One storm, 1,142 stone dragon heads: where does the Forbidden City's water go? | Shenzhou 04

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A heavy rain falls on the square
in front of the Hall of Supreme
Harmony. The drops hit three tiers of
white marble, and one thousand one hundred
and forty-two carved stone dragon heads start
spouting water at the same time.
The rain stops. The water keeps moving
southward, along the lie of the ground,
through drains buried under the paving,
into a river at the southeast corner
of the city.How does a city
like this make water leave, and keep
wood from burning?
For six hundred years this city has
been doing two things: sending water out,
and keeping fire out.
The route the water takes is hidden
in the roofs, in the ground,
and in the stone channels underneath
one layer after another.
The defences against fire became vats in
the courtyards, walls between halls, and men
keeping watch in shifts.

The two meet in one place.
The bucket raised to put out a
fire comes out of the river that
carries the rain away.
The palace roofs are covered in glazed
tiles, laid in ridges.
Rain lands on the tiles, runs down
each ridge and drips from the eaves.
That is the first layer.
The second layer is the ground.
Courtyards inside the palace are not level:
the middle is higher than the sides,
and the north is higher than the
south.Ground near the Gate of Divine
Might stands about forty-six metres above sea
level; near the Meridian Gate, about forty-four.
From north to south, the whole city
tilts gently downward.So the water needs
no lifting and no pumps.
It goes south on its own.
The square in front of the Hall of
Supreme Harmony is the clearest case.
The ceremonial ramp down its centre,
two point two metres wide, is the
highest line in the square; water runs
off it east and west, into the
open channels on either side.

Those channels are open stone troughs.
Where they meet a terrace or a
building, the water passes underneath through a
stone culvert. The records call that culvert
the channel eye.Past the channel eye
it becomes a covered drain — buried,
and out of sight.
The drains are graded: branch drains collect
water from the courtyards, trunk drains gather
the branches, and all of it ends
in the Inner Golden Water River.
From the roof to the river,
the system needs no power.
The three tiers of white marble beneath
the first three halls carry one thousand
one hundred and forty-two carved stone dragon
heads. That number is the Palace Museum's
own published figure.When the rain reaches
a certain volume, water collects through openings
at the base of the balustrades,
feeds into the heads, and shoots from
their mouths. People call it a thousand
dragons spitting water.The heads are not
ornaments. They are the part of this
drainage system that stands closest to the
visitor.
Building the water route was only the

beginning. How long it kept working depended
on whether anyone went on clearing it.
Both the Ming and the Qing required
the palace channels to be dredged on
schedule. Under the Qing it was mostly
every March.Who was responsible?
In the Ming, the Fuel Office,
one of the twenty-four directorates.
In the Qing, the Palace Works Office
under the Imperial Household Department.
The Fuel Office's own job was the
firewood and charcoal burned in the palace.
Dredging was not its business — it was
an extra duty it carried.
The later name was not there from
the beginning either. Under the Shunzhi emperor
the office was still called the Fuel
Office; in 1677, the sixteenth year of Kangxi,
it was renamed the Palace Works Office
and became a department for construction.
So for a long stretch, responsibility for
a water system sat with an office
that had been set up for firewood
and charcoal.The last large clearing under
the Qing began in April 1885, the eleventh
year of Guangxu, and took two years.
It lifted silt from about two thousand

one hundred metres of the Inner Golden
Water River and roughly eight thousand metres
of channels and drains, and repaired the
river walls and fifteen bridges.
One thing we could not find:
which regulation punished a failure to dredge,
and what the penalty was.
In the summaries that are publicly available,
the text of that article is not
there.We could not find it.
All the water ends in one river:
the Inner Golden Water River.
Its source is outside the city,
at Jade Spring Hill.
It comes through Shichahai and Beihai,
enters the palace by the northwest water
gate, follows the western wall south,
turns east in front of the Gate
of Martial Valor, crosses the square before
the Gate of Supreme Harmony, and leaves
the palace at the southeast water gate.
The total length is about two kilometres.
Three jobs hang on that one river.
First, it is the main drain:
the whole city's water is handed to
it.Second, it is the firefighting supply:
when something burns inside the palace,

the nearest water is often this river.
Third, it is a transport route:
some of the great timbers and stone
for building the halls came in along
it.The three jobs collide.
To dredge the river, you cannot draw
water from it at the same time;
to float timber, the silt has to
be cleared first.Which comes first,
and how it is arranged, lands back
on the desk of that same office.
Fire has to be met with water.
But running from the river to a
fire takes time, so the water was
moved into the courtyards first.
The containers are large vats — bronze and
iron. They carry several names: the peace
vat, the auspicious vat, the gate sea.
According to the Collected Statutes of the
Great Qing, the palace once held three
hundred and eight of them.
Two hundred and thirty-one remain today,
eighteen of them gilt bronze.
The highest grade — the gilt bronze vats
stood on either side of the Hall
of Supreme Harmony and the Hall of
Preserving Harmony, and outside the Gate of

