Darwin, Polanski and Thomas Hardy’s *Tess of the D’Urbervilles*: facts and metaphors

Raphaëlle Costa de Beauregard

Electronic version
URL: http://journals.openedition.org/miranda/798
DOI: 10.4000/miranda.798
ISSN: 2108-6559

Publisher
Université Toulouse - Jean Jaurès

Electronic reference
URL: http://journals.openedition.org/miranda/798 ; DOI: 10.4000/miranda.798
As Gillian Beer points out, “most major scientific theories rebuff common sense [...] they shift what has been substantial into metaphor” (Beer 1). Beer has shown that literature in the nineteenth century was deeply influenced by science, and Thomas Hardy’s novel *Tess of the D’Urbervilles: A Pure Woman* (1891) provides a case in point; this paper will address this issue within a discussion of *Tess*, Roman Polanski’s 1979 screen adaptation of the novel.

Gillian Beer begins her ground-breaking study about the way in which Victorian fiction assimilated Darwinian theory, by recalling that if, until Galileo, the Earth was the centre of the Ptolemaic cosmology, in the Renaissance a new theory was developed, that of heliocentricity: the “earth now only seems immovable” (Beer 1). Interestingly enough, the post-Darwinian world is therefore similar to the Renaissance one in this paradigmatic change in the definition of facts themselves, entailing what Beer calls the displacement of facts into metaphors. We may recall how, for instance, the Shakespearean concept of Tragedy blends the view of the four ages of man inherited from the Middle Ages with the Renaissance concept of Opportunity. Similarly, the concept of Darwinian Inheritance introduces major changes in the definition of man and destiny: man is now eliminated not only from the centre of the cosmos but from the origins of time as well; whereas “Fortune” was kept as a concept in Lamarck’s “self-help” theory of man as individual, Darwin does not include it (Beer 20) but replaces “self-help” by Chance; the new concept of man not as an individual but as a very short moment in Time and Space seems to me to have paved the way for a sense of coincidence and the absurd which are fundamental in Polanski’s aesthetics and ideology. For instance, *The Pianist* (2002) shows that cruelty and destruction are, despite the incredible amount of human suffering they involve, quite pointless where the essence of man as a species is concerned—playing Chopin being a fact which does not depend on Lamarckian self-help but only on Chance: the gift stands as a
possible evolution of an individual among the species, whereas his very extinction depends on Chance. Most significantly, this pattern may be traced in Polanski's adaptation of *Tess of the d'Urbervilles*, a novel written by Thomas Hardy, a writer who was deeply concerned with Darwinian issues.

1. **Tess as a “Darwinian Inheritance” figure**

1.1 **Random choice and the dance**

The film opens with the dance at Marlott, an episode which is paralleled with another accidental meeting: by mere chance, Durbeyfield comes across Parson Tringham, an archeologist of human descent, or rather a dilettante of the sort criticised by Darwin—and Hardy himself—for the introduction of pseudo-scientific conjectures, thus contributing to the web of vanishing historical traces in rural areas already known for their remarkable accumulation of prehistoric sites. The description of the dance introduces a characteristic ambiguity in the novel, an ambiguity which is due to the two types of voice which may be heard in the narrator's comments: the narrator gives us information on what Tess thinks, or on what the characters are doing, but authorial intrusions also convey a different type of information which I would call Darwinian in tone. Penny Boumelha (Boumelha 120) notes the “unusually male overtness in the narrative voice” which has been read by feminists as instances of authorial desire (in the film, this is transferred to the male gaze of both Alec and Angel, as will be discussed below). But already here the distinction is useful, as desire fits in with the discourse of paradigm and anomaly when the narrative voice turns Tess into a particularly interesting specimen of a girl: “She was a fine and handsome girl – not handsomer than some others, possibly—but her mobile peony mouth and large innocent eyes added to colour and shape” (Hardy 1891, 12). The dashes introduce a Darwinian point of view: Tess is not a heroine in the romantic sense who differs from the crowd; rather, she stands for the group of young nubile girls and her story is akin to theirs. The way she speaks is characterized by a local dialect, whose survival is part of the inheritance transmitted to her by her mother; her figure too is a palimpsest: “you could sometimes see her twelfth year [...] or her ninth [...] even her fifth”; the remark is the narrator's, as the next sentence says that no-one saw this. The Darwinian authorial voice thus mingles with the factual narration, telling us how we should read the novel. The knowledge of this narrator is sometimes curbed: “the name of the eclipsing girl, whatever it was, has not been handed down” (16). Here again, there is a distinction between the narrator reporting information and the Darwinian implied author for whom the vanishing of identities and traces is a major concern.

