In the previously referred to chapter, i.e. "The Elements of Speech" he says: "And yet the individual sound is not, properly considered, an element of speech at all, for speech is a significant (italics added) function and the sound as such has no significance" (Op. cit. p. 24).

rent (**non-distinctive**) and only a part are connected with meanings and essential to communication (**distinctive**). The difference between distinctive and nondistinctive features of sound lies entirely in the habit of the speakers. A feature that is distinctive in one language, may be non-distinctive in another language" (7).

Here in this extract are the very first important realizations that Bloombield had in his language analyses. Only some features, out of the gross phonetic or acoustic features are **relevant** in any given language. These relevant acoustic contrasts are the basis upon which the whole system of phonemes is built.

This fact was very well explained to me when I was a student at the Institute of Languages and Linguistics, Georgetown University, by Prof. Paul Garvin in one of his classes on the principles of General Linguistics. He used as an explanation the traffic light system. It is, as everyone knows, a type of signalling, thus a kind of language, though not spoken language. In this system we have the sequence: green, yellow, red. Green = go, yellow = attention, and red = stop. The relevant features (in this case **visual** not acoustic) are here the colours green, yellow, red. Alone, they would not function. A place where we don't have changes of colour in the traffic lights very soon nobody would pay any attention to it. The colours can appear in any form, round, rectangular, small, large, strong, weak, but they have to be located at specific places (normally near the corners of streets). It is the sucession of colours that is important, one colour against the other colours, and the colours themselves, these are the relevant features, all the others are irrelevant. In the phonemic level we have the succession of different sounds, and the sounds themselves, that together constitute that structure of contrasts known as language. This can also be applied to other levels than the phonemic.

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(7). — "The Phoneme", Language (New York: Henry Holt and Co., 1933), § 5. 3, p. 77.

(8). — See complete list of phonemic symbols at the end of this article.

Let me give another practical illustration: any of our most well-known Western Indo-European languages have relevant acoustic features which are peculiar to each of them. Some of these features can also be found in many of the languages of Europe, as **voiceless** versus **voiced,** in the structure of the stop phonemes of languages such as English, German, Portuguese, French, Spanish, and some others. We could represent these sounds with the following chart:

STOP PHONEMES

	Bilabial		Velar
voi ce less	/p/[s]	/t/	/k/
voi ced	/b/	/d/	/g/

Or, **front** articulation versus **back** articulation, in practically the same languages: E.g. in English /hIt/ versus /hət/; /pIt/ versus /pUt/; /biyt/ versus /buwt/; /hiyd/ versus /huwd/; /beyt/ versus /bowt/; etc.

Close articulation versus **open** articulation, also in the same languages: E.g. in English, /bIt/ versus /bæt/; /sIt/ versus /sæt/; in Portuguse, /li:/ versus /la:/; /ši:ta/ versus /ša:ta/; etc.

These features are features of contrast, the **relevant** acoustic features which carry differences in meaning. On the other hand, **aspiration** versus **non-aspiration** is not relevant, or at least not very relevant, and in some languages are found in complementary distribution, as in English; **affrication** or **non-affrication** could also be used as an important acoustic feature but it is not relevant in these languages. **Clicks,** phonemes using air which is only contained in the vocal chamber, versus **unclicked** phonemes could be relevant, but it is also irrelevant in these languages, though we may make, to a greater or smal-

ler degree, clicks in our articulation. But clicks are relevant acoustic features of contrast in quite a few African languages. In our Western Indo-European languages we only use clicks on purpose when addressing to animals, or in exclamatory expressions.

Also, **differences** in pitch are normally irrelevant in some languages and very distinctive and relevant in others. In Chinese, and a lot of other Asiatic languages, a great number of the so-called "isolating" or "monosyllabic" languages, pitch carries difference in lexical, or segmental meaning (9). There are practically as many as four pitch levels for almost every Chinese word (10). Pitch in English and in other languages of Europe and America, only carry differences in meaning as far as **linguistic situations are concerned**. Take for example, this sentence in English:

2 3 1
/hìy dĭd It╪/ — He did it. This is a simple statement stating that someone did something.

2 4 4
/hìy dĭd It‖/ — He did it? This is a statement stating that unexpectedly somebody did something nobody would expect him to have done.

In both these examples, though the stress-scheme is the same, the pitch-scheme is quite different. But still, there is no difference in segmental meaning. That is, pitch (as also stress), but not pitch-schemes or stress patterns, are supra-segmental **phonemes**, and this is a meta-linguistic (11) situation,

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(9). — **By segmental meaning is meant difference in the lexical structure; so that there is difference between "head" and "dead". By supra-segmental is meant difference in situational meaning, as the difference between a grammatically equal sentence but with different distribution of pitch.**

(10). — **There are some regions, like Hunan, where we can find five or even six pitch-schemes.**

(11). — **Metalinguistic, opposed to linguistic, and microlinguistic. By linguistic is meant language signallinig which is inherently part of the structure of the language in question; microlinguistic is only applied to the sounds but without any reference to language; it is, properly speaking, the real phonetic level. Metalinguistic is related to facts, situations, and meanings which are outside the ring-pass-not of the linguistic structure.**

contrary to the treatment in **An Outline of English Structure,** by Henry Lee Smith and George Trager (12).

The important fact is that all these differences in the relevant acoustic features are not universal, they are common only to a limited area, and they are an arbitrary system. And the different peoples of the world are in the habit of listening only to **those acoustic features** which are relevant in their own language. When the system of the language they are going to learn happens to be quite different from their own, they will have a very hard time in order to become aware of the new acoustic features of contrast.

But still, we do not have here so far, the formulation of the concept of the phoneme. But Bloomfield says further on in the same book:

"Since we can recognize the distinctive features of an utterance only when we know the meaning, we cannot identify them on the plane of pure phonetics. We know that the difference between the English forms **man** and **men** is distinctive, because we know from ordinary life that these two forms are used under different circumstances. It is possible that some science other than linguistics may define this difference in accurate terms, providing even for the case where we use **man** for more than one individual (**man wants but little here below**). In any case, however, this difference cannot be recognized by purely phonetic observation: the difference between the vowel sounds of **man** and **men** is in some languages non-distinctive" (13).

