Letheon: The Cadenced Story of Anesthesia

Chauncey D. Leake

In living, all of us have suffered pain,
thus sharing intimately with each other
tense experience of that not-us,
and thus becoming one
through feeling in ourselves
what others may have felt.
So much is pain!
Like death, it is for all of us,
but since it's not the end,
there is the hope
that there shall be no pain.
Ah, that it might be so!

In pausing now to think of those, who through
the long and troubled years have shown
the many ways to still the birthright wail
of pain we suffer when we're sick,
to stop the anguish of the probing knife
which mercifully cuts away
the gangrenizing part which kills or maims,
we have the pageant of our past to scan.

So that we may the better keep
in honored memory all who made
some hurt for us the less,—
too many may remain unnamed,—
now let us hear again
the what, the when, the where, the how.

So shall we justify a time of looking backward,
even on relief of pain,
that, turning forward, we may find
and keep the path to its prevention.
For pain's not conquered, nor can it be,
until we lose adaptiveness in sense
and in response to that which is not-us.

So bearing pain, relieving what we can,
let us learn patiently the gentle way,
firm to prevent such anguish as we may.

What myriads have suffering lain in patience
while they sought surcease:
the fallen tree-men,
fang-ripped hunters,
spear-pierced warriors,
stone-crushed builders,
all the hungry,
all the beaten and oppressed,
all the fearful with their head and heart aches,—
these the healers tried to help.

Some bolder shaman may have understood
enough of pity to have tried to operate
upon a tribesman, who had been knocked out
in fighting, or by accident, or purposely!

Everywhere men tasted this or that
in seeking what they might with safety eat,
and learned what each might do
to bowel or head or heart.
What cooled the fiery, painful skin they noted, too,
and learning, treasured deep and long in memory.
So when desire rose to alter bowel,
to dull the ache of head or heart,
or soothe the flushed and irritated skin,
remembrance showed the way.

* * *

The soothing voice and touch came first,
then food, and oily balm,
then skill, as taught by Imhotep,
to set the broken bone,
to calm the fiery skin,—
the quiet hand of Susruta,
the cooling lotions of Egyptian priests,
the wine Hua-Tu devised to stupify with hemp,
the skillful pressure on the nerves
and vessels to a limb,
or on the ones still called carotids,
arteries of sleep which pulse in neck,—
the Scythian hemp, the Memphic stone,
the *sama* of Hebraic surgeon-priests,
the Persian wines,
the temple-sleep in ancient Greece,
the vinegars of crucified,—
all these were known somewhere
to dull the hurt of injury.
And some were used to blunt the senses
when the healing priest performed his rite,
or cut away the cancer or the rotted part
with stone or bronze scalpel.

The wines and beers themselves were early found
to be of comfort in an agony,
and to them many herbs were added
by the priestly surgeons everywhere:
the lotus, lettuce, mandrake, poppy, dock,
the henbane, hemlock, hellebore and hemp,
verbena, primrose, myrrh and frankincense,
the deadly nightshade, garlic, bhang,
datura, mulberry and rue,—
and half around the world,
where men learned also,—
kava, mescal, coca, and tobacco,—
these and many more kept secret,
unidentified,
comprise the ancient anodynes.

By words, by pictographs,
by writing on clay tablets and papyrus,
was the lore preserved,
and memory enlarged.

The names of wise physicians
came to be remembered:
Greek Hippocrates,
who so well told of fainting fits,
how best to heal a broken bone,
and do no harm;

These selections from "Letheon" are published in tribute to the late Chauncey D. Leake (1896–1978). Dr. Leake was professor of pharmacology and founder of the department at the University of California, Berkeley (1928–1942), executive vice president in charge of the medical branch of the University of Texas (1942–1955), professor of pharmacology at Ohio State University (1955–1962), and senior lecturer in pharmacology, history, and philosophy of medicine at the University of California, San Francisco (1962–1978). He was president of the AAAS in 1960. Published with the permission of the University of Texas Press from pages 7 to 36 and 71 of *Letheon: The Cadenced Story of Anesthesia*, by Chauncey D. Leake. Copyright 1947 by the Regents of the University of Texas.

