
CONSERVATION PROBLEMS

Anna-Grethe Rischel

THE DANISH COLLECTION OF DUNHUANG MANUSCRIPTS: PRELIMINARY ANALYSIS

The Royal Library in Copenhagen received a minor collection of Dunhuang manuscripts nearly 80 years ago. The donor, Arthur Bollerup Sørensen, was chief telegraphist in Shanghai in the Great Northern Telegraph Company. In 1915, during his second voyage from China to Central Asia, he acquired 15 Buddhist manuscripts and 1 Daoist scripture in Dunhuang, just a few months after the departure of the Russian expedition headed by Sergei Oldenburg. Information about this minor collection of Dunhuang manuscripts in Denmark may be of interest for the International Dunhuang Project. The 200 sheets of handmade paper can provide important data on the early Chinese paper technology which deserves special investigation. The following notes are the preliminary results of the analysis of the paper of the Dunhuang manuscripts.

A small label on the manuscript box at the Royal Library in Copenhagen runs that 14 Chinese manuscript rolls from the Dunhuang monastery in Turkestan were donated by Mr. A. B. Sørensen on 29 November 1915, and that the manuscripts originate from the same library, hidden in a walled-up grotto, where huge manuscript collections were discovered by Sir Aurel Stein a few years before, in 1907, and then by Paul Pelliot in 1908.

Each roll in the Danish collection consists on average of 17 paper sheets with text in characters; the sheets are

glued together at the short edges with tiny overlappings to a long roll. Paper of the same quality is mostly used for all sheets in individual manuscripts.

The macroscopic and microscopic analysis of the paper has been made, in a non-destructive way, similar to that presented in 1997 in London at the IDP workshop of forgeries of the Sven Hedin collection of Central Asian paper from Stockholm. The macroscopic part of the analysis was an observation of the paper with the naked eye. The microscopic analysis has required a combination of three types of microscopes to conduct it, using a limited test material of fibres removed from the backside or edges of the document.

The first part of the present article gives a preliminary description of characteristics of each manuscript's material, and the material's variations. The results of this investigation are found in the second part of the article, in a general description of the features of the whole collection. The third part provides a description of the Danish Dunhuang collection paper as compared with similar Central Asian paper material of the same provenance from the Sven Hedin collection. The results of these investigations can give new information not only about early paper technology and preservation of the ancient fibre material but also necessary data to indicate possible forgeries in the Danish collection.

1. Preliminary description

Three examples of macroscopic and microscopic observations are presented here:

Manuscript 1, roll 1

Yellowish paper colour
Very even fibre sorting
Very even fibre distribution
Glazed paper on recto

Thin paper quality in good condition, but the traces of earlier fungal attack in the upper part of the manuscript are visible.

17 sheets, measuring 45.2—45.7×25.2—25.5 cm

Inscriptions in black and red Indian ink

The upper margin — 2.7 cm, the lower margin — 2.6 cm

Mould: inside measurement — at least 45.7×25.5 cm with 5—6 supporting ribs with a distance of 8.5—9.5 cm

Screen: no visible impressions of chain-lines; regular laid lines: 23.0—24/3 cm

Scanning Electron Microscope (SEM) analysis: semi-open structure of smooth, uniform fibres with slightly varying width — 0.010, 0.011, 0.020 mm

Ground element present: silicium, aluminium, sulphur, calcium, chloride, potassium, magnesium, sodium

Differential Interference Contrast Microscope (DIC) analysis: raw fibres with several rhombic crystals, star-shaped crystals, amorphous substance, limited fibrillation, long fibres with rounded fibre tips and frayed fibre tips, decentral lumen visible sporadically, both varying and uniform fibre width.