Therefore, phonetic acoustic data, as such, are impotent to solve the problem of language. Physical sounds, or physical arrangements whatever they be, are meaningless until we have the **key** to the code. And here the Mind enters in. Normally we are able to see objects of any kind and to form images of objects. As long as we keep the concentration, we have the objects

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(12). — (Washington, D. C.: American Council of Learned Societies, 1956), § 1. 8, p. 50, and § 2. 1, p. 55.
(13). — Op. cit. § 2, p. 77.

in front of us; withdrawing the concentration, we have the image left by the object in our mind. But as far as images continue to appear, they do not, by themselves, lead us anywhere. They are the result of perceptive inference only, as we also see in various types of advanced animals. Thus, as far as images appear in our mind, they do not change our wealth and our capacity of perception. But when we come to form an abstraction, or a generalization or ideation, (which is the result of a **linking process**), of the various images relating to a certain **class** of images, then we have the **concept**. Thinking of a triangle, we do not think, or we don't necessarily need, to think of a small triangle or a blue triangle, of an isosceles or a right triangle, but we have formed in our mind, through the retentive faculty of memory, the basic relationship that gives us the idea or concept of the triangle. Then, still further, the concept only does not suffice; we have to have judgment, i.e. sense of values or discrimination between one thing and another; this comes to a great extent, from one's own personal experience (14).

The solution of any code rests upon a **key** and the key is a formula for concepts. So, according to Bloomfield, the analysis of a language on a purely phonetic basis leads us nowhere, in fact it is not even language (15). We only have language when these two following factors come together into play: acoustic features **plus** a code of relationships, which has its basis on mental processes. And the acoustic features are simply **the instrument** that a given system or code of relationships uses for its expression.

After having realized that on the purely phonetic basis it is impossible to find out the meaning, the author goes on in

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(14). — **Judgment, discrimination, the discerning faculty, are the result of experience. But experience, here, is used in quite a wider sense than in everyday usage. It is the accumulated wisdom kept by the retentive faculty of memory, formed out of the interplay of life and not-life, of self and not-self. It is in fact consciousness or awareness based on the results of previous experiments with regard to any given subject matter.**

(15). — **Joshua Whatmough in his book Language, a Modern Synthesis, also corroborates this, saying: "Without the pattern the language could not be; the language is the pattern and the pattern the language". (Op. cit. p. 101).**

the discussion of what he calls "significant" features of "speech-forms". Comparing various speech-forms, we might say "words", he then analyzes them in detail.

Correlatingly, we might set up the following comparisons:

In the analysis of any speech-form we can see that certain sounds recur over and over again. E.g. in the words pin, pen, pan, pun, we have the recurrence of the voiceless, bilabial stop [p]; in the words tin, ten, tan, ton, we the recurrence of the voiceless, alveolar stop [t]; in the words pan, tan, can, ... ([kʰæn]), we have the recurrence of the front, low vowel [æ], and the recurrence of the nasal, alveolar spirant [n]. These items are alike in certain sounds but they differ in one sound-feature (at least in these examples). We can notice that the substitution of one sound for another, signifies the changing of meaning. With every new change we get a new speech-form. E.g. consider the different messages ("meanings") that we get from the following words: it, bit, sit, fit, hit, lit, mit, knit, pit, kit, tit, wit; or bid, bib, big, bin, bill, bit,; and we could set up other groups of examples with other sound-features and other speech-forms, but always, the changing of one sound for another signifies the changing of meaning, of segmental meaning. E.g. consider the following pairs:

[pʰɪˈk] (peak) — [skɪl] (skill) — [kʰəm] (come)
[bɪˈk] (beak — [skəl] (skull) — [gəm] (gum)

1) peak — "the sharp or pointed end of anything. 2. a headland or promontory. The top of a hill or mountain ending in a point; one of the crests of a range; often, the whole mountain, esp. when isolated" etc. (16).

2) beak — "The bill or nib of a bird or of some other animal, as turtle, esp. one with the upper mandible curved downward over the lower..." etc. (17).

3) skill — "1. Obs. a) Understanding; judgment. b) Reason or ground for doing, saying, etc. 2. The ability to use one's

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(16). — Webster Collegiate Dictionary, 2nd ed. (Springfield, Mass.: G. and C. Merriam Co., 1949).
(17). — Ibid.

knowledge effectively; technical proficiency. 3. A particular art or science; now, a developed or acquired ability" etc. (18).

4) skull — "1. The skeleton of the head of a vertebrate; the bony cartilaginous framework which encloses and protects the brain and chief sense organs, and supports the jaws" etc. (19).

5) come — "1. To move hitherward; approach; as he is **coming**; — opposed to **go**. 2. To appear or arrive, as on a scene of action, in a course of events, or the like; as, he **came** to the rescue. 3. To arrive at or reach the point of being, becoming, getting, amounting", etc. (20).

6) gum — "1. a) Any of a class of colloidal substances, glutinous when moist but hardening on drying, exuded by or extracted from plants, and usually soluble in water" etc. (21).

From the above we get the following minimum pairs which contrast by one sound-feature only: 1. peak-beak; 2. skill-skull; 3. come-gum.

Thousands and thousands of similar examples could be given, with probably the same results, which shows the characteristic patterning of languages. Given a reasonable long text or utterance, what we discover through it normally functions for the whole of the language being analyzed.

Again, in the previously-quoted book, **Language**, Bloomfield uses a slightly different approach: he takes the word **pin** as an example, and shows that it has three sound-features, also found in a lot of other words in English, but analysis shows that this speech-form has no more than three distinctive vocal sounds; (22) or as Bloombield says: "Further experiment fails to reveal any more replaceable parts in the word **pin**: we conclude that the distinctive features of this word are three indivisible units" (23).

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(18). — Ibid.
(19). — Ibid.
(20). — Ibid.
(21). — Ibid.
(22). — Bloomfield, op. cit., § 5. 4, pp. 78-79.
(23). — Ibid., § 5. 4, p. 79.

But one of the most important statements, and the one which is the key to all other assumptions is the following (with part of the previous quote): "Further experiment fails to reveal any more replaceable parts in the word **pin**: we conclude that the distinctive features of this word are three indivisible **units** (italics added). Each of these units occurs also in other combinations but cannot be further analyzed by partial resemblances: each of the three is **a minimum unit of distinctive sound-feature, a phoneme.**" (24).

