

“Eugenetica” è un termine *tabù*, per le sue immorali applicazioni realizzate in passato. Tuttavia *non tutti* gli aspetti inclusi in quel termine sono condannabili, come ad esempio l’eliminazione delle malattie genetiche, che creano malformazioni e tante sofferenze.

Il precedente lavoro di Brian Cowan, *Eugenetica e Teilhard*,¹ offre un quadro abbastanza ampio dei vari problemi di tipo eugenetico e delle relative argomentazioni teilhardiane.

Il presente scritto di Timothy J. Sutton è intitolato «*England’s “Race Suicide” and the Eugenic Apocalypse of Teilhard de Chardin*». Nella parte iniziale l’A. ricorda l’aspetto storico dell’eugenetica, soprattutto in Gran Bretagna. L’espressione “*Apocalisse di Teilhard*” è usata dall’A. in riferimento al *Futuro dell’Umanità*, al suo divenire “*Una*” in forza della solidarietà e dell’amore.

La parte dedicata a Teilhard de Chardin (evidenziata in rosso) è tradotta alle pp. 7-10.

f.m.

EUGENETICA: L’APPROCCIO TEILHARDIANO

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Abstract: The term *eugenics* (literally, ‘good genes’) was first used in 1883 by Charles Darwin’s cousin, Sir Francis Galton, in the guise of a humanist paradigm that would create morally and physically improved generations of humans. The movement Galton’s ideas spawned culminated in the London School of Economics’ Eugenics Conference in 1904 and the First International Eugenics Conference in London in 1912, and its public supporters included such well-known intellectuals as H. G. Wells, George Bernard Shaw, and John Maynard Keynes. Despite the potentially widespread human rights violations implicit in eugenic notions of the time, intellectuals from all ends of the English political spectrum supported eugenic policies, often employing apocalyptic language about the end of the English race or the devolution of the genetic pool to advertise their message. This paper argues that apocalyptic language was used by pro-eugenic groups only when many of its supporters adopted religious language in articulating their increasingly jingoistic and racist ideologies. Meanwhile, the anti-eugenic position, held by many physicians, but best articulated by British Catholics like G. K. Chesterton, likely represented a silent majority. However, while eugenic views in England have rightfully been condemned after the atrocities of Nazi Germany, this paper argues that the evolution-based apocalyptic vision of the French Jesuit paleontologist, Pierre Teilhard de Chardin, provides a way of synthesizing the scientific concerns of pro-eugenic groups while rejecting the exclusionary and inhumane tenets of the eugenic movement. Teilhard’s thought engages eugenicist principles from the first half of the twentieth century and points to the possibility of a new approach to eugenics.

The story of eugenics in England before World War II is a particularly complex one. Unlike in the United States, no forced sterilization laws ever were passed there; and unlike in Germany, eugenics never fell under the charge of a totalitarian state. English eugenicists cannot even be located within a particular political viewpoint. Extremists on the right supported eugenic policies so that the English race might remain ‘pure’; various leftist politicians and intellectuals supported eugen-

¹ In <http://www.biosferanoosfera.it/uploads/files/c7574329431258aacc0ed4cd4d72eba59d1fb309.pdf>

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ics as the logical extension of the application of 'pure' science. Outside of most physicians who did not hold much public sway, only English Catholics, a small but somewhat prominent segment of society, voiced consistent opposition to the eugenic mindset. Ironically, however, many pro-eugenic thinkers adopted religious language of the apocalypse, portending the end of the England, if not of all humankind, when emphasizing the urgency of adopting eugenic policies. This paper has two major objectives: it will first identify why apocalyptic language was used by pro-eugenic groups; and then it will argue that the apocalyptic vision of evolution posited by the French Jesuit paleontologist, Pierre Teilhard de Chardin, provides a way of synthesizing the scientific concerns of pro-eugenic groups, while still rejecting the racist and inhumane tenets of the eugenic movement.