Polanski’s Tess also merges in the pageant of nubile girls in white, she may be prettier but she still is one of a kind. The concept of folklore as a form of inheritance from the past is underlined in the film by the presence of a girl who is expecting a baby; apart from its premonitory value as far as Tess is concerned, this underlines the dance as a primitive fertility rite. The approach, which was quite a novelty in Hardy's time, is familiar today, but it ties in with Polanski’s interest in the idea of inheritance, especially through the emphasis on custom, which is recurrent in the film. Custom, however, blends nature and culture; the text includes in the psychological portrait of Tess a “dreadful sting of
remorse” (19), a trait which is not an inherited one but the result of school attendance. The tension between nature and culture is further stressed at Talbothays.

1.2 The dairy episode

In the novel, when Tess goes to Talbothays, Hardy inserts a typically Darwinian reading of experience, in a much quoted description of the dairy maids at night, as they cannot help feeling the sexual drive they have inherited from their species and forefathers: “They writhed feverishly under the oppressiveness of an emotion thrust on them by cruel Nature’s law – an emotion which they had neither expected nor desired” (187); later on, Tess is accordingly described as a source of emotions rather than thoughts and when she thinks she must confess her past fault, it is out of her love for him and the influence of her religious education, that she destroys his idealized image of her. While it does suggest the Victorian prejudice about low-class uneducated women for the sake of realism, this is another instance of the narrator’s Darwinian view of predestination. Darwin’s facts—prehistorical evolution and the natural selection of species—are naturalised into an identifiable female stereotype.

In the film, Polanski uses cinematographic details to convey the same idea: the light of dawn—the transition from night/sleep to day/work—is associated with the dripping milk-bags, so that the beauty of the young girls is paralleled with a rhythm which is both the dripping of the liquid and the beat of their hearts. The novel’s important churning scene is missing from the film but the suggested analogy between the bags and the cows’ udders, and the girl’ heaving breasts is striking enough for some critics to have complained about it. Yet it makes sense, when considered from the Darwinian perspective of the pressure of natural selection affecting animals and girls alike. The general joking atmosphere of the dairy is rendered by a visual pun when we find one of the girls looking underneath the cow at Tess, but the shot dimly suggests too that cattle and human beings are not that far apart and are ruled by similar laws.

2. A Darwinian tragedy

Polanski’s adaptation emphasizes the fact that in this modern tragedy, where biological laws govern destiny unawares, sexuality becomes Tess’s tragic flaw. Tess first encounters Angel at the dance and the film shows the nearly pavlovian appeal of her sexuality on him. As Cossettel reminds us, Tess’s sexuality is her nature as a woman in the novel, and the male gaze in the film underlines this idea (Cossettel 124-5). Angel gazes at her as she is asleep or awakening from slumber and dreams. In the end, the long-differed consummation of her marriage is filmed with a shot on the happy pair in bed; arguably, from a Darwinian perspective, the shot may express the natural union of the couple in its most animal-like harmony, totally innocent of any sense of Time. By contrast, time is re-introduced by the repeated shots of the landlady, as she methodically opens each window one after the other before going upstairs to do the same. The shot on her eye looking through the half-opened door is redolent with the threat of social law, and if the loss of Paradise is re-enacted here, it appears as an irrelevant story in this scene of primitive innocence. Therefore the literary tradition of tragedy—the fall of man, death, and free-choice, from Elizabethan tragedies, history plays and reconstruction of past tragedies...
onward—is questioned by the new definition of man; no conclusion can be significant where there is no story to tell, except random selection.

The prop of seduction (the forbidden fruit) is given a twist. In both the novel and the film, the strawberry sequence brings forth the shift of the concept of Fortune from fact to metaphor. Darwin’s theory that in terms of sexuality, mankind is a species where the male is dominant over the female is central to Thomas Hardy’s scene, and the film using Nastassia Kinski’s innocent-looking face makes this inversion of the story of mankind’s origins in Genesis and Paradise Lost quite striking. Such is indeed the shift which Darwin’s observation implies, i.e. that in the human species, it is not the female who is the temptress but the male who is dominant. What was presented in Genesis for a fact, i.e. that the Garden is lost through Eve’s inability to resist temptation and her perverse wish to corrupt Adam (though she was flesh from his flesh, having been conceived from his rib) becomes through the scientific observation of human behaviour as a species among others, a metaphor, while female subjection is now a fact.

