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HISTORY AND PROSPECTS OF THE CHEMICAL EXPERIMENT

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Annotation
The article covers the history of chemistry and the role and importance of a systematic approach to teaching the work of chemical scientists on chemical experiment, didactic improvement using the Integrative method of the university course “history of Chemistry

Keywords: chemical experiment, systematic approach, spectral analysis, atomic weight, isomorphism and specific volumes

In subsequent years, due to the large-scale reforms carried out in our country to raise the development of Uzbekistan to a new level, radical changes are taking place on all fronts, the worldview and thinking of our people are increasing.Attention to education – attention to the future. Education is the most important system at the stage of development. All changes, updates are directly related to the development of Education. In the phrase of our President shavkat Mirziyoyev," we consider improving the activities of all links of the education and training system based on the requirements of today as our First-Class Task " 1.
Resolution of the president of the Republic of Uzbekistan dated November 6, 2020 No. 4884 PP-4884 “on additional measures to further improve the educational and educational system” measures were developed on the task of transferring the unique and unique scientific and spiritual heritage of our ancestors, scientists and scholars to the younger generation in simple, understandable and interesting forms.
Chemical experiment it has long been considered the source of life of mankind. In this area, the work of research researchers of the ancient world is important in the development of society.
Water boils under the influence of heat and turns into steam. And in cold temperatures it freezes. From time immemorial, humanity has lived in an attempt to find out about the existence around it and all kinds of changes that occur in it. Burning, rotting and stinging, evaporation, decay of rocks, volcanic eruption, digestion of food, growth and development in living organisms,..... by observing phenomena and changes such as processes, the initial chemical knowledge was gaining ground.

As a result of the study of the history of the initial knowledge of chemistry, it was found that the peoples of the Ancient East and the peoples who lived on the shores of the Mediterranean

Sea: Egyptians, Phoenicians, Arabs, yakhudians, Iranians, vavilonians, mavoraun, whose accumulated knowledge of this area in the ranks had a great influence on the civilization of the Our scientists were the first to somewhat systematize the chemical phenomena observed by chance, to realize the essence of these changes, they carried out additive solutions that is, they conducted experiments and began to use the results of these changes initially in marriage.

The path of long historical development of chemistry can be divided, in principle, into 6 Periods:

History of the development of chemistry

I. Al pre-chemical period: until the 3rd century

II. Alchemy period: 3rd-17th centuries

III.Recovery period (unification): XVII-XVIII centuries

IV. The era of quantitative laws: late XVIII - mid XIX centuries

V. The era of classical chemistry: the second half of the XIX century

VI. Current period: from the beginning of the XX century.

Its development took place under the conditions of human need, production requirements, the development of technology and technology, and until recently empiricism (drawing conclusions based on experience) reigned in it.

Recognizing things and phenomena as objects of study, the sum of efforts associated with influencing them for certain purposes is called an experiment. An experiment is a Latin word, in a broad sense – refers to the emotional-practical activity of a person, and in a narrow sense-to the examination of an object of experience, cognition, analysis of conclusions and hypotheses, obtaining proven results for the creation or discovery of theories and rules, concepts and laws.

The term" chemistry " itself also appeared mainly on the basis of experimentation, practical activity, verification and experimental conclusions. According to scientists, this term, that is, the word "chemistry" ("chemistry") –"chemia", began to be used initially in Egypt. The ancient Greek writer Plutarch mentions in his works that the inhabitants of yurt – Egypt, where the first steps of chemistry were laid, were called "Hamlar" (chemi), and its meaning is "Black Earth" (Black Earth). It is known that the longest river in the world, the Nile, has its two banks covered with extremely fertile black soil. But there are other opinions regarding the origin of this word. For example, " Xyumo "(grekcha) "burn", "dilute" ,

Alchemist and writer Zosima, who lived and worked in the 4th century, associates this word with the name of the legendary angel Hemes, who was persecuted from heaven for his eye-painting activities and was the author of the first chemistry book. Some researchers believe that the term" chemistry "comes from the greccha" Hima " and that it refers to a metal casting. "Himevis" — "mixing"," who "(Chinese) — is said to mean" gold " by the Dutch scientist U.V. Hypotheses that are associated with the name helmont are also living.