Thomas Malthus's 1798 *Essay on the Principle of Population* is often cited as a powerful subtext for the eugenic movement once the science of genetics was discovered by the Catholic friar Gregor Mendel. But in that notorious work, Malthus acknowledges and summarily rejects the possibility of practising human eugenics:

*[S]ize, strength, beauty, complexion, and perhaps longevity are in a degree transmissible... As the human race, however, could not be improved in this way, without condemning all the bad specimens to celibacy, it is not probable that an attention to breed should ever become general.*³

Instead, Charles Darwin's half-cousin, Francis Galton, arose as the most vociferous pro-eugenic voice at the end of the nineteenth and beginning of the twentieth century. For Galton, the decision to adopt eugenic policies was an obvious one because it represented the most accessible means of improving the gene pool. In a seminal 1904 conference on the topic at the London School of Economics, Galton insists,

*The aim of eugenics is to represent each class or sect by its best specimens; that done, to leave them to work out their common civilization in their own way. A considerable list of qualities can easily be compiled that nearly everyone except 'cranks' would take into account when picking out the best specimens of his class. It would include health, energy, ability, manliness, and courteous disposition...The race as a whole would be less foolish, less frivolous, less excitable, and politically more provident than now.*⁴

In making his claim, Galton does not limit himself to the English or to the any specific 'race,' nor does he adopt apocalyptic or religious language. He is concerned with all humankind. However, many physicians and other scientists spoke after Galton, and they consistently made the two main arguments in response: 1) predicting genetic expression is not yet scientifically feasible, and 2) genes themselves are not fully understood and caution must be taken before any eugenic policies are adopted.

H.G. Wells was one of the few voices that supported Galton at the conference, but Wells believed that only negative eugenics, or the weeding out of the obviously genetically flawed - cases

³ Thomas Malthus, *An Essay on the Principle of Population* (London: St. Paul's Churchyard, 1798), 53.

⁴ Francis Galton & others, 'Eugenics: Its Definition, Scope, and Aims,' *The American Journal of Sociology* X.1 (1904), 1.

of mental and physical retardation, psychosis, or severe physical handicap - should be rendered sterile so as to improve entire genetic stock: 'It is in the sterilization of failures, and not in the selection of successes for breeding, that the possibility of an improvement of the human stock lies.'⁵ Wells does not promote positive eugenics - the deliberate propagation of healthy genetic people - although not for the scientific reasons given by the physicians presenting before him. Wells argues against positive eugenics because of its violation of political and personal freedom: 'Now and always the conscious selection of the best for reproduction will be impossible; that to propose it is to display a fundamental misunderstanding of what individuality implies.'⁶ Like Galton, Wells' rhetoric remains free of religious or racist implications. His focus is on science, even if it is an amateurish science, and on political freedom, even if this freedom is not universal.

George Bernard Shaw spoke after Wells, and he employed a more urgent rhetoric than the speakers before him. He dubiously points out that society has long practiced negative eugenics, 'on the scaffold and on the battlefield,' as if capital punishment and war were motivated by the objectives of genetic improvement. Shaw claims the fate of civilization can only be preserved by eugenic policies,

*There is now no reasonable excuse for refusing to face the fact that nothing but a eugenic religion can save our civilization from the fate that has overtaken all previous civilizations.'*⁷

What led Shaw to consider eugenics from a transcendent and spiritual perspective with such dire potential consequences, while Wells and Galton limit the language of their analyses to science and politics? I argue that it is in major part Shaw's belief that eugenics must be applied to a specific civilization, the one comprised of the British 'race,' and not to mankind in general (which was the concern of Wells and Galton), that leads him to adopt apocalyptic language. The religious connotation of jingoistic racism works its way into the eugenic debate.

Although Shaw's rhetoric was an outlier in 1904, by the end of the decade intellectuals increasingly applied apocalyptic language when advocating genetic reform. In 1901, the well-known mathematician and Social Darwinist Karl Pearson writes,

*My view – and I think it may be called the scientific view of a nation is that of an organized whole, kept up to a high pitch of internal efficiency by insuring that its numbers are substantially recruited from the better stocks, and kept up to a high pitch of external efficiency by contest, chiefly by way of war with inferior races.'*⁸

By 1909, Pearson warns, 'We find ourselves as a race confronted with race suicide; we watch with concern the loss of our former racial stability and national stamina.'⁹ The next year the Marxist political scientist H. J. Laski uses the same phrase: 'The different rates of fertility in the sound

⁵ Ibid., 2.

⁶ Ibid., 4.

⁷ Ibid., 5.

⁸ Karl Pearson, *National Life from the Standpoint of Science* (Cambridge: Cambridge University Press, 1919), 43-44.

