



The Hidden Truth: A Sociological History of Lie Detection

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Thesis submitted in fulfilment of the Ph.D. in Sociology

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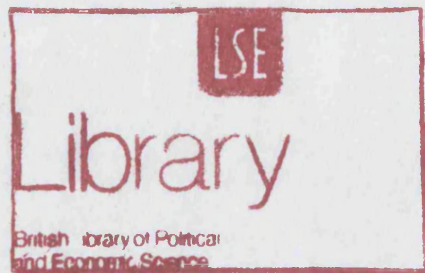
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Abstract

Drawing on Foucault and the sociology of science and technology, this thesis traces the curious attempt that has been made over the last century to capture one of the most elusive social acts – the lie. This endeavour was made possible by the emergence of the human sciences, whose guiding belief was that the subject's inner life could be made apparent by means of physiological measurements and therefore be controlled. My thesis follows the development of the 'embodiment' of the lie within early and recent psychology as a means of detecting the subject's guilt. It examines the disconnection of lie detection from its academic origins and its re-positioning within criminal investigation which engenders the development of polygraphy as a separate profession. In this, it elaborates on the special roles played by instruments in lie detection practices – the 'lie detector' and the 'polygraph' – and analyses changing epistemological aims and models of 'scientific' expertise. In accounting for its contested status, the latter analysis is connected to an evaluation of the continuous exclusion of lie detection as scientific evidence from the courts.

The thesis examines the changing functions of the polygraph examination in systems of social control as their logic moves from reform to increased containment and control: from a confessional technique mediating the efficient processing of a delinquent population from the 1920s, to a disciplinary technique controlling employee behaviour from the 1930s. In recent years it has become a 'truth facilitator' in the management and containment of the monstrous individual: the sex offender.

In a broader consideration of the power/knowledge mechanism of lie detection, the thesis applies Foucault's notion of grotesque knowledge, arguing that the ensemble of the lie detector/polygraph and psychological expert/interrogator is *Ubuesque* as it implements an absolute power in the 'diagnosis' of the lie, which is disqualified at the moment of its verification through confession. The thesis demonstrates how Foucauldian analyses and the sociology of science can be fruitfully combined to comprehensively explain both the dynamics of contested expert knowledges and the ways in which psychological techniques operate in shaping the subject. Having traced the emergence of the lie as an object of knowledge and intervention, the thesis concludes by providing directions in an historically informed sociology of the lie.

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List of Abbreviations for Archival Sources Cited in the Thesis:

Northwestern University Archives, Evanston, ILL:

LGP = Leon Green Papers

Bancroft Library, University of California at Berkeley, Berkeley, CA:

AVP = August Vollmer Papers

CKP = Charles Keeler Papers

BPDR = Berkeley Police Department Records

JLP = John A. Larson Papers

LKP = Leonarde Keeler Papers

Dr. William J. Yankee Library, Department of Defence Polygraph Institute, Fort Jackson, SC:

LKC = Leonarde Keeler Collection

Chapter 1 Introduction

Writing on the liar, Montaigne stated acidly:

‘If a lie, like truth, had only one face we could be on better terms, for certainty would be the reverse of what the liar said. But the reverse side of truth has a hundred thousand shapes and no defined limits. The Pythagoreans make good to be definite and finite; evil they make indefinite and infinite. Only one flight leads to the bull’s-eye: a thousand can miss it.’¹

In this thesis, I trace the curious attempt that has been made since the end of the 19th century to come to better terms with the ‘lie’ – to reduce its ‘hundred thousand shapes’ and undefined limits so that certainty, truth is fashioned precisely as ‘the reverse of what the liar said.’ As we will see, turning the lie into an object that can be known with certainty involved a series of transformations in physiological techniques of detecting deception at the end of which the lie emerged as a tangible, recordable, discrete, a seemingly objective entity. The emergence of early techniques of detecting deception was set within the interstices of criminology and psychology. On different levels, these disciplines were guided by the idea that human beings and forms of human action could be classified on the basis of measuring bodily characteristics or functions and that these classifications, in turn, should provide a basis for social control. In this context techniques of detecting deception became the basis of a technique of knowledge production and intervention. For it is not just that the detection of deception afforded a way of finding out when someone lies. Rather, more significantly, the lie itself was constructed in such a way that it became a clue to the criminal suspect’s guilt. The lie that was to be detected was the lie of the criminal and the knowledge to be gained was that of his guilt. The various experiments with lie detection culminated in the development of the polygraph – or as it was later dubbed by the media, the ‘lie detector’ – in America in the mid-1920s and in borrowing from its ‘scientific’ designation the formation of polygraphy as separate profession from the 1930s onwards. Having received little interest in the academic realm from which it emerged for the first 50 years of its existence, from the 1970s psychologists yet again directed their attention towards polygraphy, turning it into a site of scientific contestation and developing new ways of capturing the lie.

An historical study of the development of the history of lie detection is intriguing at first glance – a popular scientific account of the lie detector could make for fascinating bed-time reading – yet one still might wonder why a sociologist would study a technique that has been termed both dubious and outmoded in an age in which a host of natural scientific techniques such as DNA-analysis have come to populate criminal investigation. In this introduction, I

¹ Montaigne, 1991, p. 35.

provide a rationale for the study of the history of lie detection which locates this thesis at the intersection of the history of the human sciences and the sociology and history of science and technology.

Firstly, I show how the history of lie detection provides a contribution to the study of the history of scientific methods of criminal investigation within the history of criminology and the sociology of science and technology. Secondly, I demonstrate how the study of polygraphy as a technology which intervenes on individuals by taking the body as a basis for the construction of subjective truth, provides a contribution to the study of how psychological techniques operate in current systems of social control. Thirdly, I illustrate how the study of the different ways in which the lie has been captured in the 20th century provides an insight into how psychology has conceived of the human subject and allows for an analysis of how contested forms of knowledge take root while others remain locked in the psychologist's laboratory. Fourthly, I show how an analysis of the 'lie detector' and the 'polygraph' provides an insight into how the representations of science and their practices become entangled.

Partly inspired by Foucault's *Discipline and Punish*, a number of studies have emerged in the last thirty years that are concerned with the history of the enmeshment of the nascent human sciences – defined broadly to include medicine, sociology, psychiatry, psychology and criminology – with the development of the penal system. As part of this field of research, scholars have looked at how the figure of the 'criminal' as a certain type of human being was constituted as an object of knowledge through different knowledge techniques that are external to jurisprudence and how these techniques were in turn applied to people classified as 'criminals' by an emergent group of experts.² Given the wealth of studies which have traced the knowledge practices that developed alongside the criminal justice system in constituting the 'criminal' as an object of knowledge and intervention, one is surprised to find a relative dearth in historical studies of how scientific discourses have come to be included in the detection of crime. For the emergence of the modern criminal justice system since the 19th century has not only been characterised by the development of a set of scientific discourses concerning the classification and the treatment of the offender, but it has equally been marked by the elaboration of scientific techniques which now come under the heading of 'forensic science.' These techniques are geared towards reconstructing the criminal act and establishing the guilt of the suspect through the transformation of 'clues' or 'traces' into 'scientific evidence.'