Thus another concept undergoes a change in the novel and in the film—the concept of tragedy. Tess’s testimony, in which she voices her accusations against Alec for twice perverting her destiny—first by her rape, secondly by taunting her about her husband’s disappearance—may be read as an enactment of the law of sexual domination of male over female which only the human species is an instance of; on the screen, this becomes Polanski’s awareness of what Laura Mulvey has defined as the essence of Hollywood cinema, the domination of the male gazer over the female sex symbol. Hence the way Alec gazes at Tess and adorns her with flowers, a pretext allowing him to gaze fully at her.

Contrary to this, Angel and Tess embody Darwin’s natural affinities, as Tess’s final rebellion and short moment of happiness with Angel shows. The lovers are described as being spontaneously attracted to one another, and after the murder of Alec, Angel shares Tess’s tenderness and full trust in him. At first they walk without any direction: theirs is an arbitrary movement, without any plan; once refreshed they decide to walk inland instead of toward the coast, guided by Angel’s desperate desire to protect Tess from discovery. They grow tired and seek shelter but are afraid of entering the villages and inns which they see in the distance; their movements are now no longer arbitrary but motivated by two contradictory needs: rest and safety. As they share these contradictory needs, and are equally afraid for each other’s sake, they prove unable to protect themselves. Angel takes a decision and she follows him, entering a house to let (though this may be a mistake): the house looks empty, there are weeds in the garden; yet it also looks inhabited, since some windows are open.

With Darwin, the concept of tragedy shifts from Greek Fate—or its moralized Renaissance equivalent, Calvinist predestination—to a determinism of an equally drastic kind: man is in a world which is not related to him, otherwise than by the Natural Selection which has produced the various species to which he belongs. The Elizabethan family tree, and its origin in Jacob’s Tree, is moved from a justification of inheritance of land and money into a description of the various possibilities of evolution (Beer xxxiii).

The novel and the film concur in the reflection on the relation between the literal quality of experience and its metaphorical transposition. The scene of Alec’s blood seeping through the ceiling conveys the literal experience of facts (the struggle between new money and ancient families is part of the survival of the fittest, and though Alec dies the general direction of History cannot be reversed). The scene also stresses the curiosity
which facts arouse when understood as clues leading to an inevitable discovery; this important aspect of Darwinian thought is shown in the film by the housekeeper’s peeping through the keyhole and discovering Tess in tears, and later, by the woman discovering the couple in bed. Apart from the fact that this *mise en abyme* of the gaze is part of Polanski’s visual grammar, it is relevant to the general motif of discovery and mystery which is part of Darwinism (Beer draws a parallelism with the Victorian love of detective stories).

Other clues are given to the viewer, such as knives, cutting and clipping instruments: these have received their share of erotic symbolism from commentators, but they may also be seen as a symptom of the fascination for clues within a theory which by definition denies their worth. Such is the case, for instance, for the setting which connotes Angel’s inability to read Tess’s sincere and pure love for him as the true motive for her rebellion. His confrontation with the otherness of Woman is analogous to his meeting with the cliff-like “solid stone without joint or moulding” (Hardy 501), the mysterious stones in the darkness of the night. The monument only emits a sound by the wind blowing through its openings. When they come upon Stonehenge, none of them can identify it or recognise it:

>The moon had now sunk, the clouds seemed to settle almost on their heads, and the night grew as dark as a cave. However they found their way along, keeping as much on the turf as possible that their tread might not resound […] all around was open loneliness and black solitude […] Clare became conscious of some vast erection close to his front, rising sheer from the grass. They had almost struck themselves against it (500).

The use of “struck” stresses the shock of the sudden contact with this significant primitive structure.