⁹ Qtd. in Marius Turda, *Modernism and Eugenics* (London: Palgrave Macmillan, 2010), 26.

and pathological point to a future swamping of the better by the worse. As a nation we are faced by race suicide.¹⁰ According to Marius Turda, whose *Modernism and Eugenics* (2010) examines the international reach of eugenics, 'The nation was progressively portrayed as a biological entity whose natality, longevity, morbidity and mortality needed to be supervised...[E]ugenicists offered the possibility of national regeneration.'¹¹ As the nation was conceived of as a single and vulnerable body, eugenics became a matter of nationalism, and its exigency increased and brought with it an apocalyptic perspective not imagined by the first proponents of eugenics.

This language of 'race suicide' and the demise of the English was employed as consistently and virulently by the political left as by the right. But it was not necessarily the view of the scientific community; that is why it might be more appropriate to speak of a pro-eugenicist movement rather than a eugenicist one, for few genetic scientists in England actually supported or practised eugenic policies. In 1917, when National Baby Week was held in London by the Eugenics Education Society in order to improve post- and neo-natal care, many scientists supported it for reasons of health; however, some eugenicists feared that doctors might interfere with 'nature's cruel methods to improve racial quality.'¹² But most physicians did not concern themselves with the political rhetoric that, at least until that point, had rarely interfered with their practice.

Instead, the English Catholic G. K. Chesterton provided the language that most effectively thwarted the pro-eugenicists' 'race suicide' theories. In *Eugenics and Other Evils*, published in 1922, the year of his conversion, Chesterton uses his playful, logical voice to point out the complexity of eugenic choices:

*Even if I were a Eugenist, then I should not personally elect to waste my time locking up the feeble-minded. The people I should lock up would be the strong-minded. I have known hardly any cases of mere mental weakness making a family a failure; I have known eight or nine cases of violent and exaggerated force of character making a family a hell.*¹³

Chesterton highlights the problem with Galton's assumption that the 'best traits' of humankind are easily identifiable. He also insisted that English political principle of liberty should protect England from the eugenic movement. If it does not, Chesterton contends, then the idea of England will have been destroyed anyway: 'That at which we look will be a dead thing alive with its own parasites. The English will have destroyed England.'¹⁴ However, as Chesterton points out, the First World War slowed the progress of eugenics in England. Then, as many believe, the aftermath of the Holocaust effectively ended the promotion of eugenics values in England and abroad.

Of course, this narrative has not proved entirely accurate. Eugenics continues to be practised in England and worldwide in third-party reproduction, for instance, in which specific donor traits are

¹⁰ Ibid. 34.

¹¹ Ibid., 6.

¹² F. C. S. Schiller, *Eugenics Review* 9.3 (1917), 234.

¹³ G. K. Chesterton, *Eugenics and Other Evils* (London: Cassell, 1922), 51-52.

¹⁴ Ibid., 158.

selected, or in genetic screening for diseases such as cystic fibrosis and Down's syndrome, which often leads to the decision to abort. As Turda acknowledges,

*It would not be surprising to witness the re-emergence of a doctrine that was never defeated in the scientific arena but rather submerged by political and social events' because 'a viewpoint latent among scientists only requiring another change in the social climate to prompt its expression.'*¹⁵

But what is to prevent the dangerous and prejudiced application of these theories that led to apocalyptic rhetoric in England and mass murder elsewhere in the last century? Somewhat paradoxically, I believe Teilhard de Chardin's vision of the apocalypse – based on theories of evolution – provides the best articulation of a palatable eugenic mindset.

In *The Phenomenon of Man*, Teilhard argues that evolution is not merely evidence of a reaction to conditions of the environment, but that it is directed. He explains, 'The brain is continually perfecting itself with time, so much so that a given quality of brain appears essentially linked with a given phase of duration.'¹⁶ And this observation, Teilhard argues, 'provides a direction; and therefore it proves that evolution has a direction,' which is constituted by 'ever more complexity and thus ever more consciousness.'¹⁷ This premise serves as the foundation of his apocalyptic vision, one in which humankind uses free will to perfect itself. The apocalypse for Teilhard takes on its prominent meaning as an 'unveiling' in the incremental revelation of the fullness of the possibility of human consciousness through evolution. He explains that this understanding of the apocalypse is more in keeping with scientific observations of human nature:

*All pessimistic representations of the earth's last days—whether in terms of cosmic catastrophe, biological disruptions or simply arrested growth and senility—have this in common: that they take the characteristics and conditions of our individual and elemental ends and extend them without correction to life as whole.'*¹⁸

This error represents one of the many mistakes of the fretful eugenicists of the twentieth century: they believed that genetic problems in individuals would run rampant throughout society, despite the fact that nothing in history suggests that this is the direction genetic expression takes.

