Young People Engaging in Volunteering: Questioning a Generational Trend in an Individualized Society

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Abstract: Today young people experience a world that is being significantly changed by large-scale transformations in education and labour markets. Youth, as a generation, is most affected by those changes, since they are more likely to reshape their ways of living in response to the conditions they face, which inevitably produce inequalities in their lives. Volunteering is one of their responses. This paper aims to discuss the generational motivations and attitudes of a group of 11 European young people to participate in a European Voluntary Service project during a period of one year. The data was collected through an ethnographic methodological approach conducted between 2013 and 2014 in a Youth Centre in northern Portugal. Results clearly indicate that young people have an instrumental relationship with volunteering, which is mainly focused on the individual benefits that they believe they will acquire in their personal and professional life. Volunteering emerges as an opportunity to escape and to overcome the persisting challenges and constraints posed by our society; namely unemployment and precariousness, both of which are on the rise amongst young generations around the world.

Keywords: civic participation; youth volunteering; generations; individualization; individualism

1. Introduction

In recent decades, young people have been represented as being at risk of exclusion from civic and political participation, being labelled as apathetic, antisocial and absorbed in themselves. This representation has been justified by factors such as the low levels of trust and interest in politicians and conventional political institutions, low electoral participation and little knowledge of contemporary political processes [1–4]. However, although young people experience dissatisfaction with traditional forms of political participation and formal political structures, there is an increasing body of evidence which suggests that the participatory culture of younger generations has changed. Young people seem to prefer more informal or unconventional forms of civic and political participation that best suit their interests and needs. Their participation is generally divorced from any political affiliation and from the electoral politics of the formal democratic system, though it may still be political [5–12]. Given this new portrait which is emerging, civic participation is now more broadly defined, overcoming the barriers of the formal political space in a way which includes engagement in volunteering, social movements and local organizations [13].

In the last two decades, the number of people who engage in voluntary activities has increased significantly, leading to increased academic interest in this subject [14]. In 2015, around one in four (25%) young people across the EU were involved in some kind of voluntary activity [15]. Volunteering is a planned, pro-social and sustained behaviour that benefits others and occurs over time and within an organizational environment [16]. It is therefore an expression of values like altruism, solidarity, generosity and social responsibility. In the context of youth transitions, Holdsworth and Brewis [17]...
have noted that the individual and social transformative potential of volunteering has been stressed, being an opportunity for young people to develop skills, enhance employability profiles, and contribute to the ‘social good’. It is not by chance that, in recent decades, the European Union has emphasized the need to foster youth volunteering. Indeed, volunteering is a cornerstone of the EU strategy to help young people address the challenges they face nowadays. One of these examples is the European Voluntary Service (EVS), an operational action of the Youth in Action program created by the European Commission in 1998, in which the eleven young volunteers of this study participated during one year. EVS enables young people aged between 18 and 30 years old to live from two months to one year in a foreign country within or outside the European Union. The main aims of EVS are to promote active citizenship and solidarity among young people, as well as enhancing their employability by offering a true learning experience which contributes greatly to the development of both their personal and professional skills [15,18]. Therefore, youth volunteering emerges as a social phenomenon which is very relevant today, and which is worthwhile to be studied.

As an object of study, volunteering has received particular attention from Sociology and Psychology. From a psychological perspective, research tends to be concerned with the understanding of the volunteers’ motivations, seeking to identify the personality traits that distinguish volunteers from non-volunteers. On the other hand, sociological perspectives aim to understand the social profile of volunteers, the meanings volunteers give to their activities and how they volunteer [19]. In the contemporary debate about volunteering, there is a widespread belief that the nature of volunteering is undergoing an intergenerational transformation mainly due to the structural processes such as individualization [20–24]. Individualization is a concept proposed by Ulrich Beck [25], which refers to a macro-sociological phenomenon imposed on the individual by modern institutions, whose guidelines compel the self-organization of people’s biographies [26]. This means that each person assumes an increasing responsibility for making choices and shaping their own future.

