

Da la scheggia rotta usciva insieme parole e sangue: an unusual case of bleeding and the metaphor of a clinical trial

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ABSTRACT

In the Canto XIII of the *Inferno*, in the forest of suicides, Dante and Virgil encounter a damned soul who, though not revealing his name, is easily identifiable as Pier delle Vigne, a notary and right-hand man of the emperor Frederick II in Palermo. Among other achievements, Pier delle Vigne signed the Constitutions of Melfi and, in 1224, the founding act of the University of Naples. Later, due to court intrigues, he fell out of favor with the emperor and committed suicide. The suicides in Hell have lost their bodies, transformed into trees or bushes (“men we were, and now we are stumps”). The report of Dante, Virgil and Pier delle Vigne’s encounter follows a sequence that, more than 700 years earlier, mirrors the general path of modern scientific research, in particular of clinical trials: from the observation of an unusual episode of bleeding (a tree that speaks and from which words and blood flow together), to the formulation of a hypothesis, from the mentor-student relationship to the experiment without informed consent, from empathy with the patient to the definition of autoimmunity and inflammation, and finally to the publication of the case.

The Canto XIII of the *Inferno* (*seventh circle, second round*) describes the jungle of suicides (violent against themselves).

I have always been deeply impressed, since enrolling in medical studies, by the description of a tree that bleeds and speaks at the same time, while a similar description I had read in high school, in the third canto of the *Aeneid*, had not particularly struck me.

Many years later, and on the occasion of the 700th anniversary of the founding of the University of Naples Federico II, the figure of Pier delle Vigne came back to my mind, thanks to the extraordinary interpretation by the Supreme Poet.

As Editor-in-Chief of *Bleeding, Thrombosis and Vascular Biology*, it seemed to me a unique cultural opportunity to share with the readers of our journal, and those outside our field who might come across it, the emotional impact of a story about

human experimentation, a real trial, involving around an unimaginable hemorrhagic syndrome: a man transformed into a tree trunk that bleeds and speaks, while the blood flowing from the wound — not a damaged vascular wall but a broken splinter — turns dark.

According to Dante, the suicide has lost everything, not only his body but also his name, which, unlike other sinners like Farinata degli Uberti or Count Ugolino, is never mentioned. Yet, after so many centuries, Pier delle Vigne comes back to life, to suffer, and to resonate in these magnificent and unforgettable verses, like one of the many patients we encounter daily in our clinics.

The dark forest as a metaphor of moral and physical evil

Not yet had Nessus reached the other side,
When we had put ourselves within a wood,
That was not marked by any path whatever.

*Non era ancor di là Nesso arrivato,
quando noi ci mettemmo per un bosco
che da neun sentiero era segnato.*

In the absence of guidelines

Not foliage green, but of a dusky colour,
Not branches smooth, but gnarled and intertangled,
Not apple-trees were there, but thorns with poison.
Such tangled thickets have not, nor so dense,
Those savage wild beasts, that in hatred hold
Twixt Cecina and Corneto the tilled places.

*Non fronda verde, ma di color fosco;
non rami schietti, ma nodosi e 'nvolti;
non pomi v' eran, ma stecchi con tòsco:
non han sì aspri sterpi né sì folti
quelle fiere selvagge che 'n odio hanno
tra Cecina e Corneto i luoghi còlti.*

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The sleep of reason generates monsters (Figure 1)

There do the hideous Harpies make their nests,
Who chased the Trojans from the Strophades,
With sad announcement of impending doom;
Broad wings have they, and necks and faces human,
And feet with claws, and their great bellies fledged;
They make laments upon the wondrous trees.

*Quivi le brutte Arpie lor nidi fanno,
che cacciar de le Strofade i Troiani
con tristo annunzio di futuro danno.
Ali hanno late, e colli e visi umani,
piè con artigli, e pennuto 'l gran ventre;
fanno lamenti in su li alberi strani.*

In the absence of guidelines... Virgil denies «ipse dixit»...