The very important implication and importance of this quotation is in the use of the word **unit**. The phoneme, is thus placed among the greatest of the modern concepts, such as the cell, the atom, the molecule, the volt, the watt, etc. What is said here is not in any way the last word on the subject, but simply the **starting-point** for further research and investigation. Really, the investigation is still going on.

As matter is made of atoms, arranged differently to produce different material substance, so phonemes are the substancial basis upon which the whole world of language is built They are the centres round which the acoustic features gather, with the predominance of some of these characteristics and the submission of others. The phonemes are the atoms of linguistic science. As the atoms have different structures of protons, positrons, neutrons, mesons, electrons, etc. so the phonemes have **different sound-structures** in the different languages, serving community purposes, and producing different acoustic effects.

This can be said of course of any phoneme we may take into consideration, for example, the phoneme /p/. Here we are **arbitrarily** (25) giving emphasis upon only one of its acoustic

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(24). — Ibid., § 5. 4, p. 79.

(25). — By arbitrary I do not mean what a lot of linguists indicate when using the term arbitrary. Arbitrary means that it is different from the structures of other languages but the one particular language that is being taken into consideration. But arbitrariness is mostly the result of historical phonological trends, and acting under the law of adaptation to best suitability, and not the result of the so-called law of minimum effort. Why, in cerptain periods of the history of languages, certain distinctive

features: i. e. **labialization**. But this phoneme can also have aspiration, explosiveness, affrication, tenseness, releaseness, and other acoustic features which are unknown to our most common languages, as a **distinctive** or **relevant** feature. All the characteristics which I have just mentioned exist in our most common languages, but the difference is that they are not in any way distinctive or relevant.

When we pronounce the gross acoustic features, all the acoustic qualities are present, but only one feature is foregrounded or brought into relevance with the contrastive distinctiveness. As the same author says:

"Among the gross acoustic features of any utterance, then, certain ones are distinctive, recurring in recognizable and relatively constant shape in successive utterances" (26).

This is a fact widely to be found in other sciences as well. We always have the centre and the periphery; the one important characteristic which is aspected positively, and the others which are relegated to the background (27). This important, positive, acoustic feature we might describe as the nucleus of the phoneme, its very important characteristic.

H. A. Glecson, in his book **An Introduction to Descriptive Linguistics**, says:

"The most basic elements in the expression system are the **phonemes**. These are the sound-features which are common to all speakers of a given speech-form and which are exactly (28) reproduced in repetition" (29).

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sounds are relevant, and then at a later date cease to be relevant, seems to have its explanation in the fact of linguistic adaptability to linguistic patterns of this given culture.

(26). — Ibid., § 5. 5, p. 79.

(27). — Another linguist in the future maybe will discover the reasons for the workings of these polarizations, as far as the acoustic features are concerned. All that we can say is that, relevant acoustic features as I said in the previous note, are arbitrary in the sense that the real cause is still unknown, but that hints and glimmerings are already to be seen in the new approach which modern linguistics has given to the study of language.

(28). — I disagree on the use of exactly. Even within a very small speech-community, there are not even two individuals who can speak any word in their native language exactly alike. Proof of this are the results of spectrographic analyses by Martin Joos. We can only speak of ranges of sound, and, so, of similar reproduction.

(29). — (New York: Henry Holt & Co., 1958), § 1. 10, p. 9.

Further below Bloomfield says:

"The phoneme is one of those basic concepts, such as may be found in all sciences, which defy exact definition" (30).

And then attempts at a first definition of the phoneme:

"With this in mind, we may define a phoneme as **a minimum feature of the expression system of a spoken language** (italics added) by which one thing that may be said is distinguished from any other thing which might have been said" (31).

So, we can say that the phoneme is the **minimum contrastive unit in the phonemic system of any given language**. It is contrastive, because the presence of this or that phoneme in any patterned speech-form necessarily carries **difference, distinction,** in segmental meaning. Refer also to the immediately previous quote from Gleason.

Another very important fact is this: these distinctive sounds are the instrument or the vehicle used by the **Mind** of a given community, in order to establish contacts with physical reality. But here we cannot think of **Mind** as something consciously elaborated or worked out, aware, sentient, or **consciously aware,** but mental processes which are below the threshold of linguistic consciousness. **Differences in sound do not mean they are the causes of differences in meaning** (32).

But the most important implication is that the phoneme is a **concept,** not just a **unit,** or a thing, as again H. A. Gleason says: "A phoneme is a class of sounds" (33). And then:

"A phoneme is a class of sounds which (1) are phonetically similar and (2) show certain characteristic patterns of distribution" (34).

We **cannot** pronounce a phoneme. We cannot hear a phoneme. A phoneme is not a thing but a concept, a set of relationships, a formula for a pattern. It is the formula which enables

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(30). — Ibid.
(31). — Ibid.
(32). — Refer to page 5, lines 28-29.
(33). — Gleason, op. cit., § 12. 2, p. 159.
(34). — Ibid., § 12. 7, p. 162.

the physicist to arrange wires, magnets, pieces of metal, etc. into such a form that, under the condition of motion applied to some of its parts, produce electric current, and is capable of moving trains, big machines, or causing a great number of domestic electric gadgets to function. Separated, i.e. under different arrangements, different perspectives, and under different consciousness (because knowledge is always a form of conscious awareness), they are meaningless pieces of matter, unable to move the smallest feather, and that can be found in the back yard of a good number of modern residences.

The phoneme, on its own level, is an ideation, the fountainhead of subtle energies, an abstraction, and so, concentrated force. It belongs to a world of new dimensions, to a new universe, to a new set of patterned relations.

If properly studied, and its laws discovered, it can prove to be the basic force that moves the worlds, for everything that exists has its basis on sound, and rhythm. Even the famous verse of St. John could be interpreted under a new revealing light to our world: " In the beginning was the Word and the Word was with God, and the Word was God" (35). **Word** here has not the common implication, but expresses the hidden, potent energies found inside the words.