Hustinx and Lammertyn [20,23], sociologists who investigate the phenomenon of volunteering, created the notion of “reflexive volunteering” to conceptualize the idea that volunteering is becoming less collective and more reflexive or individualistic. They argue that in our individualized society, volunteers, whether adults or young people, tend to adopt more self-centred dispositions. In Hustinx’s words “new volunteers strive for both solidarity and personal development, selecting activities that maximise the personal benefits: self-realisation, social contacts, work experience and personal autonomy” [21] (p. 64). Hustinx [22], created the concept of “institutionally individualized volunteering” to claim that the decision to volunteer and the nature of volunteers’ commitment seems to be dependent on individual desires and preferences. That is, there is a shift from highly-committed involvement toward more episodic, dynamic and self-oriented types of participation “with frequent entries and withdrawals depending on individual biographical needs and conditions” [24] (p. 238).

Corroborating this perspective, several studies report instrumental motivations to join a volunteer experience; that is, volunteers are not necessarily altruistic and are rarely willing to offer their services for no personal gain [27–33]. For instance, Bocsi and other researchers [33] argue that while the traditional motivations of volunteering are based on altruistic values and on the importance of helping the community, nowadays volunteers are prompted by multiple “modern” motivations. These motivations include career development, personal growth, work experience, developing skills, getting a job more easily, making friends, meeting people with similar interests, and taking part in a useful leisure activity.

Regarding the literature on youth volunteering, some studies suggest that young people’s motivations to volunteer are complex and subject to change over time [34–36]. For instance, Gage and Thapa [35] note that while altruism—the desire to benefit others or contribute to the community—may be the first motivation that leads young people to volunteer, their continuance in volunteering tends to depend more on personal motivations. This is contradicted by other findings which suggest that instead of altruism, young people are mainly motivated by personal and professional reasons. According to this perspective, young people are more likely to get involved in volunteering in order to gain new skills that may lead them to new or better employment opportunities [17,22,31,37–40]. For instance,
Handy and other colleagues [37] argue that in the United States and Canada, where volunteering represents a strong positive signal for employers, younger generations, especially the career-oriented volunteers, are more inclined to volunteer. They argue that in those countries there is a new type of volunteering among higher education students, which can be termed “career-related résumé-building volunteering”. This means that career-oriented volunteers do voluntary work because they can add this experience to their CVs. However, altruistic values are also important to them. But what justifies these new and apparent contradictory motivations and dispositions?

According to Mannheim [41] youth, as a generation, is a heterogeneous group positioned within the same historical and sociocultural context, but is nevertheless likely to be characterised by shared dispositions, modes of feeling, action, or a common consciousness. Therefore, in the context of volunteering and generations, it seemed interesting to pose the following question: what did change among the meanings and motivations attributed by young people to their voluntary service?

Our principal conclusions corroborate the generational trend around youth volunteering: today young people get involved in volunteering mainly for self-oriented motivations, related with self-knowledge, self-development and self-gratification. The European Voluntary Service is seen by young people as a recreational opportunity to escape unemployment and precariousness as well as a learning opportunity to acquire skills useful for their personal and professional life. This disposition is strongly influenced by our individualized society and by the demands imposed by the current educational system and labour market.

2. Materials and Methods

This paper draws on qualitative research undertaken with a group of 11 young Europeans, who participated for one year (2013–2014) in a European Voluntary Service (EVS) project in a Youth Centre, the receiving organization, located in northern Portugal. The aim of this study is to understand the young people’s meanings and commitments on their voluntary experience. The eleven volunteers were divided in two projects. In the project “Meeting the Community” they had to go during the week to four local institutions, whose users were vulnerable people (that is to say, people with mental illnesses and disabilities, children living in an orphanage and the elderly). The role of the volunteers was mainly to support staff in various tasks and they could also develop new activities. In the project “For a better world”, they had to be in a Fair Trade shop, selling products and helping the Youth Centre to promote the Fair Trade movement. These two projects had one coordinator from the Youth Centre who had a meeting every week with the two groups of volunteers in order to talk about their voluntary work and also to propose some tasks they could do—whether individually or collectively. However, the volunteers were not evaluated. Besides, it shall be mentioned that in the first month of EVS, the volunteers received some training related with their voluntary service. For instance, they had lessons to learn Portuguese in order to better work with the local institutions.