The lack in the extant literature of an historical and sociological treatment of the intertwining of scientific practices and criminal investigation from the middle of the 19th

² Cf. Garland (1985); Leps (1992); Becker and Wetzell (2006); Beirne (1993); and Wetzell (2000).

century onwards is arguably due to the selective foci of the disciplines that study the emergence of the modern criminal justice system.

According to Claire Valier, the history of criminology has focused on three interrelated themes. Firstly, it has studied the varying definitions of criminal behaviour which have directed criminology. Secondly, it has concentrated on the development of criminology as a professional discipline from the 1880s onwards.³ Thirdly, elaborating on Foucault's history of the birth of the modern prison, the history of criminology has identified the prison as the main institutional context in which modern mechanisms of social control are brought to bear on the individual.

A consideration of the history of scientific methods of criminal investigation within the history of criminology is fruitful for gaining an understanding of how knowledge techniques operate in terms of organising the modern system of social control beyond the confines of the prison, and specifically in relation to apprehending the criminal. Additionally, the study of scientific methods of criminal investigation provides a more complex picture of how the development of diverse knowledge techniques are intertwined on the level of developing knowledge of the criminal as a certain human type as well as 'taking a hold' of the criminal. Valier points to the history of identification as an example of how certain techniques – anthropometry and, to some extent, fingerprinting – became the basis upon which a method for identifying criminals was developed. Additionally, anthropometrical measurements came to be used by Lombroso as a basis for establishing a classification system of 'criminal man,' of defining the criminal as a certain type of human being. As part of this study of the intertwinement of knowledge techniques, it can also be shown how certain techniques might be taken up in both realms but might also disappear again. For example, as regards the history of fingerprint identification, fingerprints were taken both as method of identification as well as basis for the classification of mental and criminal pathologies – categories which overlapped. However, the criminological interest in fingerprints soon waned, while fingerprint identification became firmly rooted in criminal investigation. As regards the history of lie detection, a similar movement is apparent. The techniques that were used in early detection of deception were used by practitioners in analysing the mental patient and the criminal as specific types. As it moved into criminal investigation, the main developer of the final set-up of the lie detection examination, John Larson – a trained psychiatrist and physiologist – still sought to combine the detection of the subject's guilt with an analysis of his 'personality.' As lie detection developed further, however, the simple interest in apprehending the criminal through the establishment of his guilt on the basis of his lie took precedent. There was no longer an interest in the kind of individual that the suspect

³ Valier, 1998, p. 89.

represented. As Valier points out, in criminal investigation the aims are much more immediate than in academic criminology.⁴ That is to say, the underlying causes of crime which might be derived from a certain form of behaviour and are rooted in a certain human type are not of interest. Rather, the driving interest is simply in the apprehension of the perpetrator. Thus the history of lie detection provides a contribution to how techniques of knowledge production move between realms and how they are framed differently according to the aims of the knowledge to be gained at the entry of the criminal justice system. This also means that in moving between realms we might find different ways in which knowledge practices are organised, thus making an analysis of different conceptions of scientific expertise in these realms possible.

Another area of research where one might expect to find studies of scientific criminal detection is the history of institutions of social control. The history of policing has become a sizable field. As the police have become one of the central agencies that carry out criminal investigations using scientific methods of crime detection, one might surmise that studies of the development of policing would take the increasing enmeshment of scientific knowledge and the establishment of criminal guilt as a focus of study. However, historians of law enforcement agencies have to a large extent focused on the development of the police as a profession (with a view towards implementing reforms on the basis of historical analyses) or on the role of the police in maintaining public order.⁵ Moreover, insofar as (following Foucault) the history of the police as one of the main agents of modern social control activities has been subject to the scrutiny of historians of the human sciences, the role of agents of social control in implementing a seamless web of surveillance across the modern social body has tended to be highlighted. This varied emphasis has resulted in the exclusion

⁴ Ibid, p. 93.

⁵ There have been differences in the directions and quality of research across Western countries, most notably between studies in police history in Britain, France, and Germany, and the USA. While broader questions with regard to the history of the police as agency of social control have been raised by social historians in Britain and France, the study of American police history has to some extent remained outside of the province of the history of the human sciences and social history until more recently (Conley, 1977). In the US, professional histories were written with a view of learning lessons from failures of past professionalization in the late 1970s and 1980s as a result of the conflict between the police and civil rights and student movements which lead to calls for police reform (Richardson, 1980; Deakin, 1988). There are some critically informed histories of the American police which were written in this period (e.g. Walker 1977, 1998; Fogelson, 1977; Monkkonen, 1981). Additionally, much historical scholarship has focused on the emergence of the police in the 19th century and the police reform movement during the Progressive era up until WWI, which has crucially shaped the way in which the police became institutionalised in the US and which is relevant as regards this thesis (Monkkonen, 1981; Liebman and Polen, 1978). This has also included a range of studies of the development of individual police departments most notably New York, Chicago, Cleveland, Boston (Richardson, 1977; Lane, 1967; Monkkonen, 1992). More recently, historical scholarship has emerged which addresses the role of the police in maintaining public order and their placement in the larger political order (Weiss, 1999; Robinson, 1994) as well as the police professionalization movement, which is related to the institution of scientific methods of criminal detection (Monkkonen, 1992). However, none of these studies examine in-depth the way in which scientific methods of criminal detection were constituted and integrated as knowledge practice as part of the development of the modern police.

of an analysis of the role played by the police and forensic experts in apprehending suspects and establishing the suspect's guilt, and the techniques of knowledge that are used to do so. The only attempt at a sustained history of methods of criminal detection that surfaces in this field is a Ph.D. dissertation written by Dillon in 1977.⁶

Before the 1970s, the sociology of science (largely influenced by Merton) centred on the analysis of science as an institution and represented more a sociology of *scientists* than a sociology of scientific knowledge. From the 1970s onwards, scholars in the emergent social studies of science started to scrutinise the construction of scientific knowledge itself. This has not only resulted in in-depth studies of how social practices constitute scientific knowledge but - in light of the omnipresence of 'expert discourses' in modern society - has also generated an interest in how scientific expertise is translated, used and shaped in other social realms. Given the spread of the use of scientific evidence into the legal system generally and into the criminal justice process specifically, it therefore makes sense that sociologists of science would take an interest in studying 'how ideas of truth and ideas of justice are co-constructed in the context of legal proceedings.'⁷ While Jasanoff has provided one of the first studies of the construction of scientific and technical evidence in litigation and the judicial shaping of technological developments in areas of bio-ethical concern, relatively few sociological forays have been made into the analysis of the use of scientific evidence in criminal cases. A special issue of the journal *Social Studies of Science* on 'Contested Identities: Science, Law and Forensic Practice' edited by Jasanoff and Lynch constitutes one of the rare examples of an engagement by sociologists of science with forensic science in criminal court proceedings. The contents of this issue are instructive.⁸ Firstly, all but one of the articles presented in this issue centre on the most recent, most powerful and least contested form of scientific evidence: DNA-profiling. Secondly, the articles centre on how the credibility of scientific evidence is negotiated in the courtroom. The articles take the O. J. Simpson case as their starting point. As one of the most widely publicised and also the first fully televised criminal court case, the O. J. Simpson trial provided a wealth of material for an analysis of the 'discursive construction and deconstruction of scientific credibility.'⁹ As is well-known, the DNA-analysis provided by the prosecution was successfully challenged by the defence team. Because the trial enjoyed so much publicity and such an extensive amount of labour (and expense) was invested in the contestation of the evidence

⁶ Dillon (1977).