### 3. Stonehenge: a link with the origin of species, natural selection and the descent of man

Stonehenge has been the focus of numerous interpretations, all concerned with origins, as the monument raises questions about the Biblical creation story. In his well-known watercolour, for instance, Turner associates it with the elements and depicts a group of sheep that have been struck by lightning. The symbolic sheep are linked to the idea of sacrifice, as animal sacrifice hints at human sacrifice, recalling Abraham and Isaac as well as a lost pagan tradition. Again, facts become a metaphor for civilised laws, conveying the new perspective according to which the origins of man are due to evolution and therefore lie outside the realm of history. With Darwin, Stonehenge becomes more significant as a pre-historical landmark. As such, it is a paradox; having been built with no record of its erection, it nevertheless remains as a guidepost of History, since references to its presence are found in the oldest texts. The Stonehenge episode comes as a climax in the novel, confirming the Darwinian perspective of time as a continuity which extends far beyond the existence of individuals, not to say mankind, a perspective which was foreshadowed by the situation of Tess within the D’Urbervilles historical time, but also by spatial descriptions connoting dislocation: “Not quite sure of her direction Tess stood still upon the hemmed expanse of verdant flames, like a fly on a billiard-table of indefinite length, and of no more consequence to the surroundings than that fly” (159).

Interestingly, as Lawton points out, what has often been seen as a major alteration in the film’s screenplay, *i.e.* removing the episode of the death of Prince, may strengthen the
sense of an absurdist universe, in keeping with Darwin’s theory of inheritance as loss, not only of the past but of its very relevance to the present. Similarly, Polanski changes the atmosphere of the baptism scene: “by removing Tess’s power and passion in the baptism scene, Polanski stresses her vulnerability and the inexorability of masculine authority however constituted” (Lawton 227). The changes stress the eradication of the language of intention (i.e. Providence) from accounts of evolutionary developments and definitions of the concept of Inheritance, in favour of chance struggle, the genetic impulse towards variety and a multiplicity of environmental responses (Beer 12).

The extinction of the D’Ubervilles rings as the realisation of a program of extinction which is yet another consequence of Darwinian Inheritance theory, as Beer defines it: “Evolutionary theory emphasized extinction and annihilation equally with transformation, and this was one of its most disturbing elements, one to which gradually accrued a heavier and heavier weight in consciousness” (Beer 12). It is not only made manifest in the death of Tess’s baby, but also in the double extinction of the family: on the one hand, in his self-destructive drunkenness, Durbeyfield only celebrates a short restoration of his pride, which causes the disastrous trip of Tess to the market, leading her later to ask her so-called cousin for a position; on the other hand, the usurper of the inheritance is unable to keep it (murdered as he is by Tess).

As the film underlines with the long shots of Tess as a solitary figure walking along a road, the world she lives in is essentially a rootless universe, typical of Darwinian aesthetics. Hence the dialogue between Parson Tringham and Durbeyfield, in both book and film: “Where do we d’Urbervilles live? – You don’t live anywhere” (5). Tess’s life is thus filmed as a series of ruptures as she makes increasingly desperate journeys across Hardy’s Wessex, i.e., in Polanski’s adaptation, landscapes in Normandy that were meant to suggest the hilly Dorchester surroundings and later the road to Salisbury and Stonehenge. Symbolically, her trips cover miles of one of the richest archeological country of Europe, while her ignorance of the layers of geological pre-historical ages is part of the Darwinian scheme of the irrecoverable history of ages during which man did not exist at first, and, when he did, in which he had no history. There are no engravings or signs on the Stonehenge stones, only their disposition can be semiotic, in some still unexplained manner. So that, from a Darwinian point of view, her several trips become emblems of the concept of vacancy, and, indeed, the couple end up in a vacant house which has a sign ‘to let’, before settling amidst the vacant temple of Stonehenge.

Tess’s complaint to Alec, “Once a victim, always a victim. That’s the law” (423), is an appropriate motto both in the novel and in the film. While it seems to refer to some universal natural law, it actually points to the indifference of social law: a “woman who has lost her chastity is always a discredited witness” (Pearson 135-6). The analogy between virginity and the validity of speech, or lack thereof, echoes Darwin’s conception of language as without effect on the extra-linguistic world: because the analogy is quite invalid, it casts an ironic light on the law which Tess invokes, a law which forbade a proper baptism and burial for her child, and which makes it impossible for Angel to hear her confession, though it is quite analogous to his own. In the novel, the impossibility for Tess’s words to be a successful vehicle for her thoughts is clearly not due to her lack of education—she is contrasted with her mother in that respect, and even her father—but entirely to prejudiced views such as Angel and his class entertain. The law Tess refers to is only the expression of social determinism, a form of human error which recalls the religious Calvinist theory of predestination, while what Darwinism is about is another
type of law, the struggle between a changing individual and its equally changing environment. In other words, the irony in the motto springs from the fact that Darwin’s own law is being ignored by the very living species it applies to.