Regarding the characteristics of the study participants, they had some common traits: all came from the same middle class socio-economic background and all were graduates with the exception of Lasse and Javier who had attended secondary school but had not gone on to higher education. Furthermore, before starting the EVS project some of them were unemployed and others had precarious employment. We present below their fictitious names, their respective ages as well as the countries from which they came from (Table 1).

<table>
<thead>
<tr>
<th>Young Volunteers’ Ages and Home Countries</th>
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<tr>
<td><strong>Project “Meeting the Community”</strong></td>
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<tr>
<td>Chiara Röka Larissa Maarit Lasse Jack Ewelina Lauma Jelena Giulia Javier</td>
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<tr>
<td>Italy Hungary Greece Finland Denmark Slovenia Poland Latvia Serbia Italy Spain</td>
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<td>30 24 23 20 25 28 28 27 29 26 25</td>
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In terms of our methodology, we chose an ethnographic approach because it allows us to have greater proximity to, and involvement with, the group under investigation; participant observation and the writing of field notes (FN) being the main instruments of data collection [42]. We accompanied the volunteers every day in their voluntary service locations, and were with them in the youth centre, where they used to be. The fieldwork was carried out over a period of four months, ending at the time of data saturation. During this period of time, we also did individual semi-structured interviews (I) to each one of the eleven volunteers in order to enrich our field notes; specifically as far as the motivations and meanings given to volunteering are concerned. Regarding the data analysis, we opted for using content analysis to analyse the data collected through participant observation and interviews. The validity and authenticity of the results were safeguarded by several procedures. Initially, we made several careful readings familiarise ourselves with the data. Later, our data passed through a process of open coding; being examined and coded in eleven broad categories which emerged from the data. Subsequently, we identified the most meaningful data and divided each category into more specific sub-categories so that each statement could be coded differently by different coders.

Finally, regarding the limitations of this study, we recognize that it would be better if we had more time available for the collection of data. Even though we spent four months in the field, it would be interesting to follow the “trajectories of meanings” developed by the participants throughout their volunteer service during one year, in an online or offline setting. This would possibly enable us to draw some comparisons regarding how this voluntary experience changed their initial motivations and meanings. On the other hand, although the sample size only encompassed 11 participants, the sound knowledge achieved can be used to derive a number of conclusions, as we shall see.

3. Results

3.1. Volunteering As An Escape to Unemployment and Precariousness

Nowadays young people share common generational conditions. In various countries, they spend longer time in education and consequently take longer to establish themselves in the labour market; experiencing new forms of dependence on their families or the state for a longer time than the previous generation [43]. Furthermore, young peoples’ often expensive investment in education has yielded ever less profitable results for them; with secure professional employment elusive for many [44]. During the past three decades, young people have been the hardest hit by the economic and social transformation across Europe, being victims of rising unemployment rates and job insecurity, as well as the flexibility of labour relations and wage exploitation which are characteristic features of Neo-Liberal capitalism and the recent experiments in ‘austerity’ [45,46]. As a result, young people today juggle study and work over extended periods of time and as they suffer extreme difficulty of personal autonomy. Their various transitions—to working life, independent living and family formation—no longer follow a linear path. On the contrary, young people’s trajectories may be marked by back and forth movements between family, school, work and unemployment [47]. Thus, as we could prove in young people’s discourses, these generational conditions bestow a new “flavour” to their voluntary experiences.

Swinging on the tightrope of unemployment or temporary jobs, the volunteers of this study decided to embark in an EVS project to escape their own vulnerable condition of unemployed or underemployed. The following volunteers echo this common trend:

Jack—After college I thought, okay, if I do not get job it is good think about volunteering (FN).
Javier—I am mechanic but I was unemployed and knowing that it is difficult to stay in my country because of the crisis I decided to come to this experience of a year. (I)
Lauma—In Latvia I lost my job, I was not officially unemployed but was doing temporary jobs from time to time, nothing permanent. As I had nothing to do, why not? (I)
3.2. Volunteering As An Opportunity for Skills Development and Curriculum Enrichment

In today's 'knowledge society' there is an expectation that to adjust to a global, rapidly changing, order, individuals have to be entrepreneurs of their own lives and must continually strive to be more efficient, fast, inventive and continuously self-actualizing [48]. As the transversal or soft skills such as adaptability, versatility, flexibility and creativity are increasingly valued and required in modern labour markets, to succeed requires acquire more individualised skills, communication skills and social capital [49,50]. Moreover, as a result of individualization, demands are put on young people to not to blame failure on structural conditions but to see this as a result of their own “underdeveloped entrepreneurial spirit” [51]. Thus, the acquisition of skills is increasingly viewed as the responsibility of the individual.