Muhammad Khorezmi says that in the 10th century the word "chemistry" means "kamoyakmi" in Arabic, that is, "hide", "hide". During that period, chemical products were also produced in India, China and Central Asia. Being the owner of the" chemical craft", the chemist was engaged in the work of preparing a second product from one substance. From the 2nd half of the 1st millennium BC through the Great Silk Road that passed through Uzbekistan, crafts entered the country along with trade. A huge number of historical objects and monuments found testify to the fact that the population living on the territory of Uzbekistan has long been bokhabar from the craft of chemistry. A Chemistry Laboratory dating back to the 8th century was found in Poykend settlement near Bukhara. Inside the laboratory equipment, various containers, glass instruments, children's bags are found.

In the history of chemistry, the era of alchemy is of particular importance. It is useless to understand that it is a period consisting only of failures on the way to turning ordinary substances into gold or silver, to find the "stone of philosophy (wisdom)"that causes all miracles. During this period, first of all, the technique and methodology of chemical experiments and treatments were created and improved. A large number of methods and techniques began to be used in practice, such as heating, smelting, distillation, extraction, dry and wet driving, filtration, quality and quantity analysis, metal separation from ore. Chemistry and its technology acquired valuable recipes and recommendations, the foundation for the creation of a chemical language was laid. In exchange for many years and hard work of alchemists, opportunities were created and tested for the purposeful implementation of various experiments, the implementation of thousands of chemical reactions in effective ways, and the acquisition of many important compounds and substances. They received substances such as sulfuric, nitric and hydrochloric acids, saltpeter, gunpowder, dice water, corrosive alkalis, wine alcohol, metallmas such as sulfur and phosphorus, as well as the extraction of metals such as zinc, bismuth, antimony, arsenic, cobalt, nickel and the study of their properties created results. During alchemy, the foundations were laid for such areas as medical chemistry (yatrochemistry) and phlogiston chemistry, as well as pneumochemistry associated with the study of gases in all directions.

Laboratory practice has been enriched with new recommendations, tools and equipment. The practice of measuring and weighing has been improved. The method of conducting the experiment was developed.

How many hands of the distant past of chemistry flower experimenter (experimenter) was built in exchange for the work of researchers. Later, a large caravan of famous chemists, the names of which were inscribed in gilded letters, entered the history of this science. Hakim Jabir ibn Khayyan, Abu Ali ibn Sina, Abu Rayhan al-Beruniy, al-Treasurer, Abu Abdullah al-Khorezmiy, I.R.Glauber, G.Agricola, R. Bacon, T. Paratsels, G. Shtal, R. Bayl, M. Lomonosov, A. Lavoaze, J. Daltan, Y.Ya. Berselius, Yu. Libix, R. Bonzen, A. Vyors, A. J.