20 Angel’s attempt to explain Tess’s murder of Alec by heredity, rather than by the law of the survival of the fittest—here Tess fighting for her natural affinities with Angel as she has tried to explain—is, illustrates how incomprehensive social laws are:

By degrees he was inclined to believe that she had faintly attempted, at least, what she said she had done [...] unable to realize the gravity of her conduct she seemed at last content; and he looked at her as she lay upon his shoulder, weeping with happiness, and wondered what obscure strain in the d’Urberville blood had led to this aberration—if it were an aberration; [...] the family tradition of the coach and murder might have arisen because the d’Urbervilles had been known to do these things. (Tess, 492)

21 The part played by Stonehenge in the plot of the novel—and of the film, despite the rather unconvincing imitation of the set—seems to be an interesting case of facts becoming metaphor (as was once the case with predestination in Calvinist theory, or displaced Providence in the XVIth century). With Darwinian Inheritance as a fact, God has vanished and predestination is now displaced into a metaphor, the struggle for survival having become a fact in its stead.

22 The stones of the monument have been associated with cosmology, calendar, or solar cults; but if we translate Stonehenge as “hanging stones”, then the monument’s presence in text and film fits in as an obsessional motif. The semantic ambiguity of “hanging stones” as a lexical unit—i.e. both stones placed above the pillars as a piece of mysterious craftsmanship and stones designed for hanging, a kind of gibbet—may be read as symbolic, but may also have a more intimate autobiographical significance. Indeed, both signifier and place create an intimate link between Hardy and Polanski over the years: whereas for Hardy the mystery of the hanging of a woman was a literal fact which he had heard of when a child and which his plot eventually attempted to give meaning to, Polanski dedicated his film to his murdered wife, Sharon Tate (indeed, the fact, gruesome as it may be, remains nothing but a fact, i.e. a useless instance of cruelty, an anomaly in the evolutionary process causing a sharp extinction of natural descent, since Sharon Tate was expecting a baby).

23 The function of stones as an emblem of extinction and erratic evolution is all the more striking if we recall the cliff-hanging scene in A Pair of Blue Eyes (an earlier novel by Hardy which was serialized in 1872-3), dramatizing the confrontation of a would-be archaeologist with a fragment from a prehistoric geological past, the Trilobite’s eyes. Cossett compares “A Bad Five Minutes in the Alps” by Leslie Stephen (published in Fraser’s Magazine in November 1872) and Hardy’s cliff-hanging scene, and shows that Hardy’s text ironically rewrites the topos of the muscular body of man as the triumph of evolution: “both are embodying an aspect of the scientific world view in a similar image; both see Victorian agnostic man in [...] this perilous, cliff-hanging attitude” (Cossett 136). The setting, for Stephen, connects man and mineral forces: “Nature here: rocks, which are among the most obviously material parts of the Universe; and the physical laws of gravitation and motion” (Cossett 139). But in Hardy’s novel, Knight is trapped in what Hardy calls the fan of Time, faced not with mere rock but with a trilobite; not only does he fancy pre-historical ‘fierce men’ but also an earlier period without man, with only beasts. Knight is both the same as the trilobite and mentally different, as Cossett points out: “We have here a dramatisation of the two different, incompatible, ways that man
relates to nature in the scientific world view: by conscious, objective observation, and by
physical, evolutionary kinship” (Cosslett 145).

However, in Tess, the character who observes nature (or feminine nature, Tess lying on
the stone as a fossilized imprint of the extinct d’Urbervilles) is the stern Angel, framed by
religious teaching though he fancies himself a free thinker, and who therefore cannot
properly relate to Nature (elsewhere in the novel, the gazer is Alec but he too is biased, by
sexuality, and is equally unable to relate to Nature). The scene figures the mystery of
Nature in its Darwinian gemellity, both as the origin of a given species, here the human
species, and as law giver—how can one resist gravitation (the weight of the stones), time
or erosion, and its opposite: lawless caprice, chance and accident?