and Dioscorides,
the surgeon, who, in Nero's time,
brought all the lore of drugs together
for a classifying,
each identified, discussed,
for preparation and for use.
He said, of mandragora,
"Some there are who boil the root in wine,
to give a glass in want for sleep,
or yet before an operation with the knife or cautery,
that they may not be felt."
Here then is clearly note of anesthesia:
he even used that word!

The Roman Celsus wrote of tears of poppy,
made in pills with saffron, myrrh and rue:
a cooling anodyne to dim the flashing pain.

In the Middle Ages little surgery survived.
Folk-lore on pain relief condensed
into the *spongia somnifera*,
which Theodoric used:
"Take opium, the leaves of mandragora,
ivy, seeds of dock,
the juice of mulberry, henbane, hemlock,
and boil within a sponge,
which hot apply before the nose of him who will be cut,
until he falls asleep, then use the knife."

Salernan Nicolas preserved the recipe,
and many surgeons tried the sponge with wine
to dull the hurt they knew
their knives or cauteries would cause.

* * *

But all were baffled by the grinding agony.
Performing dextrous feats of surgery,
they had but death to offer
when their pity cried to put an end to pain.

Rebellious Paracelsus wrought a minor miracle
in urging his peculiar "laudanum,"
which he extracted from the poppy juice with wine,
and kept a secret.
Yet it soothed much anguish.

* * *

Now there came that brilliant Rhine-land youth,
Valerius, the son of Cordus,
humanist and scholar.
He distilled the biting wine
with sour oil of vitriol,
with care describing every step,
and found a sweetened oil of vitriol,
which, clear like water,
nonetheless evaporates more quickly,
makes saliva flow, and which
as Paracelsus said, is safe,
for chickens drinking of it fall asleep,
to wake unharmed.

Yet Cordus, cooly scorning wishful dreams of alchemy,
had pathed a way for chemistry.
Von Helmont, studying bubbling grape juice,
found a vapor rising, named it *gas sylvestre*,
vaguely sensed it was important for the ways of life.
Soon Boyle disclosed the properties of airs.
John Mayow, Jospeh Black described new kinds.
Then Priestley, while defying mobs for freedom's sake
and finding safety on the Susquehanna,
made new gases,
one called oxygen by French Lavoisier,
another to be known as nitrous oxide,
both to be well used to ease distress and pain.

* * *

Many men thus added bits of knowledge
to our precious store,
while others bled in searing pain and sweat
to suffer and to die
for liberty in learning and belief.
When will we understand
that torture never can compel belief,
or that sadistic pain, deliberately inflicted,
is itself anguish to conscience,
a disease?
What do we know of stopping pain,
when, rationalizing, we release
such floods of it
in war and violence?

* * *

Exploiting growing interest in gases,
Thomas Beddoes built at Clifton, England,
a Pneumatic Institute
for treating lung diseases by inhaling vapors.
There he brought young Humphry Davy
to direct experiments.
He was energetic, building measuring tanks for gases,
spending patient hours
learning what the gases do when breathed.
When he inhaled some nitrous oxide
he observed its pain relieving power
for his aches of teeth and head,
and noted how it makes one want to laugh and dance,
perhaps by blocking inhibitions.
People called it "laughing gas"
when it was talked about by Davy's fluent friends,
Coleridge, Southey and Roget,
and Gilray made a funny picture of its naughtiness.

In Berne, meanwhile, Albrecht von Haller
studied sensibility,
defined what irritation means,
and started thus an understanding of
the mystery of pain.

Now Davy, writing well of nitrous oxide,
said it might be used for pain relief in operations.
None paid heed. . . .

the long, long need for pain relief,
so commonplace, that all forgot it
when the way to meet it had been found.