And the good Master: “Ere thou enter farther,
Know that thou art within the second round,”
Thus he began to say, “and shalt be, till
Thou comest out upon the horrible sand;
Therefore look well around, and thou shalt see
Things that will credence give unto my speech.”

*E 'l buon maestro «Prima che più entre,
sappi che se' nel secondo girone»,
mi cominciò a dire, «e sarai mentre
che tu verrai ne l'orribil sabbione.
Però riguarda ben; sì vederai
cose che torrien fede al mio sermone.*

An unexplainable event...

I heard on all sides lamentations uttered,
And person none beheld I who might make them,
Whence, utterly bewildered, I stood still.

*Io sentia d'ogne parte trarre guai,
e non vedea persona che 'l facesse;
per ch'io tutto smarrito m'arrestai.*

The hypothesis

I think he thought that I perhaps might think
So many voices issued through those trunks
From people who concealed themselves from us;

*Cred'io ch'ei credette ch'io credesse
che tante voci uscisser, tra quei bronchi,
da gente che per noi si nascondesse.*

Clinical experimentation is necessary even if painful

Therefore the Master said: “If thou break off
Some little spray from any of these trees,
The thoughts thou hast will wholly be made vain.”

*Però disse 'l maestro: «Se tu tronchi
qualche fraschetta d'una d'este piante,
li pensier c'hai si faran tutti monchi».*

A clinical trial in the absence of informed consent (Figure 2)

Then stretched I forth my hand a little forward,
And plucked a branchlet off from a great thorn;
And the trunk cried, “Why dost thou mangle me?”

*Allor porsi la mano un poco avante,
e colsi un ramicel da un gran pruno;
e 'l tronco suo gridò: «Perché mi schiante?».*



Figure 1. Gustav Doré illustrates Dante Inferno, canto XIII, v. 10.



Figure 2. Gustav Doré illustrates Dante Inferno, canto XIII, v. 33.

Experimentation on man and the spirit of «pietas»

After it had become embrowned with blood,
It recommenced its cry: “Why dost thou rend me?
Hast thou no spirit of pity whatsoever?”

*Da che fatto fu poi di sangue bruno,
ricominciò a dir: «Perché mi scerpi?
non hai tu spirto di pietade alcuno?»*

Men once we were, and now are changed to trees;
Indeed, thy hand should be more pitiful,
Even if the souls of serpents we had been.”

*Uomini fummo, e or siam fatti sterpi:
ben dovebb'esser la tua man più pia,
se state fossimo anime di serpi».*

Intermezzo for a hematologist: bleeding as language

As out of a green brand, that is on fire
At one of the ends, and from the other drips
And hisses with the wind that is escaping;
So from that splinter issued forth together
Both words and blood; whereat I let the tip
Fall, and stood like a man who is afraid.

*Come d'un stizzo verde ch'arso sia
da l'un de' capi, che da l'altro geme
e cigola per vento che va via,
sì de la scheggia rotta usciva insieme
parole e sangue; ond'io lasciai la cima
cadere, e stetti come l'uom che teme.*

Dante “fellow” justified by Virgil “tutor”: for knowledge it is not enough to read the master’s literature... (Appendix 1)

“Had he been able sooner to believe,”
My Sage made answer, “O thou wounded soul,
What only in my verses he has seen,
Not upon thee had he stretched forth his hand;

*«S'elli avesse potuto creder prima»,
rispuose 'l savio mio, «anima lesa,
ciò c'ha veduto pur con la mia rima,
non averebbe in te la man distesa*

Experimentation sometimes as a necessary pain, for the benefit of knowledge

Not upon thee had he stretched forth his hand;
Whereas the thing incredible has caused me
To put him to an act which grieveth me.

*non averebbe in te la man distesa;
ma la cosa incredibile mi fece
indurlo ad ovra ch'a me stesso pesa.*

Experimentation must lead anyway to an advantage for the individual who participates... At least one quote...

