Introduction

The notion of **“World Model”** is widely used by representatives of different sciences: by philosophers, psychologists, gnosiologists, culturologists, linguists. Being engaged into the widening circle of the fields of scientific knowledge, the "World model" concept gains co-definitions, such as "science-natural", "historical", "physical", "biological", "linguistic". But all the same it remains the sort of metaphor, because different scientists fill it with different contents. Hereafter, we shall refer to this notion as to scientific term without any quotation marks---world model, trying to concretize this notion in the frames of linguistics. In nowadays linguistics different research workers fill the notion of world model with different content. There exists a wide range of approaches to the definition of this concept. Nevertheless, in all cases of its usage world model as a linguistic notion seems to be properly arranged systematization of the language semantic content. Every national language fulfills two main functions: communicative and nominative ones. As a matter of fact, the last one implies the function of recording and keeping in language lexical and idiomatic staff the whole variety of concepts and ideas about the world, worked out by certain national mentality. So the universal (global) knowledge about the world fixed in language patterns is the result of the efforts of a collective mind. But one can speak about different kinds of a human consciousness: the individual mind of a person, the collective everyday mentality of a nation, the scientific mentality. That's why it is possible to speak about a large number of world models, at least about three of them: scientific world model, world model of national language, world model of a person. Each type of mentality records in language matrices all the results of world comprehension.

In linguistic literature the notion of "scientific world model" is usually not being discussed. It appears to be the obvious objective constant in traditional two-member opposition: scientific world model—language world model. Both of the models find their reflection in language of science and in standard national language correspondingly. Linguists are fully absorbed by analysis of national world model. Meanwhile, the scientific world model is learnt only in the aspect of language it uses for the embodiment

of its notions, but the conceptual status of the scientific language remains not elucidated at all. Nevertheless, the adjoining to linguistics sciences (philosophy for example) pay a lot of attention to the clearing up of the scientific knowledge status.

Historical Background of the Issue

Many outstanding scientists (A. Einstein, V. Vernadskiy[(1)], M. Plank, etc.) have been taking great interest in conceptual meaning of the scientific knowledge, of how this knowledge arranges into a global structure. For example, A. Einstein wrote about human's longing to create the clear and simple model of the world so as to break away from the world of sensations, trying at the same time to substitute this world for the newly created model. According to A. Einstein, that's what artists, poets, philosophers, naturalists do, each one in his own manner. Exactly this model becomes the center of human's spiritual life, giving to the man a feeling of confidence and certitude.

This definition contains no attempt to separate the scientific world model from presentation of the world by non-scientific consciousness. It is only said, that man tries to replace the reality by some created model, that finds various incarnations in the forms of scientific theories, classifications, pieces of art. This A. Einstein's statement belongs to those numerous interpretations of the scientific world model, that underline only the most common features of this notion. World model is defined here in rather uncertain, approximate way. From definitions of such a sort one can only figure out, that the world models are simplified substitution of the real world by the invented scheme or image of the objective reality.

M. Plank shows more concreteness in defining world model and scientific world model. World model formation goes, according to his opinion, through two stages: the first stage implies subjective sensual perception of the world; at the second stage the "diverse subjective variety" is replaced by the objective order, by universal knowledge about the world. According to M. Plank, people's sensations, provoked by the same subjects, differ, though the image of the world appears to be invariable. M. Plank previews, that the scientific world model will be feeble and dull in comparison with original world model. And it's of no wonder, because the scientific world model is a

model of exact science. Such understanding of these notions excludes from the contents of the world model and the scientific world model all things linked with man and society, because the social sphere has never been the object of the exact sciences. Including in the scientific world model of everything, concerned with man and society, makes it universal. That's why, to the thought of philosophers, in scientific world model must be realized V. Vernadskiy's idea about the integration process in the development of science: separate natural and historical phenomena must merge into a single whole, creating the complete model of the Universe (V. Vernadskiy, 1978).

M. Heidegger exposes the following understanding of relationship between a man and the world model:

1. man represents the world as a model;
2. man understands the world as a model;
3. the world turns into a model;
4. man conquers the world as a model.

M. Heidegger makes an important conclusion: man represents for himself the world model, composes it and just from this moment his activity starts. For this author the notion of a world model is inseparably connected with the subject of historical process, i. e. with individual, who perceives and changes the world.