John Elliotson attempted hypnotism
to block the pain of surgery,
while Esdaile claimed success in India,
Braid in London, with suggestion.
But it was uncertain;
no-one thought it much.

Now Friederich Sertürner,
young pharmacist of Paderborn,
extracted with ammonia from the poppy's juice,
some white and potent crystals,
which he found,
by trial upon himself and dogs,
would cause some pain relief and sleep.
This active chemical
with constant properties,
the first one to be isolated from a natural source,
was named morphine, from the Roman god of sleep.
Since it is uniform, and does not vary,
it was found by French Magendie that it could
be used with dose precise for such effect
as one might want.

Thus, with his Paris friends,
Magendie brought the alkaloids
to medicine.

In Shropshire, England,
Henry Hickman sought a way
to stop the pain
when he would try to operate.
He was too kind,
too gentle for the work he had to do.
He found that carbon dioxide,
the gas Lavoisier removed from lungs,
would stupify.
He operated with it on his dogs,
reporting on "suspended animation."
None paid heed. . . .

Romantic Hickman killed himself,
frustrated by the failure of his urge. . . .

Thus now there was the knowledge and the urge:
the way to bring the two together still
was to be found.
This called for art, for skill and judgment, which
would make a demonstration clear to all.
The scientific effort showed what would
anesthetize,
the knowledge which could be applied
in order to achieve
the purpose urgently desired.
But still the know-how must be found,—
the engineer, the artist, dramatist,
who could successfully adapt
the knowledge to the purpose.

Soon the trials began.
Success was favored in frontier demands
for practicality.

In Boston, Collins Warren thought
of ether inhalations for relief
in pulmonary inflammation,
and many younger medicos had learned
to sniff at laughing gas and ether
for a frolic.
William Clarke of Rochester
was one of these.
His sympathy for pain
in tooth-ache in his fiancé
suggested ether sniffing while
the tooth was pulled.
No pain was felt.

But Clarke thought little further on it, and
said nothing more about it.
Yet, he'd used the ether first for
pain relief in surgery!

In Georgia, somewhat later, Crawford Long,
just back from Philadelphia, where
he learned restraint in medical affairs,
amused his friends one winter night
with sniffs of ether,
when they failed to find
some nitrous oxide for a laughing jag.
They had a gay affair,
and some were bruised,
but felt no hurt,
as Long observed.
Hence, soon he used the ether surgically,
removing tumors from old Venable's neck
(two dollars charge for surgery,
a quarter for the ether),
thinking nought of telling others,
saying nought of what he'd done,
till others showed the way to do it.

Two years later, Hartford's Horace Wells,
a young and modest dentist,
saw the Gardner Colton well-staged show
of laughing gas.
The subject bruised himself,
but felt no hurt.
Next morning Wells had Colton give
him nitrous oxide, while John Riggs,
a colleague, pulled a tooth.
There was no pain.

Wells used the nitrous oxide right away
in practice, pausing not
to study how to give it best,
but urging all excitedly to try it.
He considered other chemicals also,
and told his partner-pupil what he did.

This pupil, William Morton, was aggressive.
Wells, in Boston, asked
the best known surgeon, Collins Warren, to permit
a demonstration for his staff
at famous Massachusetts General Hospital.
Here the best of newer medicine
was practiced.
Trained in Paris by the masters,
Louis and Magendie,
many Boston medicos were critical
and cautious.
Wells was brash.
He did not know precisely how
much nitrous oxide patients must inhale
to be insensible to pain.
His boyish subject screamed:

the crowd jeered at Wells,
and called him humbug.

He retired chagrined
that he had failed to demonstrate
what could be done so easily
to stop the pain of surgical procedures.