⁷ Jasanoff, 1995, p. xiv. There is of course a large literature in legal theory and history which discusses the criteria for the admission of scientific evidence in legal proceedings. Some of this literature will be drawn on in Chapter 6.

⁸ Jasanoff and Lynch (1998a). For another collection of articles on scientific expertise in legal proceedings, cf. Edmond (2004).

⁹ Lynch and Jasanoff, 1998b, p. 675.

provided – starting from how it was gathered, transported and examined – the trial material allowed the authors to analyse every minor step that might lead to an unravelling of the chain of translations from the drip of blood to the presentation of O. J. Simpson’s DNA as proof of his guilt in court. Thus the case presented ‘an exceptional window of opportunity to investigate contingencies and uncertainties of evidence production, as well as the discursive contingencies associated with the courtroom ‘exposure’ of uncertainty.’¹⁰ Apart from the richness of the material which the O. J. Simpson case affords, the research strategy employed by the authors of the articles in the *Social Studies of Science* special issue has formed the basis of much research in the field of the social studies of science and technology. Whether it be the development of pasteurization,¹¹ the creation of the bubble chamber,¹² or the construction of the bicycle,¹³ sociologists of science and technology have examined scientific theories and artefacts, and technological objects which seem the least amenable to a sociological analysis in order to show how these objects are actually the result of a complex process of construction involving social and material factors. The only article that is not concerned with DNA-profiling in the issue edited by Jasanoff and Lynch equally follows this strategy. Simon Cole, one of the few scholars in the social studies of science to have provided a sustained historical analysis of a particular scientific method of crime detection already mentioned above, namely fingerprinting,¹⁴ shows how the infallibility of fingerprint evidence was constructed through the practices and boundary-work of latent fingerprint examiners.¹⁵ However, the opposite strategy may be just as useful, as Latour’s study of the failure of Aramis has shown.¹⁶ In this book, Latour shows that the failed development of a public transportation system cannot simply be imputed to technological unfeasibility, but instead is the result of the failure of social and material actors to be brought into alignment to form a durable actor-network.

Rather than showing how the seemingly most advanced or reliable scientific methods of criminal investigation are in fact the result of a successful process of ‘blackboxing’, in this thesis I study a scientific method of criminal investigation that has both remained highly controversial and generally been excluded from the criminal court. Although polygraph examinations continue to be the only type of evidence to remain generally barred as scientific evidence in court decisions, they are widely used in criminal investigation. Thus, the polygraph constitutes a case of what one might call a technique of knowledge

¹⁰ Ibid, p. 684.

¹¹ Latour (1988), Pickering (1995).

¹² Pickering (1995).

¹³ Bijker (1995).

¹⁴ Cole (1999; 2001).

¹⁵ Cole (1998).

¹⁶ Latour (1996).

production and intervention that – *despite* its continued failure in the judicial realm – has nevertheless settled successfully at the entrance of the criminal justice system. A sociological study of the history of lie detection thus affords an opportunity to study how a particular definition of what constitutes science is elaborated by the courts in order to maintain and protect the construction of judicial truth from certain types of knowledge. Additionally, lie detection provides an opening for a sociological investigation into the ‘undergrowth’ of the modern criminal justice system, a system that has become just as infused with practices that are geared towards the solution of the question of guilt by means of scientific knowledge as the criminal courts themselves.

And yet polygraphy does not remain restricted to its use in criminal investigation. From the 1930s, it became a tool in the screening of employees in commercial and increasingly in government institutions. Here, it served not only in the identification of the petty thief or the uncovering of the spy. It also became a tool in the surveillance of the workforce. Additionally, as part of recent developments, polygraph examinations have been used in the monitoring of sex offenders on parole or probation. Not only has this last use of the polygraph examination been implemented in the US, which marks the ‘birth-place’ of polygraphy and has remained its main geographical locale. In addition, in December 2006, the British Home Office was considering the implementation of a scheme, which had constituted one of the provisions for the 2005 *Management of Offenders and Sentencing Bill*,¹⁷ which forms part of the ongoing penal reform of the British system. Thus as part of polygraphy’s changing locales of intervention, it comes to encompass different power mechanisms which it exerts as a knowledge technique over the individual. In tracing the different modes of how this technology operates a ‘technology of subjective truth’ and how it becomes reframed as part of instituting different control mechanisms, my thesis therefore extends this history of lie detection beyond an analysis of how it is instituted as a technique of scientific criminal investigation. This analysis provides a contribution to the sociological study of the history of the human sciences – in this case more specifically psychology – and how they come to operate within the modern systems of social control by intervening on the body.

For the first fifty years since its inception, polygraphy raised little interest in the psychological field out of which it had originally developed. It was only in the later 1970s that psychologists turned their attention once again towards lie detection. While some psychologists hailed the ‘ingenious methods’¹⁸ that had been developed by polygraphers in the field, others have fiercely contested the scientific validity of the discrete and objective nature of the polygraphic

¹⁷ House of Lords. “Management of Offenders Sentencing Bill.” 12/1/2005.
<http://www.publications.parliament.uk/pa/ld200405/ldbills/016/2005016.pdf> (14/2/2007). Cf. No. 47-50 of Part 5 Miscellaneous Provisions of the Bill.

¹⁸ Podelsney and Raskin, 1978, p. 344.

lie as it had emerged as object of detection in the 1920s. Part of this contestation has engendered the development of new ways of capturing the lie. The polygraphic lie had been framed in terms of the expression of 'primitive fear' on the body on the basis of the focus of early psychology on the study of the emotions. By contrast, as a result of a subsequent shift in psychology from the study of the emotions to the study of cognition, research on the detection of deception has reconfigured the interpretation of bodily responses as denoting 'guilty knowledge,' and have most recently moved the location of deception from the body to the brain. Portrayed (by psychologists) as corresponding to current notions of science in rendering deception in terms of the 'probability of guilt,' these new forms of capturing the lie have nevertheless remained locked within the laboratory. Instead, polygraphy has continued to be the main applied technique continuing its spread. An analysis of this development not only allows for the consideration of how changing conceptions of capturing the lie have become configured around shifts in the way in which psychology has conceived of the human subject in its development. In addition to my argument above that the history of lie detection provides an insight into the reframing of techniques of knowledge production in the human sciences around the aims of the knowledge to be gained, it allows for an analysis of the processes by which contested knowledge techniques take root, while others which appear to correspond to accepted scientific standards, remain lost to the context of their intended application.

Finally, in the context of the different measurements that have been enlisted in capturing deception, there is, of course, one instrument which has received the most attention: the 'lie detector' itself. The idea that there might be a scientific machine which can tell us in a straightforward manner whether someone is lying or not has been accompanied by amused scepticism as well as a slight uneasiness, which some have exaggerated into dystopic fantasies of totalitarian mind control along the lines of Orwell's *1984*.