This being the case, at a time wherein young people are pressed to compose their own empowerment strategies, making an “active” use of their individual agency to find or invent their own style of life, the individual capacity to overcome uncertainty takes on added importance [52,53]. Moreover, given that in current educational pathways “the acquisition of academic degrees alone is not sufficient to ensure that workers’ skills fit well with job requirements” [54] (p. 78), learning is no longer limited to a diploma or an institution. Thus, as a way to deal with increasingly individualised biographies and to correspond to the educational and labour market demands, the European young people of this study consider volunteering as a strategic context for learning and developing useful and valuable skills for curriculum enrichment and professional future. Larissa, Lauma, Chiara and Jack illustrate this orientation as follows:

Larissa—I did not want to stay longer to work in the bar. I wanted to do something to improve my skills. At first I was looking for volunteering at schools and so could learn as a teacher, because in Greece I only had three months of practical work as a teacher in graduating and currently there are no job opportunities as a teacher. (I)

Lauma—We’re here also looking for job opportunities, because here you can take the risk to do what you want to improve your skills and you’re not responsible for anything. You can try, if you have no success it’s bad but life goes on. (I)

Chiara—As I am a tour guide I mainly wanted to improve my English skills and learn Portuguese, because nowadays it is economically important, for example, for the Brazilian economy. (I)

Jack—The economic situation is not good, getting a job is difficult. And as I did not want to stay at home to send e-mails waiting for something fall from the sky I thought about the chances I had. Either I am at home doing nothing, that is, looking for a job, or I will do something to have an international experience, to try to learn a new language, and also to work as a team. Other things that you do not learn at school, at university (...). All these possibilities can enhance the likelihood of having employment. So as I wanted to learn I found this opportunity excellent. In addition to learning I could be helpful to others. There are few programs as this one. (I)

In this last testimony, although Jack expects, foremost, to have personal benefits from his voluntary service, his attitudes of solidarity and altruism are not eclipsed. He expresses what Beck [55] conceptualised as a “cooperative or altruistic individualism”, because he wants to fulfil a double purpose: to do something that benefits one’s own interests, as well as care for the interests of the ones that are being helped. “Be useful to others” is the cherry on top of the cake.

3.3. Volunteering As An Opportunity to Travel and Meet People from Other Cultures

In the following volunteers’ discourses, volunteering also emerges as an enticing possibility to go abroad and know people from other cultures.

Larissa—I wanted to go abroad to study or to do EVS, as this is an experience that allows you to meet people from different cultures and to work together with them for a year. (I)
Giulia—I wanted to do an experience abroad for a year. I had just gone abroad for a month on vacation. So I wanted to see how I could work in a place that is not of my origin, to be in relationships with different cultures and different ways of seeing and doing things, and enhance skills, such as learning Portuguese and have the experience of organizing things. (I)

Chiara—I’m always looking for a way to travel abroad without paying and to know new cultures. And a friend of mine told me that there was the possibility to travel with all expenses paid through volunteering. (I)

Today young people live in an increasing multicultural and connected world. Therefore, they are attracted by mobility opportunities that offer possibilities to get to know and interact with people from other cultures. As we have concluded in a previous article [56], given that EVS implies to work together with young people with different nationalities, volunteering is taken as a learning and recreational experience that offers relational and intercultural benefits. This disposition also reflects a generational trend identified by Musick and Wilson [57], who argue that young people volunteering across Europe are mainly interested in the experience of travel, taking part in leisure activities, exposure to cultural diversity and in developing their skills.