For Heidegger the problem of the world model formation is closely connected with a world outlook, because if "the world becomes a model, the man's attitude is understood as an outlook." In Heidegger's interpretation the world model is a kind of representation of the "essence", and the outlook is treated as man's attitude to the "essence." Heidegger doesn't acknowledge two separate world models for nature and history: he combines them into the single one. There is no contradiction between Plank's and Heidegger's points of view. Heidegger's approach adds a lot to Plank's version. For Heidegger the world model appears to be not only a natural category, but also a social one, depending on a man, who perceives and changes the world. To put it briefly, Heidegger's world model comprises the world of nature and the history of society (Heidegger, 1951).

The world model definitions examined above belong to "non-strict" ones. They were used by famous naturalists and philosophers of the past. But todays' scientists mostly use the exact definitions.

Possible Approaches to Interpretation of SWM

In nowadays philosophy the question about the world model status seems to be rather complicated. One can point out several directions in definition of the scientific world model. Here they are in brief:

1. Scientific World Model /SWM/ as a part of philosophical knowledge;
2. SWM as a component of scientific outlook;
3. SWM as a form of systematization of scientific knowledge; all concrete sciences taken as a whole;
4. SWM as a research program (Shmakow, 1990).

For the purposes of linguistic research the third definition appears to be the most available. A. Kravets also maintains this point of view. In his interpretation the third definition of SWM gains the principal position among the others (Kravets, 1983). Summerizing all existing opinions on the status of SWM, Kravets gives the following notions of SWM:

1. SWM as "ontological part of philosophy."
2. SWM as "integrated elements of today's science (general theories, concepts, ideas)."
3. SWM as "totality of stereotypes of scientific thinking: paradigms, research programs, methodological regulations."

As we see in given above definitions, the notion of SWM gets extremely wide filling. It includes not only the whole system of the scientific knowledge, but also the cognitive process itself in the frames of this or that world outlook.

Some of the researchers divide the general notion of SWM into two special notions: "total world model"/TWM/ and "special world model"/SpWM/. L. Yatsenko characterizes these two models as different, but related structures, which fulfill different normative missions. The first structure is a component of an outlook. The structures of the second type are referred to as to the systems of the main principles and fundamental notions of every branch of knowledge, which occupy an intermediate position between the world model of the epoch and special discipline at the certain level of its development (Dishleviy & Yatsenko, 1983). It follows, that two models are differentiated according to

their functions: "total world model" /TWM/ conveys the outlook of a person; "special world model" /SpWM/ is closely connected with the system of knowledge. L. Yatsenko uses somewhat different terminology: he distinguishes two terms: TWM and SpWM. TWM is equal to the term "world model," and the term "scientific world model" is not used at all, being substituted by the term "special world model" /SpWM/.

Generally speaking, "scientific world model" /SWM/ may be characterized as a way of simulating reality, which is based on the separate scientific disciplines. Embracing all branches of knowledge about the world, man and society, it is characterized by universality. It follows that, SWM must use special system of terminology, quite different from logical languages of various disciplines and theories.

Some scientists speak about two approaches to the problem of SWM, so-called "scientific" and "naturalphilosophical" ones. The first, the "scientific" one states, that SWM is produced by separate sciences and represents certain knowledge about the world; the second, the "naturalphilosophical" one, interprets SWM as a global reflection of reality, that gives to it the sense of a world outlook.

Author's conception is closer to the "scientific" approach. Hereafter, we shall refer to the Scientific World Model as to the Whole Totality of the Scientific Knowledge about the World Worked out by All Special Sciences at the Present Stage of the Development of Human Society. In our opinion, SWM reflects the Collective Knowledge about the world, including both natural and social phenomena.

Some Basic Characteristics of SWM

All scientific knowledge about the world is fixed in the languages of different sciences, in terminology. Every science has its own terminology. It could be defined as a totality of words, denoting scientific notions and categories. As a matter of fact, the scientific world model /SWM/ is reflected in terminologies of various disciplines, which study the objective world from different points of view. In their turn, terminologies are also classified into separate term systems. Linguists-terminologists have to distinguish all term systems within this or that science, linking at the same time all of them with certain Categories of notions. These categories could be described as extremely wide semantic groups, which form the structure of special terminological lexics.

Terminologists propose to distinct different categories of notions in accordance with which the term systems could be constructed. For example, D. Lotte pointed out four categories of notions: subjects, processes (phenomena), qualities, quantities (Lotte, 1968). T. Kandelaky distinguishes in professional lexics nine notion categories:subjects, processes, states, regimes, qualities, quantities, units of measurement, category of sciences and branches, category of professions and occupations (Kandelaky, 1977). Every science has its own set of such basic categories of notions.

