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CHANGES IN THE CHEMISTRY TEACHING AT THE PRE-UNIVERSITY LEVEL IN THE COURSE OF THE SOCIAL-ECONOMIC DEVELOPMENT IN ALBANIA

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Abstract. The chemistry as a school subject underwent a constant change in conformity with the social-economic development in Albania. As a result it is established the original teaching tradition of chemistry, which has its features conditioned by our specific circumstances. Since, there was not a thorough study about this item, we considered it necessary to examine and to give some opinions and recommendations for the future. We have analysed carefully the chemistry teaching programs and the textbooks used by pre-university levels, according to the periods considered as the most prominent stages in the social-economic development of Albania. In order to reach the right conclusions, we have examined in details all the programs and textbooks of chemistry found at our National Library, as well as at the Library of Ministry of Education. There were no chemistry textbooks as well as detailed chemistry programs at all in the secondary schools all over the country before the year 1945. The unified programs and the translated textbooks between the year 1945-1967 were prepared according to our proper educational level. From 1967 to1982 were made great efforts to prepare our own chemistry textbooks. The stage from 1982 and on is characterised by the efforts to write out chemistry textbooks and programs in close conformity with the contemporary knowledge. The scientific studies on the teaching methods are recently performed, too. These studies and written of teaching methods textbooks have greatly improved the scientific and methodological features of chemistry.

Keywords: chemistry, chemistry textbook, chemistry programs, pre-university schools, original chemistry textbook, stage, tradition, social-economic development, efforts, scientific studies.

HISTORICAL BACKGROUND

There were no chemistry textbooks as well as detailed chemistry programs at all in the secondary schools all over the country before the year 1945. The only school named the secondary school of Korça used the French textbooks and programs. The chemistry teachers of that time carried out the teaching process based on the textbooks and programs coming from the countries and schools, where they were graduated. From the September 1932 the students of the Tirana secondary school were able to study the French chemistry textbooks due to the great efforts of the French teacher of this school Prof. Frederic Marchard who tried so hard to teach them the French language. The teacher of chemistry of

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this school Menella Karajani* suggested to use the French chemistry text (brought here from the CANCO Brothers bookshop**). At the same time Prof. Karajani translated in Albanian language some chapters of this French chemistry textbook.

During the Italian occupation were introduced Italian chemistry teaching systems and programs. The advantage of that time was the unification of the chemistry teaching due to the translation of Italian textbooks. The chemistry textbooks were translated by Mr. Zef Skiroi an Italian with Albanian ancestry.

At the time between 1945-1967 based on political directions for an extensive educational system, were prepared the chemistry programs[1] for all teaching levels by staff made up of well-known specialists of this branch. The same staff played a decisive role in the qualification process intended to prepare well-qualified chemistry teachers. The programs for the pre-university schools were prepared based on the European experience of different countries, adapting them to our social-economic state of development. These experts prepared also the first translated chemistry textbooks[2-4] and adopted them carefully to our proper educational level.

The first publication of an original chemistry textbook, as a teaching subject for secondary school, titled " Chemistry for X and XI classes" (Ref. 5) appeared in 1967. This publication reappeared ameliorated two years later, named " Chemistry for X class" (Ref. 6). Later based on this text, were republished three new textbooks for secondary school and vocational school.

In 1971 appeared the textbook titled "The chemistry for secondary school 1, 2, 3" (Refs 7, 8), being a very good chemistry textbook for about twelve years. In 1983 appeared two new textbooks "Chemistry 1 and Chemistry 2" (Ref. 9). These texts were republished later with the proper improvements titled "Chemistry 9,10,11,12" (Ref. 10) and remained until 1999. Two new chemistry textbooks "Chemistry 1" and "Chemistry 2" are just published for secondary school. These chemistry books are based on the modern fundamentals of chemistry as a science. In compliance with the two main directions taken recently by our educational process in the pre-university school make indispensable the preparation of the new programs and the new chemistry books. It's considered very important the inclusion of the environmental aspects in these books.

Creating a solid tradition concerning the modern methods of teaching chemistry, some professors and experts have performed some scientific works from 1985 up to 1999 (Refs 11-14). Some professors of General Chemistry Department at the Faculty of Natural Sciences, at the Tirana University, have also prepared the teaching methods textbooks[15-17].

* Menella Karajani (1912-1998); (1932-1935) graduated in chemistry and physics in France (Montpelier); Ph.D., Tirana University 1970; Professor of Tirana University since 1957.

** CANCO Brothers; The oldest bookshop in Tirana.

PROBLEMATIC DISCUSSION

Based on the specific characteristics, the programs and textbooks are placed in a proper order as follows:

1. the time before the year 1945;
2. the time between 1945-1967;
3. the time between1967-1982;
4. the time from 1982 until now.

