

‘Constitution of India’: Preservation of original

The ‘Constitution of India’ was adopted by the ‘Constituent Assembly’ on 26 November 1949 and came into force on 26 January 1950. It is the longest constitution of any sovereign country in the world written under the chairmanship of B. R. Ambedkar. The original English version of the ‘Constitution of India’ was calligraphed by Prem Behari Narain Raizada, which weighs ~13 kg and consists of 221 calligraphed sheets of hand-made parchment paper of size 45.7 cm × 58.4 cm size. The calligraphed sheets were decorated and illuminated by Nand Lal Bose, depicting a journey from the Mohen-jo-Daro and Vedic periods to the Indian freedom movement. The Hindi version of the ‘Constitution of India’—comprising of 252 calligraphed sheets and weighing about 14 kg—was calligraphed by Basantrao Vaidya. Interestingly, the Hindi version was calligraphed exactly as its English counterpart which had been calligraphed by Nand Lal Bose. Both documents have been bound in first-class Morocco leather embossed in gold. Both the original calligraphed copies of the ‘Constitution of India’ are with the Parliament Library, and have great autographic and historical value as they contain the signatures of the founding fathers of the Constitution.

In the mid-1980s, it was felt that these historic volumes need to be preserved for long periods, and therefore, require appropriate preservation solutions. The Parliament Library based on the scientific report—consisting the results of optical testing, brightness of the paper, and gloss of the gold on the document—

obtained from the National Research Laboratory for Conservation of Cultural Property at Lucknow, concluded that both volumes were in fairly sound condition. The Parliament Library then began discussions with the National Physical Laboratory (NPL), New Delhi for developing a case for preserving these documents. NPL developed the concept of ‘hermetically sealed glass cases’ for displaying and storing these documents under inert-gas atmospheres, so that the Constitution can be prevented from oxidation, microbiological deterioration and air-pollution damages. The challenging aspects of constructing such a display case were to produce a hermetical seal with (i) mechanical strength so as to withstand changes in temperature and atmospheric pressure, and (ii) durability over several decades. After an extensive literature search on the subject, the following three available methods for producing hermetic seals were identified and evaluated: silver-lead soldering, organic sealants and mechanical seals using O-rings. During 1988–89, NPL fabricated cases using tempered glass and appropriate sealants; however, these cases were not accepted as the durability of the seal over many years could not be assured.

In parallel, NPL also made efforts to collaborate with various national and international institutions for the development of hermetically sealed glass cases. In 1992–93, NPL scientist Hari Kishan visited Saint-Gobain Company, Paris, France to develop hermetically sealed glass cases. He was able to fabricate two display cases—one sealed by the soldering process and another sealed with O-rings; however, they were also not found suitable as long-term preservation of the Constitution could not be assured.

In France, Hari Kishan also discussed the issue with Georges Amsel (a specialist in conservation aspects in the famous Louvre Museum, Paris) who suggested to contact the Getty Conservation Institute (GCI), USA, as in 1989 they had developed nearly similar cases for the storage and display of the 27 Royal Mummies at the Egyptian Museum in Cairo. In November 1992, NPL contacted M. A. Corzo (Director GCI) who readily agreed to sign an agreement to jointly develop ‘hermetically sealed glass cases’—a task

that was highly significant and challenging. The following are edited portions of the agreement signed between NPL and GCI in July 1993 regarding the fabrication of the display cases for the Constitution of India. ‘Two identical display cases will be fabricated, one for the English and the other for the Hindi version of the document. The internal volume of each case will be 96,250 cm³, and the dimensions of each case will be 55 cm wide, 70 cm long, and 25 cm high. The documents will be stored and maintained at a relative humidity of 40–50% in a nitrogen atmosphere with an oxygen concentration of less than 1% by volume. A special protective vault like room, 180 cm wide, 180 cm deep, and 305 cm high will be constructed in the Parliament Library at the Parliament House for display and storage of the documents. The room will be climate controlled to maintain a temperature of 20 ± 2°C and a 30 ± 5% relative humidity throughout the year. It was also agreed that the cases would be constructed at the GCI in the United States and transported to the Parliament Library in New Delhi, where they would be installed and jointly tested by the GCI and the NPL.’

In March 1994, these cases were installed successfully at the Parliament Library (Figure 1). The cases were individually mounted on polished stainless-steel stands (approximately 1 m in height) with varnished teak cabinet-work that covers the metal frames of the cases. The stands and cabinets were constructed at NPL. A trace-oxygen analyser connected to a data logger was installed in each nitrogen filled case for monitoring oxygen leakage into it during performance evaluation. The cases were initially flushed with dry nitrogen, and oxygen content was reduced to below 1000 ppm. The performance of the cases was accepted by both NPL and GCI. The performance of these display cases is annually evaluated by a team of NPL scientists.

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Figure 1. The original ‘Constitution of India’ (Hindi and English versions) at Parliament Library, preserved in hermetically sealed glass cases jointly developed by CSIR-National Physical Laboratory, New Delhi and Getty Conservation Institute, USA.

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