The term 'lie detector' was coined in the media in 1921, as part of the entanglement of the media fascination with mass crime and a police professionalization movement which actively enlisted the media in portraying itself as a new 'scientifically' oriented police force. Usually, the idea of the 'lie detector' has been coupled with its dismissal as merely a popular term for the properly scientific technique connected to the 'polygraph.' However, the distinction is not so straightforward. Rather, the history of lie detection shows that the distinction between these 'instruments' is far from clear-cut. The 'lie detector' as instrument which could detect lies by itself became an important entity to be reckoned with by early lie detection specialists potentially undermining their status as experts. If the lie detector could detect lies by itself, would the expert be needed at all? This thesis examines the historical relationships that were built between the lie detector and the polygraph in providing different representations of *who*

or *what* can detect the lie. Thus rather than accepting the distinction between the popular ‘lie detector’ and the scientific ‘polygraph’ as given, this thesis examines how the distinction between these entities was elaborated, an elaboration which entailed varying representations of lie detection. On this basis, it provides an analysis of how the very idea of the ‘lie detector’ came to mediate lie detection practices. Thus, this thesis provides a contribution to the sociology of science and technology in studying how the representations of scientific artefacts come to inform and feed back into knowledge practices.

In the following, I provide an overview of the substantive chapters that follow in this thesis.

Chapter 2 Methods of Research

In developing a rationale for the historical study of lie detection, Chapter 2 draws on Foucault in setting out to study lie detection as a technique of knowledge production and intervention and provides a discussion of extant methodologies in the sociological study of scientific and technological artefacts. I provide an introduction to the three most current historiographical approaches in the sociology of science and technology – The Social Construction of Technology [SCOT], Pickering’s *Mangle of Practice*, and actor-network theory [ANT]. I conclude that none of these three approaches can be used for studying the history of lie detection. Rather, the thesis takes a multiple perspective on four interrelated aspects which play a role in the constitution of lie detection as a technique of knowledge production and intervention. These four aspects are: ways of capturing deception, the role of the instrument, lie detection as expertise, and its status as technique of knowledge production and intervention including its contestation. With regard to these four lines of inquiry, I explain how this approach has been shaped by the available historical sources. As regards the general positioning of lie detection as a knowledge practice, I draw on Bloor’s principle of the *symmetry of knowledge*. In elaborating on this position, I identify Gieryn’s notion of boundary-work as useful tool in explaining how the courts elaborate the exclusion of lie detection evidence and in examining how lie detection experts legitimate the ‘scientificity’ of their practices. As regards the analysis of the role of the ‘polygraph’ and the ‘lie detector’ in the history of lie detection, I draw on sociological scholarship on science popularisation and communication.

Chapter 3 The Lie as an Object of Knowledge

Chapter 3 examines how the detection of deception emerged at the interstices of psychology and criminology between 1904 and 1923, and how it was elaborated on the basis of the

construction of and intervention upon the human subject through physiological measurements. It traces two reconfigurations in developing methods of detecting deception whereby the simple 'lie' emerged as object of detection on the subject's body based on the evolutionary distinction between emotion and cognition elaborated in early psychology. I describe how this split was materialised in the set-up of the lie detection examination in terms of an epistemological and normative construction of the body's internal 'truthful' processes and the external 'deceptive' appearance and speech of the subject. In conceptualising the lie as an emotional construct which could be read on the basis of the body's physiological script, the lie became evaluated on the basis of the distinction between the 'normal' and the 'abnormal' prevalent in the human sciences. Its reduction into a simple falsification made it correspond to the scientific binary of truth/falsehood which, in turn, could be translated into innocence/guilt. The simple lie as a sign on the body's script carries a special function in the establishment of the guilt of the subject. Once defined as a psychological condition, the subject's lie not only serves to establish the guilt of the subject on the basis of the irregular responses of his body, but also to establish him as *immoral*. However, while the simple lie had emerged as measurable entity, in its early period the detection of deception was still rooted within an analysis of the criminal's personality that guided academics. As Chapter 4 shows, the institutionalisation of lie detection as separate method of scientific investigation was to depend on its movement across realms and the development of the instrument designed for lie detection.

Chapter 4 Disentangling the Polygraph, the Lie Detector and Lie Detection

This chapter covers the period of the 1920s and 1930s, as part of which lie detection increasingly moved away from the academic setting and began to constitute itself as a separate endeavour - polygraphy. In examining this period, I place a special emphasis on the role played by *instruments* and how they mediated lie detection practices: the emergence of the 'lie detector' in the media, and the development of the 'polygraph.' In analysing these two entities, I provide an historical narrative of the development of the polygraph and draw on the discourse analysis of the emergence of the lie detector by Geoffrey Bunn. I broadly agree with Bunn's analysis, which identifies a horizontal shift from the analysis of the criminal to the detection of the lie in this period. However, I argue that he conflates the history of the lie *detector* and the history of lie *detection*, locating the polygraph and the lie detector on the same plane. By contrast, I contend that in considering the history of lie detection as a *practice*, the polygraph and the lie detector need to be evaluated separately. Firstly, the shift in the detection of deception from the analysis of the criminal to the detection of the lie is

connected to the movement of the detection of deception away from the academic setting to 'scientific' criminal investigation as it was instituted at police departments as part of the police professionalisation movement. I demonstrate that this move was connected to the reformulation of lie detection practice around the more immediate epistemological aims and a technical conception of scientific expertise in criminal investigation. This movement was facilitated by the development of the polygraph. Secondly, as regards the role of the lie detector in lie detection practices, I reframe and extend Bunn's analysis. I show how the notion of the 'lie detector' came to inform lie detection practices despite the denigration of its existence by lie detection specialists.

Chapter 5 Lie Detection and Science

While Chapter 4 was concerned with the role of the instrument in the constitution of lie detection as a practice, Chapter 5 moves towards a consideration of lie detection as 'science' by discussing its evaluation as a scientific technique by the courts before opening out to a more general discussion of its status as expertise. While represented as scientific technique of interrogation, it nevertheless remained excluded from the courts on the basis of the Frye case, which set admissibility standards in the US for a large part of the 20th century. The chapter explores this continued rejection of lie detection as scientific evidence by drawing on analyses provided by Ken Alder and Tal Golan. Drawing on the latter, it shows that the rejection of lie detection evidence was due to the threat that it posed to the functioning of the criminal justice system rather than the questionability of its methods. I provide an analysis of the protective boundary-work that the court engaged in implementing a new rule of admissibility that allowed it to exclude lie detection evidence. Next, I consider the analysis of Alder. On the basis of a comparison of the 'knowledge strategies' employed by two central figures in the development of lie detection (John Larson and Leonarde Keeler), Alder maintains that the rejection of lie detection evidence was due to the way in which polygraphy – as inspired by Keeler – developed as a profession. On the basis of an historical narrative of the different routes which Larson and Keeler took and by considering the subsequent professionalization of polygraphy, I qualify Alder's arguments regarding the judicial exclusion of lie detection evidence. With respect to his evaluation of the history of lie detection, I show that it is based on a normative and hierarchical conception of science. This results in the portrayal of Larson's practices as legitimate because knowledge-oriented versus Keeler's power-oriented coercive ones. By contrast, I present an analysis of Keeler's and Larson's differing practices in terms of two distinctive models of expertise. On this basis I provide a sociological explanation of why Keeler's model of lie detection turned out to be the more successful.