As before 1945 didn't exist any kind of publications about this item, we concluded after the only available manuscripts written by Prof. Menella Karajani (former teacher of the chemistry of the Tirana secondary school since 1935) and Mr. Rexhep Shpati (former students of the Tirana secondary school).

At the beginning of the year 1932*, chemistry learning process went on slowly in terms of time. As it is written in Prof. Menella Karajani's manuscripts, there were not any kind of unified chemistry books and programs. Prof. Karajani translated in the Albanian language some chapters of a French chemistry textbook. For the beginners of the secondary school it was necessary to learn chemistry from the above mentioned translated chapters, because they knew no foreign language. The students of high classes of the same secondary school used both these Albanian written chapters, as well as French chemistry textbook (for example "Bethencour"), because they knew enough French to learn from this book.

During the Italian occupation were introduced Italian chemistry learning systems and programs. The advantage of that time was the unification of chemistry teaching due to the translation of Italian textbooks, but there were also some essential disadvantages. The chemistry textbooks were translated like mere copies of the original, without taking into account our own specific social-economic development. At the same time the translation of Mr. Skiroi was very difficult to understand because he had used an archaic Albanian.

Ministry of Education based on political directions after 1945 was assigned with the duty to build an extensive educational system. This system claimed for the preparation of the chemistry programs and chemistry textbooks in Albanian language for all teaching levels. The first textbooks and programs were translated from Russian language, since we were not able to write an original textbook. The oldest translated chemistry textbook found at our National Library dates the year 1952. Two other chemistry textbooks appeared at 1956-1957, which gradually ameliorated reappeared and remained the only available textbook until 1965. Although having chemistry textbook in our own language for the first time was a positive development it had also some disadvantages concerning the fundamentals of chemistry. For example the study of " Alkali metals" and "Halogens" before the study of the "Periodic Table" or " Periodicity", make it rather difficult

* Before this year we do not possess written data.

to understand the resemblance of the chemical elements composing the same group of the Periodic Table. These chemistry textbooks at the time between 1960-1965 were greatly ameliorated due to including some experimental works and some chapters like "Electrochemistry", "Oxidation-reduction reactions", etc.

The first publication of an original textbook for secondary school appeared in 1967. This publication reappeared ameliorated two years later. A group of well-known chemists graduated abroad ameliorated and enriched the above mentioned textbooks and prepared two other textbooks. They added some new chapters covering the indispensable needs for experimental work, exercises and new chapters. In these textbooks and the later ones were introduced some new chapters dealing with more complicated concepts like "Types of chemical bonds", "Modern view of atomic structure", "Molecular solids and ionic solids", "Hydrolysis", etc. A unique feature of this textbook is the chapter on industrial chemistry. This chapter describes several chemical industries such as "Sulphuric acid production", "Nitric acid production", "Manufacture of polymers", "Superphosphate production", etc., which helps the student to create a more practical view about the industrial chemistry.

At the time from 1982 until now are published some textbooks. These textbooks are based on the modern fundamentals of chemistry as a sciences.

Actually we are on the way of writing contemporary chemistry textbooks, corresponding to the present pre-university character which has the tendency to be divided in two big branches, that of social and natural sciences.

Nowadays the pollution is becoming a major problem. The nature protection is a dominant theme of the environmental education[18]. Therefore, the best education can be achieved through a vast and detailed information given in the chemistry textbooks concerning the different pollutants.

CONCLUSIONS

1. This study is done for the first time and includes a period of 60 years.

The changes in the chemistry teaching at the pre-university school are achieved as a result of:

a. Publication of ever contemporary chemistry programs and chemistry textbooks;

b. Doing scientific studies on the modern teaching methods;

c. Publication of the teaching methods textbooks.

The social-economic development has influenced these changes. It is established the original teaching tradition of chemistry. Every new change has to be based on this tradition.

The new chemistry textbooks must give a vast and detailed information concerning the different pollutants.

We live in a world of increasingly rapid change. At present, we are facing some of the greatest problems that humans have ever encountered, and the dilemmas with which we are now confronted seem to have no perfect solutions. We are sometimes forced to make a best choice among only bad alternatives, and our decisions often provide only temporary solutions to our problems.

We live in a chemical world – a world of drugs, biocides, food additives, fertilizers, detergents, cosmetics, and plastics. We live in a world with toxic wastes, polluted air and water. It is easy to pollute, but cleaning up pollution once it is there is enormously expensive. We can best avoid mistakes by collecting as much information as possible before making critical decisions. Science is a means of gathering and evaluating information, and chemistry is basic to all the sciences.

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