The most essential features /distinctive signs/ of scientific world model could be formulated in the following statements:

SWM constantly changes in time. It is determined by continuous development of science. The collective scientific knowledge about the world constantly increases, some postulates are revised or rejected and a new knowledge appears. These constant changes evoke the appearance of new notions, the old ones are being corrected. In accordance with this process new terms come to light, when traditional ones are being filled with new content. SWM has a dynamic character. It permanently strives for the accurate reflection of the real world. If SWM stops changing it might mean the end of the scientific progress, reaching the tops in knowledge about the world.

SWM will always remain "less" than the objective world, because it could never become identical with the last. Otherwise, it would signify the complete knowledge of everything, of all space-time world continuity.

From these statements follow two philosophical truisms:

1. the process of cognition is infinite,
2. there are no limits for cognition, but all the same the objective world could not be cognized to the end.

SWM is common for all language communities, because the scientific knowledge is free of any "language subjectivism", it doesn't depend on any language peculiarities of this or that language community. Being objective, the scientific knowledge doesn't take into consideration national mentality, traditions, moral priorities of the peoples, their national culture as a whole.

Being invariable in content for all peoples, **SWM** gets its national form of expression through national terminologies in every national language. "National language arrangement" of SWM never touches its content, but adapts the universal knowledge to the needs of certain language community.

SWM obtains its "national language clothing" only in the case, if certain ethnic community has the experience of heaping, developing and transferring of the scientific knowledge, in other words, if it has proper scientific traditions. If such traditions are absent, the invariable content of SWM finds its presentation in two ways:

1. through "language clothing" of the language mostly used in this or that field of knowledge;
2. through "language clothing" of that national language, which performs the function of mediation, while transferring the scientific knowledge to the certain ethnic collective, not having any scientific schools in any branch of knowledge and experiencing as a result of it a strong cultural and, correspondingly, language influence of the other nation.

The national language arrangement of **SWM** might be full or fragmentary, it might be even absent at all. That depends on several factors. The first is what language and when has started the initial accumulation of knowledge and formulation of the basic notions. The second is determined by the intensity of development of the certain field of knowledge by scientists-representatives of this or that language community. The full version of SWM, arranged in national language forms, exists only in the case, if the bearers of that language constantly carry out total scientific researches, touching all spheres of knowledge.

Both SWM and LWMs reflect national mentalities, give necessary basis for investigations of how this or that nation thinks. But it is important to emphasize, that these two models are not identical. SWM suggests the objective model of the world, but is not related to any language. SWM conveys the up-to-date knowledge of the society about the objective world; it proves to be the fruit of the cognitive activities of humankind. On the contrary, LWM is always subjective. It conveys the results of the initial comprehension of the world by this or that ethnic community.

In the process of language acquisition children first get acquainted with LWM: the scientific knowledge about the world comes later, when a person grows older. People are able to perceive only some fragments of SWM, because nobody's mind could keep SWM as a whole. Thus, SWM appears to be the kind of global storeroom for the scientific knowledge.

Correlation between SWM and LWM

In everyday life people use so-called naive notions. The objective scientific knowledge, existing in the form of scientific terms, does not destroy the naïve initial vision of the world, which is embodied in LWM. They are two parallel worlds. Both scientific terms and "naïve" words-notions have their own spheres of usage, though one can't deny their mutual influence. Both models change in time, but LWM changes much slower, than SWM: the kernel of LWM remains practically invariable. Summing up, we can state, that scientific and language world models are produced by various kinds of mentalities of different language communities at different stages of historical development; they are carrying out different functions.

SWM is being created and used by a narrow circle of people--by scientists, who constantly widen it with new elements of knowledge. The collective scientific consciousness investigates the objective world, at the same time SWM is permanently improving and growing richer. On the contrary, all changes, taking place in LWM, touch only its outlying areas: it is stable on the whole. Otherwise, LWM wouldn't be able to fulfill its main function: to keep and reproduce through times the simplified classification of the objective world, ensuring in this way the succession in verbal thinking of this or that collective of language bearers.

Speaking about cognitive role of language, we mean just "naïve" none-scientific cognition. Acquiring language, a child gets the whole naïve idea of the world he lives in. This notion differs much from the scientific conception of the world. Nevertheless, SWM does not deny or refute LWM, because the first one exists for other purposes and has its own independent status. Mankind knew long time ago, that the Earth turned round the Sun, not the Sun turned round the Earth. But people still say "The Sun rises", "The Sun goes down." Now everybody knows, that the Earth has a form of a sphere, but this

knowledge doesn't lead to the disappearance of the expression: "at the end of the Earth." Nobody suggests to substitute the word combination "The Moon shone" by another one, more correct from the scientific point of view, for example by "the sunlight was reflected from the Moon's surface." Natural languages contain lots of such "incorrectness" in their lexical and idiomatical staffs. As far as idioms of any language are concerned (and they form an important part of every language), one can speak about their "conceptual incorrectness." It is just on the surface in the expressions like: "to be chicken"; "to sit on the phone"; "to fly off the handle"; "to be a nut," etc.