It is also the first real testimony of the presence of an invisible, untouchable (physically, of course), but prehensible, contactable, and touchable through the mind and soul, (in the psychological, not in the religious implication), used not as the "common sense" but as a searchlight, as an intrument of sense, as an **organ of sense**.

As Benjamin Lee Whorf says:

"This idea [of the linguistic facts] is one too drastic to be penned up in a catch phrase. I would rather leave it unnamed. It is the view that a noumenal world — a world of hyperspace, of higher dimensioss — awaits discovery by all the sciences, which it will unite and unify, awaits discovery under its first aspect of a realm of **patterned relations**, inconceivably

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(35). — St. John I: 1, King James Version.

manifold and yet bearing a recognizable affinity to the rich and systematic organization of **language,** including **au fond** mathematics and music, which are ultimately of the same kindred as language. The idea is older than Plato, and at the same time as new as our most revolutionary thinkers. It is implied in Whitehead's world of prehensive aspect, and in relativity physics with its four-dimensional continuum and its Riemann-Christoffel tensor that sums up the **properties of the world** at any point-moment; while one of the most thought-provoking of all modern presentations, and I think the most original, is the **Tertium Organum** of Ouspensky. All that I have to say on the subject that may be new is of the **premonition in language** of the unknown, vaster world — that world of which the physical is but a **surface or skin** (boldface types added) and yet which we **are in,** and **belong to**. For the approach to reality through mathematics, which modern science is beginning to make, is merely the approach through one special case of this relation lo language" (36).

This modern concept of the phoneme, in contradistinction to the old European linguists of the various schools, who conceived language only as sounds, or vocal sounds, or changes of sound due to the operation of phonetic laws, sets the phoneme as a **unit** and as a **concept,** an abstraction, an ideation, the prototype or archetype for language properly speaking.

Therefore, if we cannot pronounce the phoneme because of its conceptual nature, what are the sounds that we pronounce or that we hear? They are the **variants** or the **allophones,** according to H. A. Gleason (37). The phoneme, then, is only possile **in an ideal sense,** or as **a formula for relationships** (38). Whenever one speaks, it is the allophones that are being used, not the phonemes. Allophones are always in **complementary**

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(36). — Benjamin Lee Whorf, op. cit., pp. 247-248.
(37). — Gleason, op. cit., § 12. 10, p. 164.
(38). — The tentative, on the part of many linguistis, to reduce English and a lot of other languages to a formula or a set of formulas is quite common, and samples are found in the various books on linguistics. Refer, for example, to "Linguistics as an Exact Science", Language, Thought, and Reality, fig. 12, p. 223; fig. 13, p. 224; "Language, Mind, and Reality", Ibid., p. 254.

distribution. Consider the following statements in this respect:

This question is, ordinarily, very common in languages. Normally the untrained individual as to linguistic matters, or even a linguist without the necessary practice will not perceive the irrelevant acoustic differences between the pronunciation of the various types of the phoneme /t/ in English. Normally, to the English-speaking citizen, these differences are below the threshold of linguistic consciousness. Taking items such as table, turn, tick, toe, Tom, Thames, till; and, still, extent, extinct, stool, stem, stale, steal, stove; and, butter, better, letter, latter, batter, setter, matter, battle, rattle, wattle; and, rotten, mounatin, Britain, written, bitten, kitten, etc. we can notice, if we are trained linguists, or if we are exceptionally aware of linguistic facts, that the first group has a strong aspiration following the phoneme /p/; the second and third groups have no aspiration in the phoneme /t/ or, at least, very little aspiration, while the last group of items is characterized for the glottal articulation in the pronunciation of the same phoneme. Thus, the three variants, **aspirated, unaspirated, glottalized,** when analyzed and observed their distribution are clearly seen to be in complementary distribution; i. e. they never occur in the same environment; where one variant occurs the others do not occur. Normally, they all share in common a certain acoustic feature, that of being alveolar stops, with the apparent exception of the glottal variant (39). Therefore, each of these variants is an allophone. As H. A. Gleason also says:

"Any sound or subclass of sounds which is in complementary distribution with another so that the two together constitute a single phoneme is called an **allophone** of that phoneme. A phoneme is, therefore, a class of allophones" (40).

Whenever we speak we always have to pronounce one allo-

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(39). — In the case of the phoneme /t/, however, we have a widely different pronunciation in the glottal allophone: [t]. But still, there is an element of similarity, because the tongue goes to the alveolar position, although the alveolar articulation does not come out.

(40). — Gleason, op. cit., § 12. 10, p. 164.

phone or the other. These allophones are like the periodical series in chemistry: the various chemical elements are different, but they all share certain basic features and are subject to the same general relationships. The phoneme gives the overall or basic "soul" of the particular sound, and the allophone gives the personal feature. They are respectively, on the phonemic level, the "soul" and the "personality" of a given speech-form, acoustically speaking.

In each of the items, though the situational feature may vary somewhat, the structural feature is the same; this can be interpreted according to the **Czech Structuralist Theory on Esthetics and Literature,** as a case of foregrounding but functioning on a completely different level. The allophones, they all share some common characteristics of feature. These common features can be said to be the "soul" of these sound-features, they express the purpose of the speech-form in any situation.

Another important consideration in reference to the phoneme was made in **Language, A Modern Synthesis,** by Joshua Whatmough (41). After calling our attention to the very common fact of rhymes, such as dame, same, name, frame; here, near; other, brother; he calls our attention to the fact that these sequences of words are distinguished one from the other by the contrast between d, s, n, fr; h, n; ϕ, br; etc. Well, up to here there is no novelty in these statements. But the most pertinent statement is the following:

"Now it is not the minimal units, but their relations to one another, their mutual positions of occurrence, that perform the functions necessary to the working of the code" (42).

This is a very important statement. The units themselves, **in isolation serve for nothing;** they are the integrating parts of a greater whole when brought into mutual relationships, when there are relationships among the various **units.** E.g. that the phonemes /p/ and /b/ contrast in English is of relative

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(41). — (New York: The New American Library, 1957). The same book, in a hard-bound edition was published by St. Martin's Press.
(42). — Ibid., p. 109.

value, but that /p/ and /b/ when in certain relations with other distinctive acoustic features perform important function in the structure of the language.