Teilhard notes the exceptional situation of humankind because it is the only "species" capable of achieving something in which all previous species had failed. It has succeeded...in stretching a single organized membrane over the earth without breaking it.'¹⁹ The bond of humankind is largely linked by genetic integrity and expression in the brain, or by consciousness. Therefore, Darwin's discovery is vitally important (and even especially to the Christian believer), because in discovering evolution, 'We have become conscious of the movement which is carrying us along, and have thereby realized the formidable problems set us by this reflexive exercise.'²⁰ What is most com-

¹⁵ Turda, *Modernism and Eugenics*, 116.

¹⁶ Pierre Teilhard de Chardin, *The Phenomenon of Man* (New York: Harper & Row, 1959), 146.

¹⁷ *Ibid.*, 146; 244.

¹⁸ *Ibid.*, 275.

¹⁹ *Ibid.*, 246.

²⁰ *Ibid.*, 215.

elling about Teilhard's thesis is that it places the apocalyptic moment within the context of individual freedom. The completion of the process is far from imminent, but in his belief system it will lead to, in the words of John the Evangelist 'a new heaven and a new earth.'²¹ And even for the non-believer, the directed perfection of consciousness is transformative.

Meanwhile, man faces a predicament: how to respond this knowledge of humankind's direction. Teilhard explains 'What disconcerts the modern world...is not being sure, and not seeing how it could ever be sure, that there is an outcome - *a suitable outcome* - to that evolution.'²² This concern potentially opens avenues to the re-institution of exclusionary eugenic policies, or, in Teilhard's words, that 'insidious...doctrine fascinating large sections of mankind - the doctrine of the selection and election of races.'²³ But while Teilhard unequivocally condemns this practice, he does not believe mankind can merely allow nature to run its course. Our conscious decisions are a vital aspect of that 'nature.' In line with his theory, we must become responsible for our knowledge and our freedom. He insists,

*Reflective substance requires reflective treatment knowledge If there is a future for mankind, it can only be imagined in terms of harmonious conciliation of what is free with what his planned and totalized...It is indispensable that a nobly human form of eugenics, on a standard worthy of our personalities, should be discovered and developed.*²⁴

It is important that what Teilhard advocates is not the immediate application of a eugenic program, but the discovery and development of genetic research that leads to humane eugenic policies. From our current understanding of genetics - which has advanced rapidly since the 1955 publication of Teilhard's *Phenomenon*, but is still rather tenuous - we still are not ready to make this commitment.²⁵ But the idea of humane and widely acceptable forms of eugenics is not inconceivable. For example, recent research posits, among other discoveries, that gene expression is likely affected by environmental factors or that gene regulation is possible.²⁶ These discoveries suggest that genetic expression is heavily influenced by social factors, and that it may be possible to reformulate of the very idea of eugenics as an inclusionary science and social science that is policed by charity.

Such revelations would not surprise Teilhard, who argues, 'The egocentric ideal of a future reserved for those who have managed to attain egoistically the extremity of 'everyone for himself' is false and against nature'; instead, 'To be fully ourselves is to move in the opposite direc-

²¹ Rev. 21:1

²² Teilhard de Chardin, *The Phenomenon of Man*, 229.

²³ *Ibid.*, 238.

²⁴ *Ibid.*, 283; 282.

²⁵ See Natalie Angier. 'Scientists Find That "Gene" Has a Multitude of Meanings,' *New York Times*, November 10, 2008, D2. See also Kenneth W. Kinzler and others. 'The Predictive Capacity of Personal Genome Sequencing,' *Science Translational Medicine* 4.133 (2012), 133ra58.