Having shown that the development of lie detection cannot be framed in terms of a hierarchical opposition between Larson's 'knowledge-oriented' and Keeler's 'power-oriented' methods, I argue that a different approach to its evaluation might be necessary. In accounting for the fact that lie detection is characterised by the linkage between its aim and only means of verification (i.e., the confession), we need to consider the nature of the knowledge that lie detection represents and the way in which power and knowledge come to intersect in the polygraph examination itself.

Chapter 6 Lie Detection as Grotesque Knowledge

Chapter 6 provides a broader evaluation of the lie detection examination as technique of knowledge production and intervention. First, it integrates the analytical threads that have been running through the thesis regarding the constitution of the lie detection examination by providing an examination of its power/knowledge mechanism. I draw on Foucault's category of the 'grotesque' which he elaborates with regard to the role of psychiatric expertise as 'switch-point' between medical knowledge and jurisprudence. This category is characterised through the maximisation of effects of power which is accompanied by its simultaneous disqualification. I demonstrate how, analogously to medico-legal knowledge, the lie detection examination operates as switch-point between psychological knowledge and criminal interrogation. I elaborate on the 'grotesqueness' of the ensemble of the expert/interrogator and the instrument/lie detector in instituting the threat of an absolute power that what is in the subject's mind will be known by modulating the responses of the body. I show how the combination of psychological knowledge with the process of establishing guilt constitutes the lie detection examination as a confessional technique, which in exerting its effect is simultaneously disqualified.

Secondly, I discuss the emerging functions of polygraphy as technique of knowledge production and intervention. I show how the lie detection examination operates as hybrid of an inquisitorial technique and a psychological examination at the entrance of the criminal justice system carrying faint echoes of torture while replacing the latter's 'epistemology of pain' with an 'epistemology of fear.' I argue that its anachronistic nature constitutes its very modern character by matching the system's orientation towards the efficient processing of a population of delinquents in mediating the quick disposing of criminal cases both within and outside court. Drawing on archival material and the analyses of Alder and Hanson, I elaborate on the function that polygraphy comes to take on as moral technology through its use in personnel screening. Here, it works as a tool for including or excluding potential employees on the basis of their 'trustworthiness.' More significantly, however, it becomes a disciplinary tool in controlling employees' behaviour. Its mode of operation follows the logic of

disciplinary power in making the individual the bearer of the power relationship that is exerted on him. Overall, lie detection constitutes what Foucault might describe as a tool in the political technology of the body, which by constructing the individual's body in terms of the modern soul, helps to create a 'productive' and 'subjected' body.

Chapter 7 The Truth Facilitator and the Neuro-Circuitry of Deception

This final substantive chapter of this thesis extends my analysis of the lie detection examination as technique of knowledge production and intervention, by reflecting on the most recent developments in polygraphy and the detection of deception. As regards the former, I examine how polygraphy assumes a novel function within the reformulation of systems of social control around the management and containment of 'risky' individuals by focussing on its employment in the monitoring of sex offenders and paedophiles. Drawing on Rose's analysis of how networks of inclusion and exclusion mediate the governing of individuals on the basis of their conduct, I elaborate on how the polygraph examination comes to assume the function of a 'truth facilitator' in the pre-emptive control and supervision of the sex offender as a 'monstrous individual' who exists beyond the moral boundary of society. I show, how in this process, the polygraph examination comes to constantly construct and re-assert his 'monstrosity.'

Moving from a consideration of how polygraphy as an applied technique has managed to become rooted as a variously employed control mechanism, I consider the re-emergence of an academic interest in the detection of deception. This has involved both the re-integration of polygraphy and the development of new methods of capturing deception, resulting in the movement of deception from the body to the brain on the basis of a 'cognitive' shift in psychology. I provide an analysis of this shift which initially moves the detection of deception from an 'epistemology of fear' to an 'epistemology of recognition' in reframing the detection of the lie in terms of the detection of 'guilty knowledge.' I evaluate the boundary-work done by proponents of the guilty-knowledge test in legitimating their technique as properly scientific over and against polygraphy. I elaborate on why the former nevertheless remains trapped within the laboratory by contrasting the successful establishment of polygraphy in criminal investigation in its early period with the knowledge strategies and institutional placement of the detection of 'guilty knowledge.' In completing my analysis of the 'cognitive' shift in the detection of deception, I discuss the most recent developments in using brain measurements in 'lighting up' the simple lie directly in the brain. I raise the question whether this automated process of 'computing' the lie finally fulfils the promise of establishing lie detection as 'humane' and 'scientific' technique, or whether it will bear all the hallmarks of the grotesque.

Chapter 2 Methodology

Many scholars who study the intersection of the human sciences and the criminal justice system might expect an analysis of the history of lie detection to draw on the historiography of Michel Foucault, whose work has directed much research in this field in the last three decades. In substantive terms, this study has indeed been inspired by Foucault's understanding of the relationship between power and knowledge, particularly regarding their intersection within the lie detection examination when it is conceived as a technique of knowledge production and intervention. In methodological terms, however, I take a different historiographical approach to that of Foucault. Broadly speaking, Foucault's historiography is located on a level which encompasses major historical (or 'epochal') shifts in structures of knowledge, techniques of government, and ways of constituting ourselves as subjects and objects of knowledge. The history of lie detection is situated in a similar substantive field to that of Foucault's *Discipline and Punish*, which forms a 'genealogy of the present scientifico-legal complex from which the power to punish derives its bases, justifications and rules, from which it extends its effects and by which it masks its exorbitant singularity.'¹⁹ The lie detection examination is located in the field of criminal justice which constitutes part of the punitive system that Foucault describes.²⁰ Foucault explores the punitive system in its entirety and examines how it relates to the creation of the 'modern soul' – expressed in the terms of 'psyche, subjectivity, consciousness' – which is constituted as a result of how the modern system of social control institutes a benign 'political technology of the body.'²¹ This political technology of the body is located in a general 'political economy of the body,' in which power mechanisms work on the body both as a 'productive body and a subjected body.'²² The lie detection examination is part of this construction of the modern soul. It institutes a knowledge technique which takes the body as a site for transforming its responses into a statement of what goes on in the subject's mind connected to a moral evaluation which becomes the basis for enticing the subject into a confession. At the same time, lie detection becomes a moral technology which applies its knowledge mechanisms in order to control the productive body in personnel screening. Finally, it becomes a tool for constructing and reproducing the sex offender as a 'monstrous individual' in monitoring and containing him. According to Foucault, the political technology of the body is 'diffuse, rarely formulated in continuous, systematic discourse; it is often made up of bits and pieces; it implements a disparate

¹⁹ Foucault, 1977/1995, p. 23.

²⁰ This seems like a rather obvious statement. However, the punitive system which Foucault describes is marked by the fact that it is connected to techniques of controlling the body which are dispersed across society (cf. his arguments on discipline in schools and the military).

²¹ Foucault, 1977/1995, p. 29-30.

