

SCIENTIFIC INVESTIGATIONS CARRIED OUT IN
THE LABORATORY OF THE NATIONAL INSTITUTE
OF MONUMENTS OF ART, BULGARIA, DURING
1962 - 1977
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In the detailed report sent by me at the beginning of 1976 to the direction of the Committee on Wood (in French) I have described our scientific activity for the period of 1962-1975. This activity included the study of the condition of the wooden elements, parts and structures of our Renaissance buildings, the application of different kinds of wood, the definition of the climatic zones of our country taking into consideration the attack of fungi and insects, the durability of some wooden kinds depending on climate, humidity and other factors, the study of measures taken in the past with a view to preserving the wood, etc.

Theoretical formulations for prophylaxis and treatment of wooden objects of art and of old buildings in which much wood was used were worked out with a view to adopting a correct method in preserving monuments.

Treating, preventive, hydrophobic, fire-protective and other preparation such as Darvomor, insectmor, konservirkler, Konzervirgrundbezir oil, hydrophobe, norilimpregnir, akolor, antifire 3t, antifire 4t, etc. were worked out in the laboratory, and then their production was started.

We have also developed: emulsions and the relevant diluant for taking down paints, varnishes and other non-original coats ; formulations for chemical stains for artificial wood patina (with the relevant catalogues) ; compounds for surface anti-static treatment, etc.

New antifire compounds were produced at the end of 1966: antifire 4 which does not colour wood (an improved variety of antifire 4t); antifire KM, humidity-resistant, but colouring wood in greenish, and antifire B, somewhat moisture-resistant and does not colour wood.

A thesis related to the improvement of several antifire preparations used for wood objects of art would be completed by the end of 1977.

The scientific thesis "Introduction of methods for stabilization of original wooden structures in situ" will be finished by the middle of this year. It will establish means and methods to stabilize such wood.

We started a new investigation of archaeological wood preservation that will be completed next year. During this investigation we shall summarize our rich experience and the foreign rich experience, and on the basis of the study we shall work out methods to be applied during the next few years.

To clarify in more details the influence of heat, vapour and hydro-insulations on wood preservation, the scientific thesis "Thermal, vapour and hydro-insulation in the buildings - monuments of art" will be elaborated in 1977/78.

The scientific activity of the Institute helps very much the preserving work, therefore it will be brought still nearer to the practice in the future.

As a conclusion I would suggest to consider the possibility to unite the efforts of specialists of several countries to solve important problems related to wood preservation in monuments of art

PRESERVATION OF WOODEN ELEMENTS, PARTS
AND STRUCTURES OF RENAISSANCE BUILDINGS
IN THE PEOPLE'S REPUBLIC OF BULGARIA

These problems are also dealt with in the report sent by me to the direction of the Committee on Wood last year.

The preservation of wooden elements, parts and structures in buildings representing monuments of art is carried out according to a technology consisting of the following operations:

1. Treatment of old wooden elements, parts and structures attacked by insects, bacteris, fungi and moulds. The operations are fumigatory, contacting and sometimes accompanied with gas or aerosole treatment.

2. Prophylaxis of new and old wood by means of preparations made on the basis of organic diluants and our water-soluble and relatively non-washable preparations (created in our laboratory). A special attention is paid to hydrophobic treatment of coating revetment and to additional treatment of connections. When preserving joints, beam ends are treated according to a special technology.

Outer woodwork including external revetments and doors and windows is made hydrophobic by using preserving prime linseed oil after preservation with prophylactic preparations. In case it is necessary to make an artificial patina, this may be done by using chemical stains (and not brown stains).

Wooden ceilings, cupboards, home icon-stands, internal revetments, etc. are the most precious objects in the buildings representing monuments of art. They are preserved with preparations which do not colour and decolour wood in the following order: mechanical cleaning; chemical cleaning; taking down paints, varnishes, etc.; treatment by means of fumigation, injection and coating; prophylaxis by means of injecting, coating and sometimes sprinkling stabilization of destroyed wood; antistatic treatment; hydrophobic treatment of elements and parts of balconies and verandahs.

When carrying our preservation and restoration works, the constructive solutions of the old masters adopted with a view to protecting wood are maintained. Besides, new thermal, vapour and moisture insulation measures are taken to prolong wood life. Since everything is not clear in this respect, the scientific thesis "Thermal, vapour and hydro-insulation in the buildings, monuments of art" will be elaborated in 1977-1978.

To protect the building against fire, their roofs are protected by multiple coating or sprinkling with solutions of our antifire preparations called antifires.

It should be noted that we shall study and apply with pleasure new technologies in this field. One of the important problems is the preservation of original wooden structures in very bad condition by stabilizing them in situ which will be done after the thesis "Introduction of methods of stabilizations of original wooden structure in situ" will have been elaborated.

RESUME

RECHERCHES SCIENTIFIQUES REALISEES PAR LE LABORATOIRE DE L'INSTITUT NATIONAL DES MONUMENTS HISTORIQUES, de 1962 à 1977

Ces recherches comprennent l'analyse des conditions des éléments, pièces et structures en bois des constructions de la Renaissance, l'application des différentes espèces de bois, la définition des zones climatiques, en tenant compte de l'attaque des champignons et des insectes, de la durabilité de certaines espèces de bois, et l'étude des mesures prises dans le passé pour préserver le bois.

Des préparations sont expérimentées au laboratoire pour traiter, prévenir et protéger le bois contre les incendies.

Une nouvelle recherche sur la préservation du bois archéologique a été entamée.

Deux thèses scientifiques sont en préparation :

"1'Introduction des méthodes de stabilisation des structures historiques en bois in situ"

"Isolation thermique et hydraulique dans les constructions et les monuments historiques".

La préservation des éléments et des structures en bois des constructions de la Renaissance dans la République populaire de Bulgarie se réalise par des étapes suivantes :

1. Traitement des éléments et des structures en bois attaqués par des insectes, microbes, champignons.
2. Prophylaxie du nouveau et ancien bois grâce aux préparations faites à base de diluants organiques.