By establishing both a contrast and a connection between Stonehenge’s cryptic but
undeniable presence and Tess’s execution, the association of the woman who will be
hanged with a mass of stonework coming suddenly into view in the dark of night might
be seen as a rewriting of the earlier confrontation with the trilobite, this time as Angel's
confrontation with woman as the Other, the bearer of the Inheritance and the mysterious
double being who is both animal and human, the mystery which neither Alec (who does
not suspect she might be pregnant) nor Angel (who cannot imagine he is not to be her
‘deflowerer’) are able to comprehend.

Thus the plain fact of the standing stones at Stonehenge is displaced into a metaphor for
the existence of Darwinian extinction, as well as the materiality of woman’s desirable
body. Can we today discuss Darwinism no longer as evolutionary science but as
nineteenth-century myth? I would suggest indeed that the representation of Stonehenge,
both in Hardy’s realistic novel Tess and in Polanski’s existentialist, or neo-Darwinian film,
bears the inscription of the myth of Woman. Stonehenge stands for the incomprehensible
bridge between man’s conscience and man’s existence as body, a fact which relates to the
myth of origins, and thus offers an appropriate metaphor for the place of woman in a
Darwinian world, in both Hardy’s novel and Polanski’s film.

BIBLIOGRAPHY

Beer, Gillian. Darwin’s Plots – Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century

Boumelha, Penny. Thomas Hardy and Women: Sexual Ideology and Narrative Form. Brighton:

Costa de Beauregard, Raphaëlle. “Une femme d’aujourd’hui : Tess of the D’Urbervilles. A Pure Woman
(1891) de Thomas Hardy et Tess (1979) de Roman Polanski.” Roman Polanski — l’art de l’adaptation.


NOTES

1. Because of the uncompromising violence of earlier films such as Rosemary’s Baby (1968), The Tenant (1976), Polanski’s Tess was a disappointment for critics such as M. Wallace who called it “a sluggish film of ponderous beauty” (Wallace 36). But it is necessary to take into consideration the production conditions: the film had to be shot entirely outside Britain (in Normandy, where a British “Wessex” village was built, as well as a “Stonehenge”); among other things, Kinski had to be taught English, and for several reasons, Polanski had to make sure the film would address large audiences. The film was deemed too realistic, or even a documentary about dairies (Parker 236): I believe such critics simply overlook the Darwinian approach altogether, both in the novel and in the film.

2. In Geoffrey Whitney’s 1586 A Choice of Emblems, the Wheel of Fortune is no longer a vertical emblem of man’s four ages, or rise and inevitable fall, but a horizontal pedestal on which Fortune, now called Occasio, stands in the shape of a woman with a long lock of hair, illustrating the saying : to seize Fortune by the lock. With individualism as a new fact, destiny itself competes with Providence.

3. Darwinian Inheritance is "setting man in a universe which is not designed to serve his needs" (Beer 14).

4. “Polanski has removed Tess’s sense of culpability so that her journey to Tantridge seems more arbitrary. Tess inhabits an absurdist universe” (Lawton 226).

5. This animal dimension was stressed by contemporary discourse, fearing menstruation or even, in Ruskin’s case, his wife’s pubic hair...

ABSTRACTS

This paper deals with Thomas Hardy’s novel Tess of the D’Urbervilles and Roman Polanski’s screen adaptation Tess; the pivotal role of Darwinian Inheritance theories is discussed in the novel and the film, with reference to major episodes such as the strawberry scene or the dairy episode. The argument then shifts to a discussion of the semantic function of the motif of Stonehenge in the novel as well as in the film, with a suggestion that neo-Darwinism has introduced yet a new conception of the reality of woman.

**INDEX**

*Quoted persons*: Charles Darwin, Galileo Galilei, Jean-Baptiste Lamarck, William Shakespeare

*Mots-clés*: adaptation, coïncidence, culture, destin, déterminisme, femme, métaphore, narration, nature, sexualité

*Keywords*: adaptation, chance, culture, destiny, determinism, metaphor, narration, nature, sexuality, women

**AUTHOR**

RAPHAËLLE COSTA DE BEAUREGARD

Professeur émérite

Université de Toulouse II-Le Mirail

r.costa-de-beauregard@wanadoo.fr