²² Ibid, p. 26.

set of tools and methods.²³ Against this particular background, the history of lie detection is a history of a technique of knowledge production that might be seen as one of the tools *within* that technology. On a general level, this thesis therefore shares Foucault's view that the history of the modern system of social control cannot be divorced from the history of the human sciences. As I have already stated in the Introduction, lie detection emerges at the interstices between psychology, criminology and law enforcement agencies. Psychology and criminology, especially at the beginning of the 20th century, were disciplines which sought to gain knowledge of the 'abnormal' or the 'criminal' within academic institutions. But additionally, this knowledge was not divorced from the subjects that it worked on, that is to say, it operated as *applied* knowledge which would help to 'cure' society of its ills with scientific means.

While Foucault's perspective on the entanglement of the human sciences and the modern system of social control has been indispensable in orienting the broader analysis of this thesis, when it comes to the concrete study of the history of lie detection it has been necessary to utilize methodological tools which account for the specificity of its development on the basis of which its nature as a 'technique of knowledge production and intervention,' may be captured. I use the term technique of knowledge production and intervention to denote the way in which power and knowledge are intimately linked in generating certain effects in a specific context. Here, 'technique' refers both to the application of that knowledge and to its entwinement with social and material processes.

In looking for possible approaches to studying the history of lie detection as a delimited field, I have considered the three main historiographical approaches in the sociology of science and technology, which in recent years have provided in-depth empirical studies of particular scientific facts and technological objects. The first perspective to be examined in this chapter is the *Social Construction of Technology* [SCOT] by Pinch and Bijker.²⁴ The second perspective is Andrew Pickering's *Mangle of Practice*. Lastly, I will discuss actor-network theory [ANT] and more specifically Latour's view on historical work.

²³ Ibid, p. 26.

²⁴ Another approach is advocated by Thomas P. Hughes who explains technological change on the level of technological systems. Since I am only concerned with the development of one technological/scientific technique I have not considered this approach here. Cf. Hughes (1983).

2.1 SCOT – *The Social Construction of Technology*

SCOT was inspired by the Empirical Programme of Relativism (EPOR). This was developed by Collins²⁵ in the sociology of scientific knowledge and carried over into the sociology of technology by Pinch and Bijker. It is a programme that is intended to show that ‘technological artefacts are culturally constructed and interpreted.’²⁶ SCOT is based on the symmetrical view of knowledge that was originally developed by Bloor. This view argues that what currently counts as scientific knowledge is not to be taken as independently valid and subject to necessary development but rather the result of social negotiations. It follows from this that there is no easy distinction between ‘true’ and ‘false’ knowledge.²⁷ Pinch and Bijker argue (by analogy with Bloor) that there are no linear trajectories to technological artefacts but maintain instead that

‘in SCOT the developmental process of a technological artefact is described as an alternation of variation and selection. This results in a “multidirectional” model, in contrast with the linear models used explicitly in many innovation studies and implicitly in much history of technology.’²⁸

This multidirectional model is elaborated in a research programme which takes the ‘interpretive flexibility’ of technological artefacts as one of its main starting points. The development of a technological artefact is traced in terms of the different possible variants which may have existed at different junctures in time and to which different social groups have accorded different meanings. The analysis seeks to explain how, over time, certain variants become excluded at the expense of others, and how one variant may eventually become ‘stabilised.’ The concept of ‘interpretive flexibility’ is complemented by the notion of ‘relevant social group.’ Relevant social groups give different meanings to different variants of technological artefacts. These groups include ‘institutions and organizations (such as the military or some specific industrial company), as well as organized or unorganized groups of individuals. The key requirement is that all members of a certain social group share the same set of meanings, attached to a specific artefact.’²⁹

SCOT proceeds with a detailed description of the relevant social groups, which may include the norms and values of the group or their economic and political position within the wider social context, and focuses on the problems that such groups identify regarding the different variants and the solutions they devise in response to such problems. According to this analysis, the interpretive flexibility which is present at the beginning of the development gradually gives way

²⁵ Collins (1981).

²⁶ Pinch and Bijker, 1987/1993, p. 40.

²⁷ Bloor (1976).

²⁸ Ibid, p. 28.

²⁹ Ibid, p. 30.

to a process whereby one specific variant is stabilised until the meaning of the artefact is subjected to 'closure.' This point of closure is reached when one particular meaning of an artefact becomes dominant and is no longer contested. Pinch and Bijker acknowledge that there might be cases in which stabilization or closure cannot be achieved, i.e. 'that different social groups have radically different interpretations of one technological artefact.'³⁰

The concepts of interpretive flexibility and relevant social group are further supplemented by Bijker's notions of the 'technological frame' and 'inclusion' in what he considers a contribution 'toward a theory of invention.'³¹ Each of the different social groups involved in the development of a technological artefact has its own specific technological frame. This frame consists of 'a combination of current theories, tacit knowledge, engineering practice (such as design methods and criteria), specialized testing procedures, goals, and handling and using practice'³² and works as a kind of 'grammar'³³ in the constitution of the meaning given to a certain technological artefact by a specific social group. There are two key features to the notion of technological frame which, according to Bijker, are important to a social constructivist analysis of technology. Firstly, the technological frame is defined in a very broad way in order to allow for the analysis of all relevant social groups, i.e. not just developers or 'users' in the classical sense. Secondly, technological frames are meant to work on the level of interaction between actors rather than referring to individual or institutional 'characteristics.'³⁴ As I have already stated above, the technological frame works as a grammar for the social group, that is to say, it 'structures the interaction of members of a social group.'³⁵ However, it can only do so to a certain extent, and this is where the notion of inclusion comes in. Different actors are subject to different degrees of inclusion within the frame. The degree of inclusion might vary depending on the goals of an actor, his or her expertise and training, or his or her problem-solving strategies.³⁶

Bijker's notions of technological frame and inclusion, like the entire SCOT construct itself, are intended to provide 'heuristic device[s] to simplify the description of the "seamless web" of history.'³⁷ However, while SCOT could be seen as a helpful perspective when it comes to the initial identification of the different social groups that were involved in the development and commercialisation of the polygraph, my own analysis does not proceed on the level of the meanings attributed to this object by different social actors at different stages of its development. Insofar as this thesis covers the development of the polygraph, it focuses on

³⁰ Ibid, p. 41.

³¹ Bijker (1987/1993).

³² Ibid, p. 168.

³³ Ibid, p. 173.

³⁴ Ibid, p. 172.

³⁵ Ibid, p. 173.

³⁶ Ibid, p. 174.

³⁷ Ibid, p. 185.

different representations of the instrument(s) in relation to how lie detection is constituted *as a practice*. This necessitates an examination of the ways in which the lie detector and the polygraph are represented and how these representations come to mediate lie detection practices. Moreover, with regard to these instruments, we can speak of ‘technological development’ only in the case of the polygraph, while the lie detector is not a stable object. For example, the ‘lie detector’ could refer to a whole set of instruments, most of which had been developed in the 19th century. Additionally, in analysing the constitution of the lie detection examination, I am interested in the processes of translation (rather than, *per se*, processes of constituting meaning) which made the ‘diagnosis’ of the lie possible. This means moving between the examiner, the instrument, and the examination subject and analysing the nature of their social and material interactions. Thus, my research does not focus on a linear process of change whereby a certain group of developers or users change the meaning of a certain variant of a technological object drawing on a specific technological frame. While the notion of technological frame is intended to denote the ‘grammar’ which structures technologists’ interactions, it seems to refer to the different resources, goals, and assumptions, with which actors enter into interactions rather than referring to the definition of rules of the actual interaction setting between human and non-humans. Rather than describing the grammar which directs the interactions between developers of technological artefacts, I aim to trace the grammar which constitutes the ensemble of the examiner and the instrument in externalising the subject’s lie in the constitution of lie detection as a technology of knowledge production and intervention.

