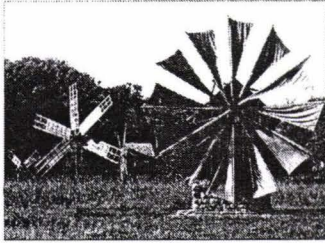


ASTRA—THE MUSEUM OF MANY MILLS

By Tom Kelleher

Most students of old mills have enjoyed a trip to a museum that has a historic mill. Some museums are even blessed with two or three mills, and the lucky visiting molinologist happily spends the better part of the day examining them. Imagine if you will a museum that has



Windmill with sails. Curcani, Constanta County. All photos by Fred Nuss.

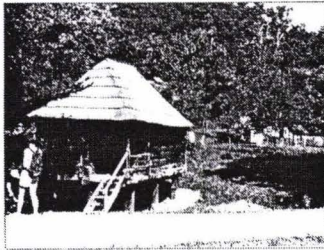
relocated over eighty historic mills from all over an entire country, carefully restored them, and arranged them thematically in a picturesque, park-like setting. No, this is not just a mill enthusiast's fantasy, although it

may be close to an old mill heaven on earth. Such a museum does indeed exist. It is called Muzeul ASTRA, (the Museum of Traditional Romanian Folk Civilization), and is just south of the Transylvanian city of Sibiu, in central Romania, nestled among the breathtaking Carpathian mountains. The author recently had the extreme good fortune to spend a month in Romania, and thoroughly explored this one-of-a-kind collection.

I work at Old Sturbridge Village in central Massachusetts, a living history museum that recreates everyday life in a small New England town in the decade of the 1830s. Our goal is to provide modern Americans with a deepened understanding of their own times through a personal encounter with their past. Exhibits, which help us to reach back into the past, are four working mills: a

gristmill, saw mill, carding mill, and a cider mill. Under the International Partnership Among Museums (IPAM) program, Old Sturbridge Village recently formed a partnership with the ASTRA museum. IPAM is funded by

the Bureau of Educational and Cultural Affairs of the United States Information Agency and is administered by the American Association of Museums. Its ultimate goal is to foster mutual understanding between the United States and other countries through museum partnerships and staff exchanges. The directors of both Old Sturbridge Village and ASTRA had exchanged visits over the years, and in April a Romanian curator spent a month here in New



Water-mill with three horizontal wheels. Toplet, Caras-Severin CO.

England. Now it was my turn!

Romania today is a nation about the size of Oregon, with between 22 and 23 million people. Located in southeastern Europe, it has a long and rich history. As early as 1861 an association had been founded in Sibiu to study, preserve, and display Romanian folk culture. It was not until 1963, however, that the present museum was founded on 96 hectares of forest just south of the city. Initially it was a museum of folk technology and the first exhibit was a circa 1848 grist mill and miller's house from the village of Dabaca. This two-room structure has a single run of stones with a beautifully carved hurst frame in one room, and cooking and sleeping facilities for the miller and his family in another. An undershot wheel powers the mill and the float boards are, in effect, wings inserted onto the rim of the narrow wheel itself.

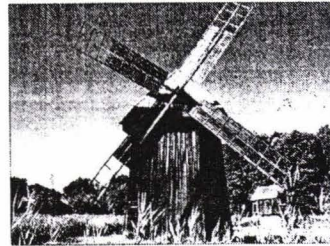
As other mills and craft shops were added to the museum, they were arranged thematically. In 1969, the scope of the museum was broadened from just technology to encompass all aspects of folk culture from every region in Romania. Today the museum has over three hundred exhibits, and new ones are constantly being added as older ones are carefully preserved and restored. Just to walk the paths around the museum is three or four miles, and indeed many museum-goers come more to enjoy the beautiful grounds than to study the exhibits! In addition to numbered signs at each building and maps placed at crossroads, detailed guidebooks available in several languages, including English and French, are for sale at a nominal price. Friendly caretakers are happy to explain their buildings (for those who speak Romanian!). Often special English language tours can be arranged in advance. While the mills are not normally operated, they are operational and frequently are demonstrated for special occasions. All

are beautifully preserved, however, and open daily for examination.