Here we are on a higher, different level. Why is it that this sequence /piyk/ — (peak) and this other sequence /biyk/ — (beak) when put into relation one with the other, convey ideas? Or better still, why is it that these two contrasting sound-features, united together with other ones, in relationship, convey the idea peculiar to it? The answer is difficult to express in words; it is based on the following fact: the workings of certain types of mentality (though below the threshold of conscious awareness), analyzing reality from a certain particular and arbitrary **aspect** (from the point of view of ther languages), expresses that concept through that resultant form.

Here we are not on the plane or level of morphology or morphemics, but still on the conceptual, formulaic level of phonology. I would like to suggest the following hierarchy of levels: (as far as phonology in general is concerned), phonetic, phonemic, supra-phonemic (not to be confused with morphophonemic). This level is, on the phonological order, the plane where the formulas for meanings are worked out and this again is still clouded in mystery, for it is the noumenal, archetypical level as far as phonology is concerned. Whatever follows belongs to the plane of morphology.

It has often been said by linguists that languages are systems of communication; that every language has a system of its own. H. A. Gleason in his previously-quoted book **Introduction to Descriptive Linguistics** implies that language is a structure, made up of the systems of **expression** and **content** (43). In fact, every language is a system, an arbitrary system of communication (44). As Edward Sapir says:

"The true, significant elements of language are generally **sequences** (italics added) of sounds that are either words, significant parts of words, or word groupings. What distinguishes

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(43). — Gleason, op. cit., § 1. 3, pp. 2-3.
(44). — Refer to note 25, and page 7, bottom.

each of these elements is that it is the outward sign of a specific idea, whether of a single concept or image or of a number of such concepts or images definitely connected into a whole" (45). The very important fact here is the word **sequence** (46). Speech-forms, words, in any language of the world are sequences of sounds, of certain specific sounds. This fact implies **occurrence** and **distribution**. In any given language, the distinctive sounds or phonemes always occur in sequences, and there are always **classes of phonemes**. This corroborates what was said above on page 11 (bottom) and 12. **Not all phonemes in any given language belong to the same class**. There is always some order in the phonemic sequences of any given language. In English we can say any word we want, we can even coin a new word, but we have to conform to the system, to the pattern. **We have to conform to the facts of the phonemic order**. We can say e.g. stretches, betwixt, throughout, but we cannot say tchesstre, txiwteb, oughrthotu, nglamnshap, or any other queer combination (47).

Therefore, the study of the phonemes cannot be taken in isolation. Each and everyone of them is part of a phonemic structure which we cannot ignore. The very important fact of the variants or allophones, so important to language learning, especially when the language to be learned is a second language, is a fact derived from the fact of **phonemic environment**. Distribution, occurrence, then become facts of paramount importance in linguistics. The whole structure of phonemic and phonetic levels is based on this fact of **phonemic classes. It is the facts of the phonemic order which determine the structure**. And this is **pattern**.

As Joshua Whatmough again says:

"Awareness of linguistic events is in their associations by

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(45). — Edward Sapir, op. cit., p. 25.

(46). — The fact implied here is not just what the word normally denotes, i. e. a succession of sounds one after the other, but the why and wherefore and how sounds occur; the reason as to why certain classes of sounds occur in a certain way and not another; the reason for a given distribution and the final formulas that can be arrived at.

(47). — See Gleason, op. cit., § .7. 25, p. 246, and Bloomfield, op. cit., § 8. 2, p. 129 and ff.

comparison or contrast. The most fundamental and thoroughly pervasive contrast is between order and disorder; this also is a question of association, of **features of arrangement** (italics added), and is a basic and indispensable principle in the description of any system. Human beings have developed a faculty of selection which depends on comparison (likeness, similarity, identity) and contrast (unlikeness, difference). In language, if anywhere in human conduct, these principles of contrast, of order, of choice and of regularity, are systematically, integrated" (48).

Further down he states the following:

"Linguistics is a cognitive science — **we are to discover**, in each case, the inherent pattern of a language, not to impose an artificial, if elegant but predetermined, scheme (except perhaps as tour de force), upon the crude data. Just as with other patterned natural or human development, so in every language there is a system, a pattern, a structure; it is the linguist's task **to discover and to elucidate this pattern**" (49). Also: "Without the pattern the language could not be; the language is the pattern and the pattern the language. Without system language could never have come into existence as a capacity for **classifying** and **symbolizing** experience; it would have remained for ever undifferentiated and chaotic" (50).

These statements made by Whatmough are very apposite. They corroborate similar statements by a lot of other linguists like Edward Sapir, Paul L. Garvin, Charles F. Hockett, and others.

As I stated in the beginning of this article, quoting Benjamin Lee Whorf, "We must find out more about language!" (51) Modern structural linguistics, especially the North-American School, following in the steps of Bloomfield, holds that differences in speech-forms are the causes of differences in meaning, and not vice-versa. Archibald A. Hill, commenting

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(48). — Joshua Whatmough, op. cit., pp. 103-104.
(49). — Ibid., p. 105.
(50). — Ibid., p. 105.
(51). — Benjamin L. Whorf, op. cit., p. 250.

on this point, says:

"From Sapir came the notion of patterning; yet to Bloomfield belongs the real credit for formulating the American approach to phonemics, and for giving all of American linguistics its firmly non-mentalistic basis; that is, the belief that formal differences are what give differences in meaning, and that consequently meaning must be investigated through formal differences. The contrary assumption, held of course by most non-linguists, is that differences in meaning make the formal differences, so that formal differences should be investigated only in terms of meanings. With this position linguists disagree, holding that to use meaning as a tool in analysis results in circularity and confusion" (52).

Through this we see that "Structural linguistics is content with the description of languages and language types. It explicitly and deliberately excludes the consideration of meaning, of the evolution of language, of the part language has played, for good and for evil, in human affairs, how it works, its virtues and its failings. It is barely interested in the social conformity of ordinary discourse, and not at all in the refinements, both individual and social, of linguistic non-conformity as it appears in scientific or poetic discourse" (53).