3.4. Young People’s Attitudes: Tensions between Cooperation and Competition

Today young people live in an individualised society which has erected the individual as the focus of all investments, which has led to the weakening of the social ties and commitments between an “I” and another “We” [58]. It is a society marked by an individualistic culture that calls individuals to be autonomous, encouraging people to maximize their personal benefits [59]. The term “individualism” was coined by Alexis de Tocqueville in 1830 to describe the social isolation that rendered the bourgeois gentleman in American society. America was considered to be a society of individuals centred in themselves, concerned to answer two central questions: What can I get for myself? What can I profit from this? [60]. Somech [61] (p. 163) sums up this concept perfectly: “individualistic cultures emphasize self-sufficiency, autonomy, control and priority of personal goals, which may or may not be consistent with the group’s goals”. In this sense, the imperative is to produce forms of subjectivity, self-expression and self-recreation. Thus, the considerations of the common good are less relevant and the mandatory exhortations to live for each other or to devote to an end more than themselves no longer have social resonance.

Considering this portrait where young people are immersed in an “individualistic culture”, there has emerged a need to understand the relationship amongst the group of volunteers, because they had to work together in some activities. In what follows, we see how the volunteers are confronted with the difficulty of how to be a “team”, since they are predisposed to act more individually than cooperatively.

Larissa—I like when we communicate our ideas among us. We are a group project but we work more individually.

Chiara—I can propose projects in groups, but if I don’t see any enthusiasm I go forward with my individual project.

Larissa—We are failing as a team. We do not spend time together. We have to talk more . . .

Coordinator—You are privileged, you just have to be more like a team, to discuss, to have fun with each other. When I come here the atmosphere is low. I do not see enthusiastic and energetic people. Try to find motivation.

Lasse—The problem is that people put individual interests first rather than those of the group. Often I do not like being here at the office because I do not like the tension that I feel. It seems that people want to do things alone and want personal achievements. But I think the victory must be collective.

Jack—if I’m ever hearing “Oh I do not want to do it, I’m tired” . . . but then say “let’s go to the party. “I am here not to party but to learn the language and work together with the others.

Réka—we must learn to be a team. (FN 18 December)
In the next testimony, Lasse confesses how the volunteers work together, corroborating the problem discussed above:

Lasse—I do not like the way we work in this group. Till January nobody worked together. Everyone worked for themselves. I do not mean that I did the right thing, I tried to work with the others, but at some point I stopped too because you cannot force people to do something they clearly do not want to do. I told them this a couple of times. It seemed that there was a competition between them to see which one was the best worker. It seemed that was to cultivate the individual glory, like, Oh I’ve been so well. I did this, this, this and this. For me it is more important to say: We did this, this, this and this ... for me it is a “we”. It was always like that. It’s much more fun to work with people than working against people. (...) So this group takes me a lot of energy and effort to try to make us into one group because they are still very individualistic in the way they work. (I)

In conclusion, volunteers experienced a tension between the desire for withdraw to their own individual interests, on the one hand, and the necessity to cooperate and act collectively as a group, on the other. For instance, Lasse recognized that some volunteers used to have competitive attitudes instead of a cooperative attitude. The competitive attitude is typical of the individualistic culture focused on the individual where, against public interest, “people desperately search for self-fulfilment and try to minimizes as much as possible interpersonnal obstacles to the attainment of their egocentric designs” [48] (p. 3). Moreover, the individualist and competitive behaviour shown by volunteers mirror an individualistic ethic without obligations or commitments requirements, which can lead to political agency to be replaced by a narcissistic consciousness [62]. In Lipovetsky’s words, “as the everyday culture ceased to be irrigated by hyperbolic imperatives of duty and went on to be so for the welfare and the dynamics of subjective rights, we stopped recognizing the obligation to engage into something beyond ourselves” [63] (p. 17). Therefore, an individualistic orientation to act may contribute to a search for differentiation or distinction; distancing individuals from cooperation.

4. Discussion

Given that the construction of the meaning of volunteering has received inadequate attention until recently [64], the overall goal of this study was to broaden the discussion about how volunteering is experienced by young people. One the one hand, we aimed to problematize the subjective meanings, dispositions, and modes of action of young generation. On the other hand, we intended to rethink the extent to which European young people are influenced by the generational conditions they face in the western individualized society.