²⁶ See, for example, David Shenk, *The Genius in All of Us*, New York: Doubleday, 2010.

tion...towards the "other."²⁷ Teilhard's ideas concerning evolution can certainly help revise attitudes toward eugenics by increasing research efforts without the stain of the past preventing legitimate work. But his ideas also synthesize the best aspects of the past thought of pro- and anti-eugenicists in England and throughout the West. In theory, Teilhard's thesis could help us adopt an approach to genetic health without racist implications; a respect for the difficulty of understanding genetic expression, without fearing new discoveries; and a vision of humanity that allows for a peaceful apocalyptic vision for Christians that does not violate the scientific principles of believers and non-believers alike.

Ma come prevenire la pericolosa e tendenziosa applicazione di queste teorie che hanno portato alla retorica apocalittica in Inghilterra e, altrove, all'omicidio di massa nel secolo scorso? Un po' paradossalmente, credo che la visione apocalittica di Teilhard de Chardin - basata sulle teorie dell'evoluzione - fornisca i migliori elementi per un'accettabile mentalità eugenetica.

In *Il fenomeno umano*, Teilhard sostiene che l'evoluzione non evidenzia semplicemente delle risposte alle condizioni dell'ambiente, ma che è direzionata. Egli chiarisce che "Il cervello si perfeziona continuamente nel tempo, tanto che una data proprietà del cervello appare sostanzialmente collegata ad una determinata fase della durata".²⁸ E questa osservazione, afferma Teilhard, "indica una direzione; perciò dimostra che l'evoluzione è direzionata", che è costituita da "sempre maggiore complessità e quindi da sempre maggiore coscienza".²⁹ Questa premessa sta alla base alla sua visione apocalittica, in cui l'umanità utilizza il libero arbitrio per perfezionarsi. L'apocalisse di Teilhard assume significato primario come "disvelamento" della crescente manifestazione di pienezza della coscienza umana nel corso dell'evoluzione. Egli precisa che questo modo d'intendere l'apocalisse è più in sintonia con le osservazioni scientifiche sulla natura umana:

*"Catastrofi cosmiche, disgregazioni biologiche o semplicemente arresto di sviluppo o senescenza, le immagini pessimistiche degli ultimi giorni della Terra hanno in comune la caratteristica di estendere senza correttivi alla Vita intera la tipologia e le condizioni delle nostre fini individuali ed elementari".*³⁰

Questo errore è uno dei molti commessi dagli inquieti eugenisti del XX secolo: essi credevano che i problemi genetici degli individui si sarebbero propagati nella società, malgrado che nulla nella storia indichi che questa sia la direzione seguita dall'espressione genetica.

Teilhard sottolinea l'eccezionale situazione del genere umano, poiché è l'unica "specie" in grado di realizzare qualcosa in cui tutte le specie precedenti avevano fallito. È riuscita ... a estendere sulla Terra un'unica membrana organizzata senza lacerarla.³¹ Ciò che il genere umano ha in comune è in gran parte collegato all'integrità ed espressione genetica del cervello, o alla coscienza. Pertan-

²⁷ Teilhard de Chardin, *The Phenomenon of Man*, 229. Teilhard predicts what he believes the major factors will be: 'Points involved are: the distribution of the resources of the globe; the control of the trek towards unpopulated areas, the optimum use of the powers of mechanization; the physiology of nations and races.' Ibid., 283.

²⁸ Pierre Teilhard de Chardin, *The Phenomenon of Man* (New York: Harper & Row, 1959), 146.

²⁹ Ibid., 146; 244.

³⁰ Ibid., 275. [nell'edizione Queriniana del 1995, a p. 257]

³¹ Ibid., 246. [si tratta, naturalmente, della "Noosfera"]

to, la scoperta di Darwin è di vitale importanza (e in particolare per il credente cristiano), perché nel renderci consapevoli dell'evoluzione, "Abbiamo preso coscienza del movimento che ci sta portando avanti, e di conseguenza dei formidabili problemi che questo potere riflessivo ci pone".³² La cosa più interessante nella tesi di Teilhard è che egli situa il momento apocalittico nel contesto della libertà individuale. Il completamento del processo è ben lungi dall'essere imminente, ma nel suo sistema di credenze condurrà, secondo le parole di Giovanni Evangelista, "a un nuovo cielo e a una nuova terra."³³ E anche per il non-credente, il perfezionamento direzionato della coscienza è trasformativo.