Moreover, the SCOT programme as a whole is to some extent contradictory. On the one hand, Pinch and Bijker seek to provide a ‘social constructivist’ analysis of technology which accounts for the variable nature of technological artefacts in different social settings. This analysis is to be supported by a set of heuristics such as interpretive flexibility, technological frame and inclusion. On the other hand, Bijker works towards a ‘theory of invention’ and criticises the analyses of historians of technology for failing to allow for generalisation.³⁸ Since I aim to trace the history of lie detection as a technique of knowledge production and intervention in its specificity – and only consider the development of the polygraph as a technological object insofar as it comes to mediate lie detection practices – I have not been able to apply a SCOT perspective.

2.2 *The Mangle of Practice*

In contrast to SCOT, which focuses on the development of technological artefacts, Pickering’s approach in *The Mangle of Practice* focuses explicitly on historical descriptions of

³⁸ Pinch and Bijker, 1987/1993, p. 22.

how the interactions between human and non-human agents are patterned in scientific encounters. This approach might therefore be useful when it comes to an analysis of how the interactions between social and material actors (the examiner, the subject and the instrument) in the lie detection examination were structured and how these changed in the constitution of lie detection practices over time. While Pickering focuses mostly on scientific experiments, he also provides an analysis of how the ‘mangle’ might be used in documenting technological and conceptual change, and even goes so far as to claim that the mangle might be thought of as ‘theory of everything.’³⁹ In providing a historiographical rationale, he maintains:

‘I seek a *real-time understanding of practice*. I want to understand the work of cultural extension in science *as it happens in time*. This is to be contrasted with *retrospective approaches* that look backward from some terminus of cultural extension and explain practice in terms of the substance of that terminus. The exemplary instance of the latter is what I call “the scientist’s account” (Pickering 1984b), in which accepted scientific knowledge functions as an interpretive yardstick in reconstructing the history of its own production.’⁴⁰

This ‘real-time understanding of practice’ is to be achieved within what Pickering calls a ‘performative view of science.’ This view is opposed to the traditional ‘representational’ view of science which ‘casts science as, above all, an activity that seeks to represent nature, to produce knowledge that maps, mirrors, or corresponds to how the world really is.’⁴¹ In contrast to this, the ‘performative’ view of science centres on the idea ‘that the world is filled not, in the first instance, with facts and observations, but with *agency*. Thus, science should be ‘regarded a field of powers, capacities, and performances, situated in machinic captures of material agency’.⁴² While granting the material realm an independent form of agency, Pickering nevertheless disagrees with the likes of Latour or Callon who assign a complete *symmetry* to humans and machines in terms of their agency (see below). He argues that, while there might be important commonalities between human and material agency – most notably, their ‘repetitive quality’ and their ‘temporal emergence’⁴³ – there is nonetheless a fundamental difference between the two when it comes to human intentionality. Intentionality is defined by him as ‘a term I use in an everyday sense to point to the fact that scientific practice is typically organized around specific plans and goals. I find that I cannot make sense of the studies that follow without reference to the intentions of scientists, to their goals and plans, though I do not find it necessary to have insights into the intentions of things.’⁴⁴ However, the goal-directedness of scientists’ practices should not be seen as unchangeable. Pickering

³⁹ He maintains: ‘If we replace my analysis of the intentional structure of human agency with a less structured notion like “drift,” and if we relax my focus on literal machines, we are left with a schema that might describe the evolution of any field of agency or agencies, nonhuman as well as human’ (Pickering, 1995, p. 247).

⁴⁰ Pickering, 1995, p. 3, [my italics].

⁴¹ Ibid, p. 5.

⁴² Ibid, p. 7.

⁴³ Ibid, p.16.

⁴⁴ Ibid, p.17.

stresses that human intentionality is configured and reconfigured over time. Scientists' goals are developed on the basis of the existing scientific culture; they are 'imaginatively transformed versions of the present.'⁴⁵ The process of devising future states of science is a process of open-ended 'modelling' 'with no determinate destination.'⁴⁶ Furthermore the goals and plans of scientists change as they interact with the material world around them.

This interaction between human and material agents should be conceived of as a 'dance of agency' which, seen from the human perspective, takes on the form of a 'dialectic of resistance and accommodation:'

'As active, intentional beings, scientists tentatively construct some new machine. They then adopt a passive role, monitoring the performance of the machine to see whatever capture of material agency it might effect. Symmetrically, this period of human passivity is the period in which material agency actively manifests itself. Does the machine perform as intended? Has an intended capture of agency been effected? Typically the answer is no, in which case the response is another reversal of roles: human agency is once more active in a revision of modelling vectors, followed by another bout of human passivity and material performance, and so on. The dance of agency, seen asymmetrically from the human end, thus takes the form of a *dialectic of resistance and accommodation*, where resistance denotes the failure to achieve an intended capture of agency in practice, and accommodation an active human strategy of response to resistance, which can include revisions to goals and intentions as well as to the material form of the machine in question and to the human frame of gestures and social relations that surround it.'⁴⁷

Pickering calls this process of the reconfiguration of human goals and practices in interacting with the active material world in an attempt to capture it the 'mangle.' The mangle is a 'posthumanist' analytical framework. That is to say, it shifts the focus of analysis away from human agency by according independence to material agency and stressing the mutual dependence of the material and human aspects of scientific practice, i.e. the 'interactive stabilization' of human and material agency.

Pickering uses the term 'temporal emergence' to illustrate the fact that, in his view, there is no given path for the coming into existence of a certain type of scientific object. Rather, the emergence of such an object is to be understood in terms of 'brute chance, happening in time.'⁴⁸ By using notions such as 'modelling', the 'dance of agency' and the 'dialectics of resistance and accommodation,' the analyst can establish a pattern, which makes the processes that are being traced comprehensible: 'The pattern repeats itself endlessly, but the substance of resistance and accommodation continually emerges unpredictably within it.'⁴⁹

Pickering provides a perspective on studying the interaction of human and non-human entities in the context of scientific encounters by contrast to SCOT (which focuses on how social actors attribute different meanings to variants of technological artefacts), and might thus be seen as a potentially fruitful approach to tracing the ways in which the lie detection

⁴⁵ Ibid, p. 19.

⁴⁶ Ibid, p. 19.

⁴⁷ Ibid, p. 21-22.

⁴⁸ Ibid, p. 24.