Our empirical findings have clearly shown that the motivations of the European young people to engage in voluntary service were mainly focused on their own needs and interests. This disposition reflects an intergenerational trend toward a more reflexive and individualised form of volunteering characterised by self-interest rather than altruism. As the recent literature suggests, nowadays the willingness to volunteer seems to increasingly depend on personal interests and needs rather than on traditional values such as service to others and a sense of civic duty to the community [16,19,20,29,31]. The young volunteers of this study decided to get involved in this voluntary experience mainly to escape unemployment and precariousness, since some of them were unemployed and others were doing precarious works. Nevertheless, it ought to be mentioned that Jack is one of the volunteers who assumes an altruistic motivation to participate in the EVS project; that is, he consciously wants to help others. Given that EVS programs gives priority to unemployed candidates, we can reasonably conclude that the unemployed status of our sample volunteers may have instigated their will to become volunteers in the first place. On other hand, given that none of the volunteers of the study had previous voluntary experiences (with the exception of Larissa and Jack who had participated in short-term voluntary activities) we can also assume that they were not driven by prior experiences in volunteering.
Furthermore, volunteering is seen by the European young people as an opportunity to prepare for that which has been called the “extended present” [65]; namely to develop skills that would be beneficial for their professional and personal life. These findings are in tune with other studies on youth volunteering which claim that young people are likely to volunteer mainly for their own personal interest, expecting to gain work experience and skills that may be useful for their curriculum and future career [17,22,31,37–40]. Such motives can be also a response to the rhetoric of the lifelong learning paradigm that emphasizes the importance for citizens to continuously update and enhance their skills, in order to quickly respond and adjust to fast changing labour market. Moreover, the career-building motives found among young people can be a message to the employers that the individual is career conscious and more suitable for the position than others who have not done volunteer work [33].

Thus, as other studies on youth volunteering suggest [37,40], volunteering is valued by young people because it allows the acquisition of social and cultural capital which can be converted into material capital. On the one hand, the concept of social capital refers to the “resource to action” acquired through social relationships and interactions between individuals [66]. On the other hand, the concept of cultural capital, developed by Bourdieu and Passeron [67], refers to powerful social and cultural resources such as attitudes, preferences, formal knowledge, and behaviours that may be used, for instance, as a basis to access to resources or employment. Therefore, in the context of this EVS experience, meeting new people, increasing social networks, working collectively, and gaining new knowledge and skills are seen as gains that can provide young people with advantages in the labour market, in particular as far as getting a job is concerned.

Moreover, through young people’s accounts regarding the reasons for their volunteering, it is interesting to note that civic and political concerns are absent. They do not volunteer to fight for a specific cause or a collective project or purpose. On the contrary, volunteering is valued because it is a recreational way to go abroad, travel, and get to know a country and other cultures without major expenses. These findings echo previous studies [31,57], which affirm that mobility and time-off from other commitments seem to be powerful motivators.

Finally, as far as the relationships among the group of volunteers is concerned, instead of behaving cooperatively, they behave more individually; chasing their own interests. This attitude mirrors our paradoxical social order characterized by high degrees of individualization and individualism, which is often inconsistent with the dependency webs in which individuals inevitably find themselves [68]. Summing up, this volunteer experience appears as a context where we can see how our individualised and individualistic society, along with the changes in education and labour market, have largely impacted on young people; or more precisely, their interests, attitudes and values. After all, young people increasingly have to decide more for themselves; thus expressing a desire to be something by and for themselves.

Author Contributions: Carolina Jardim and Sofia Marques da Silva, authors of the paper, conceived and designed the methods. We also performed the empirical work, collecting and analyzing the data. Finally we wrote the paper.

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References
7. Harris, A.; Wyn, J.; Younes, S. Beyond apathetic or activist youth: “Ordinary” young people and contemporary forms of participation. *Young* **2010**, *18*, 9–32. [CrossRef]


49. Hoikkala, T. The diversity of youth citizenships in the European Union. *Young* **2009**, *17*, 5. [CrossRef]


57. Musick, M.; Wilson, J. *Volunteers. A Social Profile*; Indiana University Press: Bloomington, IN, USA; Indianapolis, IN, USA, 2008.
60. Singer, P. *How Are We to Live? Ethics in an Age of Self-Interest*; Text Publisher: Melbourne, VIC, Australia, 1993.

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