Nel frattempo, l'uomo deve affrontare una situazione difficile: come tener conto del fatto di sapere che l'umanità ha una sua direzione. Teilhard precisa: "Ciò che sconcerta il mondo moderno ... è di non essere sicuro, e di non vedere come potrebbe mai essere sicuro, che ci sia un esito - un *esito adeguato* - per tale evoluzione."³⁴ Questa preoccupazione apre potenzialmente le porte alla ri-istituzione di politiche eugenetiche esclusive, o, nelle parole Teilhard, a quella "insidiosa ... dottrina che ha affascinato larghe parti dell'umanità - la dottrina della selezione ed elezione delle razze."³⁵ Ma mentre Teilhard condanna in modo inequivocabile tale pratica, egli non crede che l'umanità possa semplicemente permettere che la natura faccia il suo corso. Le nostre decisioni consapevoli sono un aspetto vitale di quella 'natura'. In linea con la sua teoria, dobbiamo diventare responsabili del nostro sapere e della nostra libertà. Egli aggiunge:

La sostanza riflessiva esige un uso riflessivo della conoscenza. Se vi è un futuro per l'umanità può essere solo immaginato in termini di armoniosa conciliazione fra ciò che è libero e ciò che è pianificato e generalizzato... È indispensabile che si scopra e si sviluppi, all'altezza delle nostre persone, una forma nobilmente umana di eugenetica".³⁶

È importante tener presente che quanto Teilhard perora non è l'immediata applicazione di un programma eugenetico, ma l'identificazione e lo sviluppo di una ricerca genetica che permetta delle politiche eugenetiche *umane*. Secondo le nostre attuali conoscenze della genetica - che è rapidamente progredita da quando, nel 1955, è stato pubblicato *Il fenomeno umano* di Teilhard, ma è ancora piuttosto indefinita - non siamo ancora naturali per affrontare questo impegno.³⁷ Ma non è inimmaginabile l'idea di modalità umane e ampiamente accettabili di eugenetica. Ad esempio, la recente ricerca ipotizza, tra le altre scoperte, che l'espressione genica sia probabilmente influenzata da fattori ambientali o che la regolazione genica sia possibile. Queste scoperte fanno pensare che l'espressione genetica sia fortemente influenzata da fattori sociali, e che sia possibile riformulare l'idea stessa di eugenetica come scienza vera e propria, come scienza sociale controllata dall'etica dell'amore.

³² Ibid., 215.

³³ Rev. 21:1

³⁴ Teilhard de Chardin, *The Phenomenon of Man*, 229.

³⁵ Ibid., 238.

³⁶ Ibid., 283; 282.

³⁷ See Natalie Angier. 'Scientists Find That "Gene" Has a Multitude of Meanings,' *New York Times*, November 10, 2008, D2. See also Kenneth W. Kinzler and others. 'The Predictive Capacity of Personal Genome Sequencing,' *Science Translational Medicine* 4.133 (2012), 133ra58.

Tali novità non sorprenderebbero Teilhard, il quale sostiene: “Falso e contro natura, l’ideale egocentrico di un avvenire riservato a color che avranno saputo egoisticamente raggiungere l’estremo limite dell’ ‘ognuno per sé’. Nessun elemento potrebbe muoversi né crescere se non insieme a tutti gli altri e per loro tramite”.³⁸ Le idee di Teilhard riguardanti l’evoluzione possono certamente contribuire a rivedere gli atteggiamenti verso l’eugenetica, aumentando gli sforzi di ricerca, senza che l’onta del passato impedisca un legittimo lavoro. Ma le sue idee riassumono anche le principali posizioni di coloro che erano pro e contro gli eugenisti in Inghilterra e in tutto l’Occidente. In teoria, le tesi di Teilhard potrebbero aiutarci ad assumere un approccio alla salute genetica privo di implicazioni razziste; ad avere rispetto per la difficoltà di comprendere l’espressione genetica, senza temere nuove scoperte; e ad assumere una visione dell’umanità che offra ai Cristiani una pacifica visione apocalittica [ovvero una non troppo problematica unificazione dell’umanità] che non violi i principi scientifici sia per i credenti che per i non credenti.

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³⁸Teilhard de Chardin, *The Phenomenon of Man*, 229. [p. 228 dell’edizione Queriana]. Teilhard predicts what he believes the major factors will be: ‘Points involved are: the distribution of the resources of the globe; the control of the trek towards unpopulated areas, the optimum use of the powers of mechanization; the physiology of nations and races.’ *Ibid.*, 283.