There are three key questions, which should be clarified as far as the relationship between SWM and LWM is concerned:

1. Is it necessary to use SWM for the studies of LWM-s and how to do it?
2. Are there any national specific features in SWM, arranged in national language patterns? How are they being displayed?
3. How and in what aspects SWM and LWM influence one another?

The first question gets the positive answer. Peculiarity of any LWM manifests itself not only on the background of other LWMs, but also on the background of the certain scientific knowledge, which appears to be invariable for whatever language.

Methods of Investigation

Only some fragments of SWM and LWM could be compared and analysed, because both SWM and LWM are very large, consisting of pretty different parts. For this purpose one has to choose a certain system of terms as a part of SWM and then pick up a corresponding semantic group of lexical items as a part of LWM. The comparative study of these two units should be based on their logical organization. Such kind of investigation seems to be very helpful for determination of the character of correlation between SWM and LWM. It could be shown in a primitive way as follows:

Fragment of **SWM**

terminological system of language -1	terminological system of language -2
lexical group of the same name of language -1	lexical group of the same name of language - 2

In our opinion, the most interesting and significant objects for comparative study are the oldest kernel parts of both SWM and LWM. These areas of the real world appeared to be the first objects to nominate from the side of the language consciousness and objects to systematize from the side of the scientific consciousness. What are these objects? Firstly, they are items of the world of nature: climatic and weather phenomena, types of relief, natural reservoirs, vegetable kingdom (names of flowers and trees), animal kingdom (names of birds, fishes, wild and domestic animals, insects, etc.). These types of objects used to be very important for the everyday man's life, that's why they had got their nominations long time ago. Later on these phenomena became the objects of cognition by gradually forming scientific consciousness. So the classifications and terminological systems of natural sciences are displaying themselves as the oldest parts of SWM, being its kernel, foundation and starting-point of all further scientific knowledge about the world.

Being the universal scientific knowledge, SWM is not more than abstraction, finding its embodiment in the language of science of every language community, which has certain scientific traditions. That is why it is quite possible to speak about national scientific world model /NSWM/, which represents SWM in the forms of this or that national language. Language incarnations of SWM have national peculiar features, which display themselves in national terminological systems.

Among all possible characteristics of the scientific lexics (grammatical, derivational, semantic and genetic) the second and the third ones -- derivational and semantic -- seem to be the most indicative for the investigation of national images' peculiarities. Being based on the means and models of the word-formation of national language, language of science works out its own word-formative subsystem.

Any national language has three main types of terminological word-formation: morphological, syntactic and semantic, which coincide with the main types of language motivation. Semantic word-formation appears to be in close connection with what we call a motivation of the scientific term. Regular semantic transpositions, being studied simultaneously with the types of motivation of the scientific terms, show very interesting data, reflecting the metaphorical character of the given national language consciousness. The scheme of such a study could be outlined as follows:

Scientific term motivation -- type of scientific term motivation -- terms, created as a result of semantic transportation - typology of regular semantic transpositions. Regular semantic transpositions could be classified in such a way:

1. Regular metaphorical transpositions, which are realized among words-members of the different fragments of LWM;
2. Regular metaphorical transpositions, which are realized between terms-members of NSWM and lexical items-members of LWM.

NSWM of different languages display the most preferable kinds of metaphor, which give an opportunity to speak about the peculiarities of national world vision. In different NSWM-s different means of word-formation could be used. Any kind of national language word-formation (traditional morphological one or semantic one) fulfils the function of synthesis of the scientific thinking and formal expressive means of the common language of this or that ethnic community. Terminological items formed morphologically or in a semantic way have a role of a connecting link between languages of science and standard languages. Considering the fact of the extending gap between the professional languages and their common base - national language, a connecting link of this sort seems to be very desirable and important.

NSWM's peculiarity might be brought to light through different comparative descriptions, each of them pursuing their own goals:

1. Comparison of different, but topically close systems of terms, belonging to the same NSWM, gives the material for creation the typology of word-formative types and models of metaphorical transpositions.
2. Comparison of the same-named systems of terms in different native language demonstrates the non-coincidence of signs, taken as basic ones, when a nominative activity is being carried out.