Heavenly Purity. In the inner palaces and
along the long streets, smaller bronze or
iron vats were set out.
One vat stands about one point two
metres high, about one point six metres
across, and holds roughly three thousand litres.
The water in the vats was managed
by the Imperial Household Department.
Early each morning, servants drew water from
the palace wells and filled the vats,
load by load.In winter, the water
freezes. So after the first light snow,
eunuchs wrapped the vats in padded covers
and put the lids on; and on
the marble base under each vat a
brazier of charcoal was set, burning day
and night until the following spring,
at the first stirring of insects.
The Guangxu edition of the Collected Statutes
wrote this into regulation: from the first
day of the eleventh month to the
thirtieth of the first month, servants burned
charcoal under the vats, one man to
three vats; from the first day of
the second month to the thirtieth of
the tenth, each vat was topped up
twice a month.Keeping the water warm

was one component of the system:
the water had to be usable at
any moment.
The Forbidden City is a city of
wood. Wood burns.The record is clear.
In 1421, the nineteenth year of Yongle,
lightning struck the three great halls and
burned them; rebuilding finished in 1441.
In 1557, the thirty-sixth year of Jiajing,
lightning struck them again and the fire
spread to the Meridian Gate; the work
was done five years later.
In 1597, the twenty-fifth year of Wanli,
fire struck once more, and the rebuilding
was finished in 1627.The most detailed account
is from the third day of the
twelfth month, 1679, the eighteenth year of
Kangxi: a fire started in the western
kitchen, spread past the Rear Right Gate
and the Middle Right Gate, and ran
along the connected side galleries to the
Hall of Supreme Harmony.
The hall burned to ash.
Afterwards, six people connected with the fire
were executed by strangulation.
The rebuilding took a long time to
prepare. From 1682, the twenty-first year of Kangxi,

timber was collected in the provinces and
bricks and tiles were stockpiled; the actual
work began thirteen years later.
Ground was broken on 25 February 1695, the thirty-fourth
year of Kangxi; the work finished on
18 July 1697, the thirty-sixth year, at a cost
of more than two million taels of
silver.All of the craftsmen were hired,
organised by the officials supervising the work;
the Ministry of Works and the Imperial
Household Department watched the schedule together.
When the rebuilding was done, one thing
in the palace had changed: the side
galleries flanking the Hall of Supreme Harmony
were rebuilt as brick walls.
Wood had burned, so brick and stone
were used to hold fire back from
the next hall.Eighty years later,
in the Qianlong period, the Wenyuan Pavilion
was built to hold the Complete Library
of the Four Treasuries.
It was placed deliberately on the north
bank of the Inner Golden Water River:
if fire came from the south,
the first thing it met was the
river.And the vats were only one
item. In 1723, the first year of Yongzheng,

a fire watch was set up,
with a hundred men picked from the
guards for night duty.
In 1727, the fifth year of Yongzheng,
eight water pumps were fixed as standard;
by 1815, the twentieth year of Jiaqing,
thirty-one western-style pumps stood at posts across
the palace.Water, equipment, people, and the
building's own firebreaks — all four in place
at once is what makes it a
system.
More than ninety per cent of the
rainwater still goes through the old channels;
what modern hands have altered is under
ten per cent.Every spring, summer and
autumn, the Palace Museum clears silt,
working area by area; the whole complex
comes round in four to five years.
The old schedule left by the Ming
and the Qing is still followed:
weed in spring, fill in summer,
clear the leaves in autumn, cut the
ice in winter.In summer, seventy-two vats
in closed areas are filled, about two
thousand litres each, as the first bucket
of water when a fire starts.
In winter, holes a metre square are

cut in the ice on the Inner
Golden Water River and the moat every
twenty metres, and re-cut every three days.
The palace has its own firefighting force
as well. The special station of the
Tiananmen area fire and rescue detachment divides
the complex into one hundred and twenty-six
courtyards — one plan for each — and can
reach any corner in three minutes.
Then is the saying "the Forbidden City
has not flooded in six hundred years"
correct?Shan Jixiang, a former director of
the Palace Museum, explained it publicly in 2016:
the ground is high in the north
and low in the south, and with
the network of open and covered channels,
"however heavy the rain, there is no
problem of standing water".
On the other side, the monitoring department
of the same museum has described another
part of the record publicly: the historical
documents do contain entries on standing water.
In April 1885, the eleventh year of Guangxu,
water stood "from one foot to several
feet" in places between the East Glorious
Gate and the West Glorious Gate.
In 2023, the Palace of Compassion and Tranquility

took on water during a heavy storm
and recovered after the drains were cleared;
what had blocked the covered drains was
plastic bottles, plastic bags, towels and clothing.
The museum's administrative office puts it this
way: a more accurate version of "no
standing water for six hundred years" is
"even when water stands, it drains away
quickly".Both accounts are here.
Which one is closer to the facts
is yours to judge.
Water falls on the roofs, reaches the
ground, passes from the open channels into
the covered drains, then into the river
and out of the city.
What moves it is the slope,
the graded channels, and people who kept
clearing them.Wood burns, so the palace
brought in vats, kept men on duty,
stored equipment, and used brick walls to
separate one hall from the next.
Keep the water where it belongs,
and fire does not take hold.
And where does the water itself come
from? Every drop inside the walls was
carried in from outside them.
That is another line.

This is our reading, not the record

itself. The full transcript is at sylogs.com.

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