Points, Ye.Ye. Wagner, A.V. Gofman, A. Kekule, F. Gaber, I.F. Glauber, G. Devi, J.B. Dumas, N.N. Zinin, K.V. Sheele, L. Klayzen, T.Ye. Lovits, A. The Founder, V.Ye. Titshenka, E. Fisher, I.G. Geldal, K.L. Bertalle, J. Pristli, J. Prost, T.Ye. Lovits, J.L. Gay Lussac, M. Faraday, M.E. Chevrel, E. Mitchell, F. Veler, S. Cannitssaro, M. Bertlo, D.I. Mendeleev, A.M. Butlerov, A. Beyer, V.V. Markovnikov, A. Le-Schötele, Ya.G. Vant-Goff, V. Ostwald, S. Arrenius, R. World-famous researchers such as Erlenmeyer have made an excellent contribution to the transformation of the chemical experiment into a prime practical method for examining the material world, getting to know it, realizing its mystery, serving the benefit of mankind, and enriching it with laboratory equipment, equipment, utensils and reagents. A chemical experiment will always have its own risks. Early researchers smoked a lot of cases until the technique and methodology of this experiment improved. They hurt their souls due to burns, poisoning, explosion or injury caused by splashing, and were also victims along the way. In the long history of chemistry, examples of this can be found as many times as you want. For example, the English chemist G., who was engaged in hydrogen and gas with a heart.It is difficult for Cavendish to list the scars left by glass fractures on his faces. For such dedication and juvonmardicity in science, he achieved the same happiness as joining the Royal Society of London in 1760. The arab scientist Jobir ibn Khayyan, who left the first written chemical data in the VIII-Ikhasr in the form of an invaluable legacy to the descendants, used it himself, including leaving a description of the chemical utensils and tools he created. He tested the most important methods of purification of substances, described the methods of obtaining sulfuric and nitric acids, first formed "King's vodka" ("dice water") and dissolved gold in it, first obtained silver nitrate and Sulema, prepared arsenite acid, the so-called "white arsenic", and scientifically described their most important properties. Curious Kalinikos formed the "fire of Greg"from tar, canifol, sulfur and saltpeter as early as 678 and laid the foundation for the fireworks that are tradition today. Another arab Allom in hasr, Abu

ar-Rozi, in his book of Secrets, classified chemical dishes and equipment, processes and treatments, substances, tested and described methods of burning, smelting, liquefaction, sublimation, crystallization, filtration, distillation, amalgamation, condensing.

The founder of alchemy, Jobir ibn Khayyan, put forward the theory of sulfur-mercury in the appearance of metals, that is, sulfur ("father of metals") appears from dry bonds in the depths of the Earth, and Mercury ("mother of metals") from wet evaporation. Abu Nasr Farabi, one of the followers of the scientist, approves the direction of alchemy Science in his work "Master Sony". Abu Bakr ar-Razi from the Eastern scholars classified the substances known until then in the "Book of Secrets"and put the tools and experiments into a certain system. In the book "The key to knowledge" by Abu Abdullah al-Khorezmi, a separate section is devoted to chemistry, which provides excellent information about various substances, instruments,

experiments. Abul Hakim al-Khorezmi, on the other hand, attaches importance to the scales used in the experiments of alchemy. It is known from sources that the book about the wise Libra, written by Al-Hazini in 1125, describes the methods of weighing in scales of various appearance and structure. Abu Ali ibn Sina in his book Al-law writes more than 750 types of compounds of plant, animal origin, minerals, salts, acids, alkalis, metals, oxides and others. They fully represent their name, properties, use. How many people have been cured of his "chalk Ashes" (silicon oxide, which is given to patients with limb fractures by taking bamboo growing in Indonesia and adding it to the Ashes – a substance that dissolves quickly in the human body). In contrast to Ibn Sina Jabir, he studied the properties of metals deeply and perfectly, corrected his mistakes. Ibn Sina scientifically substantiated the mistakes not only of Jabir, but of all alchemists. He was the first to prove in practice that rare metals, including gold, cannot be removed from ordinary ones. French scientist M. Bertlo, Russian scientist B. Menshutkin, academician O. According to the sadykovs, in the works of Abu Ali ibn Sina, the first buds of modern inorganic chemistry were manifested.

One of the creators of classical chemistry, nicknamed The "King who did not wear a crown" among the chemists of Hihasr, founded the chemical written language by putting into practice the signs of chemical elements that have been used so far in 1814, measured the exact atomic mass of more than 45 elements, experimentally confirmed the laws of constancy and fractional proportions of the composition on the, the famous Swedish scientist Y., who introduced such terms as "halogen", "isomer" and "polymer", wrote the famous "chemistry textbook"for 5 drops, did not even think about marrying his whole being until he turned 56, giving him the science of

chemistry.Ya. Berselius, first of all, "hand flower" experimenter's work deserves a penny.

The use of this information in Chemistry Lessons enhances integrability (history of chemistry and modern chemistry).

In conclusion, the socio-spiritual environment between educators and educators brings scientific potential to new stages, while ensuring health, developing healthy competition, improving the quality of Education. Concepts of national pride are formed.

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