This fiasco Morton watched.
A student in the School of Medicine, he
was also making sets of teeth
and practicing at dentistry.
With Wells, he had developed new
and better dental solders, aided by
erratic Charles T. Jackson, his preceptor, who
was chemist, scientist, geologist,
and who had claimed the credit for
telegraphy from Samuel Morse.
Now Morton tried with Wells to sell
their better dentures in a larger way.
But fear of pain in pulling rotted teeth
kept customers away.
And Morton was not satisfied with laughing gas,
and he and Wells drifted apart.

* * *

Young Morton was ambitious: he had married.
He pushed to puff his reputation as
a dentist, sought an easy painless way
to pull a tooth, and snatched at any hint
which came from Jackson. One, to put
some ether on the aching tooth, he tried,
and then he thought to give enough
by inhalation to prevent
whatever pain might be,
however long the operation.

Experimenting feverishly on animals at home,
on patients in his office, he
soon learned the dose to use.

He wangled Collins Warren for
an invitation to appear before
the Boston surgeons in the same
old amphitheater where Wells had failed,
and there to try to demonstrate
his new invention which could blunt,
he thought, the biting edge of pain.

One may wonder whether Morton realized
what he proposed to do.
We know with what compassion Hickman, Long,
and Wells had sought to mitigate
the piercing agony of surgery.
Was Morton cold and merely striving for
success and all that fame could bring?
Some touch of pity must have stirred him when
he saw the racking pain at operation.

It usually required four strong men
to hold a patient when the surgeon's knife approached.
Though stupified with opium or drunk with gin,
the patients shrieked with anguish, groaned in agony,
and struggled with convulsive misery,
while sweat rolled from their blanched
and fear-drawn faces, as the surgeons cut
with lightning strokes, or racked an arm or leg
in order to reset a bone.

* * *

Yes, Morton must have known what he proposed to do.

It seems that Morton understood that much depends
upon the way that ether is administered.
He tried a funnel-like inhaler, which
was criticized by Doctor Gould, his landlord.
Morton had a new improved inhaling flask prepared
the very fateful morning when
the demonstration was to be.
His fellow students thronged the lecture room,
excited at a chance to scoff again.
The patient, Gilbert Abbott, thin and pale,
was shown by Collins Warren,
most respected of the surgeons.
The doctors closed around [to] note
the bulging tumor on the jaw. . . .

Morton failed to come at ten o'clock,
the appointed time.
"As Doctor Morton has not yet arrived,"
said Collins Warren,
"I presume that he is otherwise engaged."
Just as a raucous laughter followed Warren's jibe,
young Morton entered out of breath
from rushing up the several stairs,
the new inhaler in his hands.
He made his preparations while the doctors
strapped pale Abbott to the red-plushed chair.
Then Warren said, "Well, sir, your patient's ready."
Morton cooly asked of Abbott if he were afraid.
"I feel," said Abbott, "confident,
and I will do precisely what you tell me to."
Then Morton had him breathe by mouth
the contents of the flask.
He flushed and twitched his arms and legs,
as all had seen in ether frolics.
At these signs in ether jags,
the bottle was to be withdrawn, as learned texts advised,
because the vapors might be harmful.

Morton held the inhaler close to Abbott's mouth
for many tense and silent minutes,
till he seemed to be asleep, with quiet breathing.
Morton said to Warren,
"Sir, your patient is prepared."
As Warren slashed with dextrous hand into the tumor,
silence startled all.
There were no shrieks, no violent strife,
as usually occurred.
There was merely quiet gentle breathing
as in peaceful sleep.
In silence and in awe they watched the Death of Pain,
and were convinced.
Said Warren, "Gentlemen, this is no humbug."

When the blood was washed away, and Abbott wakened,
Morton asked what he had felt,
and he was vague, remembering nothing.

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. . . pain's not conquered, nor can it be,
until we lose adaptiveness in sense
and in response to that which is not-us.

So bearing pain, relieving what we can,
let us learn patiently the gentle way,
firm to prevent such anguish as we may.

Yet calmly now, the story told, one asks
whence anesthesia, when such sadists we?