But tell him who thou wast, so that by way
Of some amends thy fame he may refresh
Up in the world, to which he can return.”

*Ma dilli chi tu fosti, sì che 'n vece
d'alcun'ammenda, tua fama rinfreschi
nel mondo sù, dove tornar li lece».*

Clinical history (anamnesis): doctors must have time to listen to the patient...

And the trunk said: “So thy sweet words allure me,
I cannot silent be; and you be vexed not,
That I a little to discourse am tempted.

*E 'l tronco: «Sì col dolce dir m'adeschi,
ch'i' non posso tacere; e voi non gravi
perch'io un poco a ragionar m'inveschi.*

The anonymous trunk and the respect for privacy

I am the one who both keys had in keeping
Of Frederick's heart, and turned them to and fro
So softly in unlocking and in locking,
That from his secrets most men I withheld;

*Io son colui che tenni ambo le chiavi
del cor di Federigo, e che le volsi,
serrando e diserrando, sì soavi,
che dal secreto suo quasi ogn'uom tolsi:*

A case of insomnia and hypotension

(Figures 3 and 4, Appendix 2)

Fidelity I bore the glorious office
So great, I lost thereby my sleep and pulses.

*fede portai al glorioso officio,
tanto ch'i' ne perde' li sonni e ' polsi.*



Figure 3. Logo of the University Federico II of Naples.



Figure 4. *Constitutiones regni Siciliarum*, a body of laws promulgated by Federico II and compiled by Pier delle Vigne. This edition was printed in 1773 in Naples.

Moral evil as an inflammatory process... often pathogenic noxa is attractive...

The courtesan who never from the dwelling
Of Caesar turned aside her strumpet eyes,
Death universal and the vice of courts,

*La meretrice che mai da l'ospizio
di Cesare non torse li occhi putti,
morte comune e de le corti vizio,*

Inflammation as an amplification process...

Inflamed against me all the other minds,
And they, inflamed, did so inflame Augustus,

*infiammò contra me li animi tutti;
e li 'nfiammati infiammar sì Augusto,*

A defense mechanism can become harmful and even deadly for the organism that activates it...

That my glad honours turned to dismal mournings.

che ' lieti onor tornaro in tristi lutti.

An extraordinary metaphor for autoimmunity

(Figure 5)

My spirit, in disdainful exultation,
Thinking by dying to escape disdain,
Made me unjust against myself, the just.

*L'animo mio, per disdegnoso gusto,
credendo col morir fuggir disdegno,
ingiusto fece me contra me giusto.*

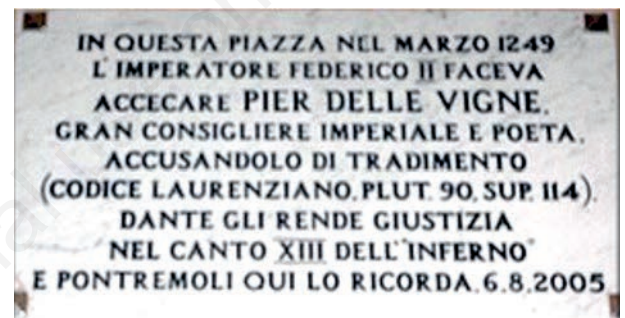


Figure 5. Pier delle Vigne, commemorative plaque in piazzetta S. Geminiano, Pontremoli (MS), Italy.

Patient's self-certification

I, by the roots unwonted of this wood,
Do swear to you that never broke I faith
Unto my lord, who was so worthy of honour;

*Per le nove radici d'esto legno
vi giuro che già mai non ruppi fede
al mio signor, che fu d'onor sì degno.*

Identification of the noxa and publication of the case report

And to the world if one of you return,
Let him my memory comfort, which is lying
Still prostrate from the blow that envy dealt it."

*E se di voi alcun nel mondo riede,
conforti la memoria mia, che giace
ancor del colpo che 'nvidia le diede».*