3. Comparison of the same named systems of terms (part of NSWM) and lexical group (part of LWM) exposes the reasons for "national character" of terminological system, reveals the directions of NSWM and LWM mutual influence in the frames of one and the same language.

Lexical groups as parts of common language and systems of terms as parts of national science language are constantly influencing one another in two main directions:
-exponent of a lexical group affects the formation of the exponent of a terminological system, supplying the last one with lexical units and word-formative models;
-content of a terminological system influences the semantic side of a word, belonging to common language, affecting its meanings' presentation in the dictionaries.

The following scheme shows the character of links between NSWM and LWM:

N S W M		L W M
content	----------	content
form	----------	form

Inner Form of the Scientific Term

National scientific languages might choose various signs, which motivate certain transpositions. In other words, the same scientific notions gets different "national clothes", i.e. national forms within the frames of certain NSWM-s. For example, Russian word for bullfinch - "*snegir*" - is derived from the word "**snow**"; German word for bullfinch is "*gimpel*", which comes from the word "**to jump**"; French word for bullfinch "*pivoine*" comes from "**peony**"; Serbian equivalent for this word “*zimovka*” is semantically linked with "winter". As we see, different languages formed the name for this bird, proceeding from quite different considerations: Russian and Serbian note the fact this bird never flies away to the South in winter; French draws attention to the color of this bird, German takes note of its manner to move, etc. (Isayeva, 1997). One more example from the field of entomology. English name for one of the species of butterflies is “*hawk*”; it’s Russian name is “*brazhnik*”; the French word for the same butterfly is “*sphinx*”; in German it is called “*die schwämer*” (fireworks). The English language draws attention to the

peculiarities of flight and predatory instincts of this type of butterflies. German word is coming from their bright and unusual coloring. Russian name for this kind of butterflies points out their unique ability to extract honey out of narrow and long corollas of the flowers. In old times in Russia honey was associated with “braga”- heady beverage which Russians used to drink on holidays. “Brazhniks” ability “to take braga” is due to their especially long proboscis (about 19 cm). The French name for “hawk” – “sphinxe” is linked with the pose these butterflies take at the moments of danger: usually they rise and curve their bodies’ foreparts as a question mark. Such a pose brings to mind the curved necks of medieval monsters or a movement of cobra ready for the attack. One of French scientists thought that at these moments this butterfly looked like sphinx: in that way the French name for “hawk” appeared.

Sometimes inner forms of the words for the denotion of the same objects coincide. For example, scientific ichthyological terms for “ *hai ma* ”（海馬） and “*chu-chiao*”（鋸鮫） coincide by their inner forms in three languages: Chinese, English and Russian. All mentioned languages “see” these fishes as a **sea horse** (Rus. morskoj koniok) and a **sawfish** (Rus. ryba-pila). This fact might be explained as a manifestation of common features in different language consciousness. But in most cases inner forms of the same items differ much through languages, because different language communities in the process of objects' nomination pointed out various signs, which seemed to them the most essential and evoked the largest emotional response. That is how national metaphorical images appear both in LWM-s and NSWM-s.

But as far as scientific nominations are concerned one question should be especially emphasized: scientific terms should have transparent inner forms; form of the scientific term has no right to contradict the scientific information, attached to it in the system of the concrete scientific knowledge.

Conclusion

1. We treat SWM and LWM as related, but very different constructions. Having the same object to describe-the real world, they reflect it quite differently: SWM embraces all aspects of the objective world; LWM covers only some parts of the real world, because language consciousness brings to life large amounts of mythical objects, subjective characteristics, which do not exist in the real world. The relationship between SWM and LWM doesn't suppose the correspondence between them. The last doesn't try to attain the first: it has its own laws of development. LWM gets its specific structure in every language, but that is the object of special study.
2. SWM appears to be very helpful for LWM investigation being a good background for manifestation of any LWM peculiarities.
3. National specific features in NSWM-s are being displayed through terms - metaphors and terms with transparent inner forms. This lexical staff reflects the images of national thinking, which are considered to be a component part of national mentality.
4. SWM and LWM influence one another in two main directions: form---form; content---content.

Notes

(1) Vemadskiy V. I. (1863-1945) is a prominent Russian philosopher, naturalist and public figure. His ideas played a great role in the formation of contemporary SWM. He is a founder of an integrated theory about biosphere, where the collective scientific thought of humankind is considered to be a mighty force of development of the Earth.

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