The museum has gristmills in abundance, of course, with every traditional power source represented, except



Water-mill with horizontal wheel. Toplet, Caras-Severin County.



Hooded Mill. Bestepe, Tulcea CO.

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for a tide mill. There are half a dozen windmills, including a smock mill, one with all-cloth sails, and another with both the sails and mill made out of reeds. The museum has not one but two rare river mills, in which an undershot wheel is suspended between two boats anchored in a flowing stream. One boat houses the millstones and machinery, while the other boat just supports the end of the water wheel shaft.

There are overshot water wheels, undershot wheels, breast wheels, and an abundance of horizontal wheels among the museum's mills. The horizontal wheels are particularly fascinating. Each of their blades is a hemispherical-carved wooden scoop arranged around the hub-like petals on a flower. In these mills the runner stone is suspended directly on



Water-mill with undershot wheel.
Dabaca, Hunedoara County.

suspended directly on the water wheel shaft, and the wheel, shaft and all are raised or lowered to adjust the distance between the two stones. There is no tub or housing of any kind around the wheel and, in one mill, changeable wooden nozzles or "buttons" can be used depending on variable water flow. Even higher or heavier runner stones can be installed depending upon water flow on a given day! Several of these horizontal mills have more than one run of stones. One mill has six separate wheels and six pair of millstones.

The museum also has animal-powered mills, and even one 18-inch run of stones that is human-powered. This mill is not a simple quern, but rather a complete miniature version of a "regular" mill, except that a person turns a large wooden flywheel, which runs the mill through a canvas belt.

Like the first mill moved to the museum in 1963, many of the mills not only contain the stones, tool chest, and mill machinery, but living quarters for the miller and his family. One caretaker explained to me that some millers took advantage of this proximity of living quarters to seduce women who brought in their grain for grinding! Also like the previously mentioned mill, many of these wooden machines are beautifully embell-



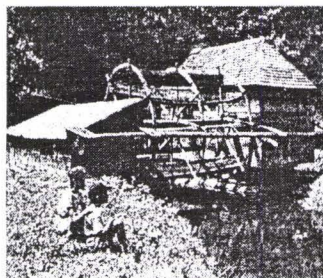
Peasant complex for finishing textile industries. Rucar, Arges County.

ished with decorative carvings, which often include the date of construction and the name of the builder.

Sawmills of various styles abound, powered by small undershot waterwheels called flutter

wheels, overshot wheels with intermediate gearing, or in one case by horse power. Most of these mills are sash ("up & down") mills, each showing a slightly different method of bearing the sash, transmitting power, or moving the log carriage. While a few of these mills have gangs of blades for sawing one log into several boards at once, one mill has two blades which saw two logs, side by side! Another incorporates a circular edger and even a water-powered saw sharpener.

Fulling mills are another major category of mills represented. Once very common in America, the decline of



Floating Mill. Lucacesti, Maramures County.

home textile production in the 1800s caused their disappearance here. In Romania, however, a fair amount of home weaving still goes on, and the museum has a wide range of fulling mills. Many include whirlpools used in washing the cloth. Some have their hammers acting horizontally, much as Thomas Ellicott described them in the final chapter of Oliver Evans' *The Young Millwright*. Many others, however, have their hammers mounted vertically. Some have wooden pipes that carry wash water from the flume into the mill where it can be heated in iron kettles over a wood fire. In addition to fulling stocks, many mills are equipped with rolls, which are horizontal drums made of saplings. To raise a nap on the fabric, cloth is either tumbled inside the drum which is often lined with wooden spikes, or the cloth is secured to the outside of the drum and dragged against thistles or another rough surface.

One fulling mill is powered by an ingenious water wheel that looks like a wooden Pelton wheel, making the best of high-head/low-flow conditions. Once again, many mills also contain cozy quarters for the miller, and others often include a run of grist stones. In fact, many of the mills at



Water-mill with six horizontal wheels.
Galesoala, Gorj County.

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