Here we have to understand that all these statements are rather true of American Linguistics, or of a great number of American linguists, and cannot be applied to all American linguists, or to all linguists. This is very apposite, because **we must find out more about language!** The concept of the phoneme has been formulated, then the allophones came out, and the levels of **phonetics**, completely distinct from **phonemics**, **morphonemics**, and the suggested level of **supra-phonemics**, become apparent. And the other levels of **morphemics**, of the **word**, and other levels came into being.

That change in form indicates change in meaning, does not necessarily indicate that they must necessarily **condition** chan-

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(52). — "Linguistics Since Bloomfield", Readings in Applied English Linguistics, ed. Harold Allen (New York: Appleton-Century-Crofts, Inc., 1958), p. 14.
(53). — Joshua Whatmough, op. cit., p. 105.

ges in meaning. In fact, in spite of its denials, Structuralist Linguistics has not ventured in the problem of meaning, and they are on the whole right, because we cannot analyze meaning **conditioned by form,** at least as form has been studied, because meaning is, actually, the "quality" of distinctive speech-forms as they **are,** not as they should be used **for**. The form is only the instrument used by Mind. Mind, meaning, of course the mental processes mostly below the threshold of linguistic conscious awareness, which express themselves in the patterned formulas, which are the "soul" of a given culture, linguistically speaking.

Because the subject is still rather nebulous and not yet scientifically proven, or accurate, because we do not have the actual means that can lead us from meanings to form, or even from form to that level which I have termed supra-phonemic, which is really the noumenal world for phonology, we should keep to the method of starting from forms, as the only definite, accurately scientific, and reasonable for the study of languages. But **this does not mean necessarily that form conditions meaning**. In the future, perhaps, we will know more of this level, because at present we have just penetrated it a few years ago, and things are ordinarily at this stage nebulous and vague.

But back to the problem of meaning. First of all, we do **not** have **absolutely,** fixed meanings. This is because speech-forms, or at least the greatest number of speech-forms, imply concepts, and concepts are **Mind, mental processes, mental patterns**. An excellent example of this fact is, e.g. what Benjamin Lee Whorf discourses in his article, "An American Indian Model of the Universe" (54). Though the Whorf hypothesis has its limitations, it proves the fact that a different mental consciousness arrives at widely different analyses of reality. Reality is one, but it is the particular consciousness which aspects differently the same situation, and then the different linguistic structures.

Another point: according to the Czech Structuralist Theo-

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(54). — Benjamin L. Whorf, op. cit., p. 57 and ff.

ry in Esthetics and Literature, masterfully explained by Roman Jakobson, one of its leading exponents, we have:

"The starting point of Prague School esthetic and literary structuralism is the concept of esthetic function, as opposed to the pratical functions. Every object or action, language included, can be assigned a practical function — utilitarian for tools, communicative for language, and so on. If, however, an object or action becomes the focus of attention for its own sake. and not for the sake of the practical function it serves, it is said to have an esthetic function; that is, it is responded for what it **is**, and not just for what it is **for** (55). Thus the esthetic function as such is not limited to specific works of art and literature but can appear in connection with any object or action. It comes about by virtue of what I have translated as **foregrounding**, as opposed to **automatization**. Automatization is the term used to refer to the stimulus normally expected in a social situation; foregrounding — in Czech **aktualisacz** — on the other hand refers to a stimulus not culturally expected in a social situation and hence capable of provoking special attention". (56).

Therefore, we cannot assign definite, fixed meanings to any speech-form; they always have one feature aspected positively according to the foregrounding, the automatization, or the linguistic situation, and others relegated to the background.

E. g. when we say:

The wings of hope.

The breath of despair.

The morning of life.

The river of death.

Here the words "wings", breath", "morning", and river" are expressing the "soul" but not the work-a-day normal expression.

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(55). — What I have been calling the "soul" or "quality" of the item itself, not its structural purpose, exacting a conditioned response. This is what really happens with almost any word. Used with widely-different situations, it responds for what it is, and not for what it is used for.

(56). — A Prague School Reader on Esthetics, Literary Structure, and Style, selected and trans. Paul L. Garvin (Washington, D. C.: Washington Linguistic Club), pp. 2-3.

Then, as there are not even two individuals, even in the smallest linguistic community, who can reproduce **exactly** the same phonemes, so, there are not two individuals, even in the smallest linguistic community who are able to put forth two sentences with the same absolute meaning. Meaning, as the phonemes, are ranges of meanig, with a basic underlying meaning, and a lot of other correlated meanings .The sentences can be grammatically the same, but the meaning can be different, although slightly different. E.g. taking the word **head**. All the meanings of the word "head" of course have a similar basis, at least I speak from the point of view of a particularly given language, i.e. English. We can have: the head of a man, the head of the party, the head of the table, the head of the coin, the head of the stream, the head of a sermon, the head of a plant, or the head of the problem, etc. What do we mean when we say: "Where is the head"? Out of linguistic situation, "in the air" what it denotes is its **concept,** its ideation, its archetype or prototype. We might say: the "soul" of the concept, its inherent or underlying de-no-ta-tion. We see then, that the linguistic facts recur in different levels, though not exactly the same, absolutely alike.

It is true that the smallest phonemic cluster with identifiable linguistic meaning is normally referred to as a morpheme. On the phonological level, as clusters of sound features, the morphemes also suffer variations, which are described by various linguists as morphemic and morphophonemic variations. But this is important only on the phonological level, not on the morphological level. When the variation in the speech-form is morphologically conditioned then we have morphemic variation; when the variation is phonologically conditioned, then we have morphophonemic variation (57). The case of the Plural System in English, the third person of the Simple Present Tense, and the Genitive Case, are examples of morphophonemic variation, because the changes that we have in the plural system e.g., are conditioned by the last phoneme preceding

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(57). — Refer to Gleason, op. cit., § 5. 22-5. 27, pp. 60-64.

the morpheme —s. The pronunciation is [s] when the last phoneme is a voiceless phoneme, in the case of books, stops, chips, etc. It is [z] when the last phoneme is a voiced phoneme, as in lives, dogs, ribs, pills, etc. When the last phoneme is a sibilant phoneme, then the pronunciation is [Iz] or sometimes [Iz], as we have in classes, boxes, brushes, etc.

When the variation is caused by the morpheme itself, e.g. we use **men** only as the plural of **man,** or **children** only as the plural of **child,** etc. then it is clear that the causes are morphological.

Normally, in traditional grammars, the variation called morphophonemic is described as **rules** and the variation called morphemic is described as **exceptions**.

But here, still, we don't have what I have been calling "meaning" or "quality". It is just a variety of patterns found on the phonological system of patterning and cannot be referred to as "meaning", the conditioning factor.

The greatest consequence from all this is that we see two similar structures of patterning, in the linguistic order, occur in two different levels of analysis. What happened on the phonemic level, in a similar way happened on the morphemic level. And the existence of a supra-phonemic level indicates the way for still higher levels of patterning, of which we may not be aware but of which the mechanism of language testifies. As there is a noumenal, archetypical world for the phoneme, so there is actually a noumenal, archetypical world for nature and the universe. All these planes are also **different levels of reality**.

On the other hand, though planes, levels, patternings are somewhat different, they also bear some similar relationships. And it shows that these simple facts of the linguistic order are connected with cosmic order! With Universal Reality! Here again we have the fact that the universal is actually reflected in the particular. The facts so far gathered and analyzed prove effectively that language is only part and parcel of a greater whole. They show really, that the facts of the linguistic order are the **first real proof** of the existence of an intangible, untou-

chable world of prehensible realities. As Benjamin Lee Whorf has said, "that world of which the physical is but a surface or skin", (58) which is the real conditioning level of reality.

This fact, or better still, this idea is not new. The above quoted author, Benjamin Lee Whorf in his article "Language, Mind, and Reality" declares:

"This view implies that what I have called patterns are basic in a really **cosmic sense** (italics added), and that patterns form wholes, akin to the Gestalten of psychology, which are embraced in larger wholes in continual progression. Thus the cosmic picture has a serial or hierarchical character, that of a progression of planes (59) or levels" (60).

Further down he says:

"But in the science of linguistics, the facts of the linguistic domain compel recognition of serial planes, each explicitly given by an order of patterning observed. It is as if, looking at a wall covered with fine tracery of lacelike design, we found that this tracery served as the ground for a bolder pattern, yet still delicate, of tiny flowers, and that upon becoming aware of this floral expanse we saw that multitudes of gaps in it made another pattern like scrollwork, and that group of scrolls made letters, the letters if followed in a proper sequence made words, the words were aligned in columns which listed and classified entities, and so on in continual cross-patterning util we found this wall to be — **a great book of wisdom!** (italics added)" (61).

Paraphrasing we might say: Language, if we study it enough, also proves to be a great book of wisdom!

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(58). — Benjamin L. Whorf, op. cit. p. 248.

(59). — We should be careful not to think that when we refer to "planes" or "levels", we mean one on top of the other, like pancakes, but it is really a different dimension, different relationships which are meant. One is the basis for the other, and in this way all the planes share in certain common features, though "on a higher turn of the spiral", as it is so often said. The planes or levels are different, but also basically of the same nature. The one is the will of the whole, the other of the separated level. As the different planes or levels are basically the same in all languages of the world, here is a sound basis for human brotherhood, and international synthesis, so to speak.

(60). — Benjamin L. Whorf, op. cit., p. 248.

(61). — Ibid., p. 248.

This fact of levels is found everywhere in nature, and in the cosmos. It is very interesting to notice that the word cosmos originally meant **order, harmony,** another form for **patterning,** in contradistinction to chaos, which is disharmony, confusion, disorder. In fact, the Universe is order, pattern, because facts, phenomena, circumstances can be predicted, can be intuited, thought out and generalized. And in this world of order, there are the various levels of matter: substance is one, but we have it manifesting as solids, liquids, gases, and various intermediate states; it is just a question of atomic patterning.

After the pioneer work of Freud and Jung and other analysts, the mistery of the Mind and Soul are beginning to be found out through the findings of modern psychology. Man is not described simply as a body with something nebulous and vague that the religionists and mystics of the past have called "soul" or "spirit", but something concrete, tangible, (though not by physical means), prehensible, **analyzable,** and which is the source of all knowledge and of all activity.

This is also being found in the microcosmic world, in the recent discoveries of the facts about the internal structure of the atom. In the atom again, though in a different and quite strange manner, we have the question of levels, and of patterning, too. The various caps of electrons, the various particles found in the nucleus, all obey to a certain arrangement, which is a form of patterning. And what is really at the core of the atom? Matter? Not. Energy? Yes, but what kind of energy? There may come a day when we will be able to say that it is the universal, all-powerful force of divinity. God in the atom? (62) Why not, because this central energy in the atom is demonstrating to be the force of evolution itself, a form at least,

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(62). — **Of course by God I don't mean any of the poor caricatures that have been made of "God" by man, as the anthropomorphic, personal, vengeous, tribal "God" of the Old Testament, "The Jealous Jehovah Sabaoth". the result of the tribal concepts of the Jewish people about "God".I mean here the beneficent force of evolution itself, the Father of all, the One causeless Cause, absolute, impersonal divine energy, which manifests itself in the Universe, and is all the love, beauty, understanding, goodness, just reward, and saviour within man as well as within nature. The one who manifests through divine, though limited individualities, but who remains, nevertheless, unchangeable, unmanifest.**

of this partly invisible world but of which we have so many testimonies. And the paramount fact is this: All around and within this wonder of the universe is **pattern,** in a serial order of sequential **levels,** each in a way independent, but also interdependent of the larger whole, intricately intertwined and interlaced to one another. There is no life beyond! Just because **we are in it,** though we may not be consciously aware of it. The fact again repeats in the microcosmic sense, in the solar system, and the galaxies, ad infinitum! These again, the atomic world, man, and the solar system and the galaxies, are themselves different levels of patterning. The universal is the model for the individual. So, the Mind and Soul that we find in Man, we also find in nature, and language is part and parcel of nature. In language, in its turn we have the different levels of patterning: phonetic, phonemic, supra-phonemic, morphophonemic, morphemic, etc. And there may come levels of which we are not as yet aware. We are just starting the knowledge of language!

Together with this question of levels and patterning, one of the most important things to be taken into consideration is the recurrence of similar acts in the various levels of patterning. As with the phoneme, which has a centre, a core, a nucleus, so the same with words: it is what I have called the underlying "quality" or "soul" of the word. It is the centre round which the other meanings circulate; it is the invisible, but mentally perceptible core which is the cause and reason of any word. It can express many shades and colours of meaning, but the basic or underlying "soul" has to be there.

Again Benjamin Lee Whorf says very appropriately:

"The idea, entirely unfamiliar to the modern world, that nature and language are inwardly akin, was for ages well known to various high cultures whose historical continuity on the earth has been enormously longer than that of Western European culture. In India, one aspect of it has been the idea of the **mantram** (63) and of **mantric art**. On the simplest cultural level,

(63). — **Mantram, a word of power, a creative sound. According to the Hindu philosophy, it is the AUM or OM, symbolizing the three divine aspects of the Father, the Son, and the Mother.**

a mantram is merely an incantation of primitive magic, such as the crudest cultures have. In the high culture it may have a different, a very intellectual meaning, dealing with the inner affinity of language and the cosmic order. At a still higher level, it becomes "Mantra Yoga". Therein the mantram becomes a manifold of conscious patterns, contrived to assist the consciousness into the noumenal pattern world — whereupon it is "in the driver's seat". It can then set the human organism to transmit, control, and amplify a thousandfold forces which that organism normally transmits only at unobservably low intensities" (64).

What was said above can also be appliel to Colour, Sound, Number, Musical Notes, and Geometrical Forms. Even in English, a language that does not possess this characteristic, we have on the phonological level certain groups of words that bear a connection to one another: e. g. sprawl, spray, spread, sprid, sprightly, spring, sprinkle, sprint, sprout, spry; and bleach, blaze, blazon, blench, blitz; and sleep, sleigh, sled, slide, slip, slow, slug, sling, etc. and other examples might be included where there is obviously a **connection** in the purport of certain groups of words, with basis on some phonological feature: /spr/ — connected with the idea of extending, ‚spreading going, movement, etc.; /bl/ — connected with the idea of bright, shining; and /sl/ — connected with the idea of slipping, gliding.

Normally speaking, thinking is such a commonplace thing that it is described by some as the result of just social environment, the language one speaks, and that we are linguistically conditioned in our thought processes (65). This is all relatively true but also relatively false.

This idea, of the noumenal in language and in nature, is very old in the East though quite new and extraneous to modern Western Science. But it stands on irrefutable evidence. And one of the best evidences is the study of language.

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(64). — Benjamin L. Whorf, op. cit., p. 249.
(65). — The Whorf hypothesis, which states that thinking is conditioned by the linguistic type and linguistic structure we use.

The idea is that there are words of power which produce far-reaching effects. And this can be proved through the findings of modern linguistics and modern psychology.

Summarizing what was said then, we can conclude that the most important fact in language is the fact of patterns, and the different levels of patterning. We have the phonetic, the phonemic, and the supra-phonemic. It can be compared to what Benjamin Lee Whorf states as the plane of **Manas,** the Manasic plane. According to him it is a major hierarchical grade in the world structure. This, in its turn is divided into súbgrades, i e. the subgrades of Nāma or Rūpa, and Arūpa. These two respectively mean the realm of name or form, and the realm which is formless. The first is the lexical, phonemic level. The second, though "formless" does not mean "without any form" but without "Reference to spatial, visual shape, marking out in space", (66) It refers to what I have termed the supra-phonemic level, the pattern world par excellence.

As he says again further below:

Arūpa is a realm of patterns that can be "actualized" in space and time in the materials of lower planes, but are themselves indifferent to space and time. Such patterns are not like the meanings of words, but they are somewhat like the way meaning appears in sentences. They are not like individual sentences but like **schemes** of sentences and designs of sentence struture"(67).

As I said before, it is the world of formula par excellence. It is also the world of concept, which is also a formula; and correlatingly, Sound, Vibration, Light, Matter. All these are synonymous terms.

Everyone knows the effect that rhythm and vibration have on physical matter. The potent particles of the atom, in the form of alpha and gama rays, are types of high-grade matter, invisible to us, and which impose a new pattern on phy-

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(66). — Benjamin L. Whorf, op. cit., p. 253.
(67). — Ibid., p. 253.

sical matter, with the resultant dire effects on nature and on man.

The important point here is that should man discover the formulas and basic concepts of this new realm or level of experience, he would be the complete master of the world. The modern discoveries of the atomic bomb, the satellites to outer space would be playthings compared to the possibilities ahead of him in this respect. Fortunately, for man, he is too preoccupied with more trivial matters to find the disposition and the propensty to reach that subtle but determining realm of relationships. But sooner or later, someday we will penetrate this new plane of patterned relations. And one of the best methods through which we can start piercing this new dimension, is with the study of symbols. "The linguistic order embraces all symbolism, all symbolic processes, all processes of reference and of logic" (68). Thus language is again restored in the natural framework, but not as in the past, due to the imposition of an odious, authoritative doctrine which stated that God told Adam to name all things but as the result of an expansion of consciousness. And we are on the way to finding out more about language!

(68). — Ibid., p. 252.

PHONEMIC CHARTS.

Simple Vowels

	Front	Central	Back
High	/I/		/U/
Mid	/E/	/ə/	
Low	/æ/	/a/	

Complex Vowels

	Front	Central	Back
High	/iy/		/uw/
Mid	/ey/		/ow/
Low		/ay/, /aw/	/oy/

			Bi-labial	Labio-Dental	Inter-Dental	Alveolar	Palatal	Velar	Glottal
STOPS		vl	/p/			/t/	/č/	/k/	
		vd	/b/			/d/	/j/	/g/	
SPIRANTS	Slits	vl		/f/	/θ/				/h/
		vd		/v/	/ð/				
	Sibilants	vl				/s/	/š/		
		vd				/z/	/ž/		
	Lateral	vd				/l/			
	Nasals	vd	/m/			/n/		/ŋ/	
	Trills	vd				/r/			
	Sonants	vd	/w/				/y/		

Pitch

4 Ultra-high
3 High
2 Normal
1 Low

Stress

/ Primary Stress
\ Tertiary Stress
^ Secondary Stress
The weak stress is left unmarked

Pauses

falling voice
‖ rising voice
| level voice

/ / Phonemic transcription.

[ ] Phonetic transcription, or interpolations or comments by the author .