⁴⁹ Ibid, p. 24.

examination is constituted as part of how the interactions between the examiner and the instrument in conjunction with the subject are framed and reframed in its development. However, the concepts of 'dance of agency' and the 'dialectics of resistance and accommodation,' cannot be applied in the case of the history of the lie detection examination. The turn-taking that is implemented in the lie detection examination does not resemble the 'dance of agency' in which human agency and captures of material agency follow one another. This is due to the different form which experimentation and examinations took in psychological techniques. Rather than capturing material agency, their goal was to capture human agency by means of enlisting instruments. This has to be conceptualized as a triadic exchange between experimental subject, the instrument, and the experimenter rather than a dyadic interaction between human experimenter and machine. In this triadic exchange the capturing of human agency takes on different patterns of interaction. By contrast to the turn-taking of human and machinic agency in 'the mangle,' the interaction of the instrument and the subject is simultaneous and symmetrical, whereby the instrument 'mirrors' the internal functions of the subject's body in time. The interaction between the instrument and the experimenter/examiner is representational, whereby the instrument translates the internal functionings of the body onto a graph, which the examiner/experimenter interprets. The interaction between the examiner and the subject is based on an asymmetrical turn-taking system, which is directed by the examiner and follows certain specified patterns of verbal exchange. While this does not undermine Pickering's analysis, it does limit the scope of the concepts which he develops for the sociological analysis of science – certainly as regards their application to psychological techniques. This is important in light of his claim that the 'mangle' could count as a theory of everything and would allow for the analysis of any field of agency or agencies.

On the other hand, the 'dance of agency' and the 'dialectics of resistance and accommodation' also seem to be rather unspecific terms for guiding the analysis of scientific and technological change. In a similar fashion as Pinch and Bijker's 'technological frame,' they are conceptual tools which are potentially too broad in scope for my purposes here. In Pickering's case this is problematic as his conceptual tools are bound up with his understanding of history. His historiography is based on a conception of 'emergence' which is based on 'brute chance, happening in time.' This brute chance is to be made sense of by means of the dance of agency and the dialectic of resistance and accommodation. The argument for 'brute chance' is necessary in Pickering's model in order to contravene conventional understandings of science which tend to conceptualise scientific developments in terms of an intrinsic causality. This causality is independent of the context in which scientific facts are developed. I would argue instead that we need to conceive of history as patterned, and trace those individual patterns

without imposing intrinsic laws on its scientific developments or developing tools intended to cover all of its myriad ways. This is also why I find my description of the pattern of interactions that mark the triadic exchange in psychological techniques of experimentation and examination not very useful and have therefore not attempted to extend Pickering's dyadic model to include a triadic model. Actor-network-theory provides the final framework to be discussed as regards the sociological study of the history of science and technology.

2.3 *Actor-Network-Theory and Bruno Latour*

ANT has caused multiple controversies in the sociology of science and technology in recent years: mainly for the way in which it extends Bloor's principle of the symmetry of knowledge to humans and non-humans. ANT is based on a semiotic approach to the analysis of human and material interaction,⁵⁰ in which both humans and non-humans are seen as capable of action and thus considered to be actors; or to use ANT terminology, 'actants.' By according human and non-human actors equal status, ANT effectively seeks to abolish the distinction between the (knowing, acting) subject and object, and move the study of science from a focus on epistemology to the study of various ontologies. This 'generalized symmetry,' as Latour calls it, has been criticised by some sociologists of science and technology who, like Pickering, believe that humans differ from non-humans in at least one important respect: their intentionality. Other critics, such as Bloor, hold that the distinction between the knowing and acting subject and its representations of an object on the one hand, and the object itself on the other, needs to be maintained.⁵¹ In ANT, an actant is not a stable entity – actants are effects created in and through heterogeneous networks, which consist of human and non-human entities. Scientific facts and technological artefacts are the results of processes that go on within and across heterogeneous networks. Insofar as these facts and artefacts are successful, we subsequently 'black box' them, i.e. see them merely as objects that 'work' without wondering about the complexity of what it takes for them to work. ANT opens and unpacks these black boxes in an effort to describe the socio-technical imbroglios that are necessary to produce them.

Latour's historical studies of science and technology follow a similar pattern. *Aramis, Or the Love of Technology*⁵² is a study of a technological failure, which aims to show how a technological project that was funded for over twenty years never became a reality. This was

⁵⁰ Cf. Akrich and Latour (1992) for 'A Summary of a Convenient Vocabulary for the Semiotics of Human and Nonhuman Assemblies' or refer to the glossary of Latour (1999a).

⁵¹ Cf. Bloor (1999a), Latour (1999b), and Bloor (1999b) for an outline of the debate on the sociology of scientific knowledge (SSK) and ANT. Cf. also the debate between Collins and Yearley (1992a; 1992b) and Callon and Latour (1992).

⁵² Latour (1996).

due to the fact that the heterogeneous network that made up Aramis could neither enlist enough actants, nor the right actants, to make Aramis durable. Latour's other major historical study, *The Pasteurization of France*⁵³ – parts of which are also used in his programmatic statement on science studies *Pandora's Hope* – similarly consists of an analysis of the process by which a scientific discovery (pasteurization) becomes real. 'Reality' is a continuum in Latour's work, which is connected to the notion of 'relative existence.' Scientific facts that we hold to be true have not existed 'always and everywhere,' waiting to be discovered. Nor have what we now think are scientific falsehoods 'never' existed 'anywhere.' Rather, 'when a [scientific] phenomenon "definitely" exists this does not mean that it exists forever, or *independently* of all practice and discipline, but that it has been entrenched in a costly and massive institution which has to be monitored and protected with great care.'⁵⁴ The degree of the relative existence of an entity can be described by the two dimensions of 'association' and 'substitution.' Association denotes the number of other entities that an entity is connected to or 'collaborating with.' The higher the number of associated (heterogeneous) entities, the more 'real' is the entity under study. Substitution refers to 'how many elements in a given association have to be modified to allow other new elements to cohere with the project.'⁵⁵ It indicates the stability of the connections between associated elements within a heterogeneous network.⁵⁶ The description of the coming into being – or the becoming more or less real – of an entity such as lactic acid fermentation in terms of its associations and substitutions constitutes the tracing of its 'spatiotemporal envelope.' This spatiotemporal envelope 'remains locally and temporally situated and empirically observable.'⁵⁷ Moreover, even once the 'reality' of an entity such as microbes has been constituted, once it has become an institution (a term which Latour opposes to the term substance), it still has to be actively maintained – it remains an historical entity:

'In other words, to account for even a long-lasting victory, one does not have to grant extrahistoricity to a research program as if it would suddenly, at some threshold or turning point, need *no* further upkeep. What was an event must remain a continuing event. One simply has to go on historicizing and localizing the network and finding who and what make up its descendants.'⁵⁸

Latour explains the fact that we speak of substances as if they had always existed, thus according them an ahistorical status, by introducing the notion of 'retrofitting.' He maintains that aside from the process of institutionalisation, there is a second process called 'retrofitting,' in which the event of making up an entity, e.g. 'microbes,' is used to reinterpret

⁵³ Latour (1988).

⁵⁴ Latour, 1999a, p. 155-156.

⁵⁵ Ibid, p. 159.

⁵⁶ Ibid, p. 161.

⁵⁷ Ibid, p. 166.

⁵⁸ Ibid, p. 168.

the past before this entity existed. Retrofitting ‘situates a more recent event as what “lies beneath” an older one.’⁵⁹ This process is possible because of the two dimensions of time: the *linear succession of time* which denotes the fact that time ‘always moves forward’⁶⁰ and the *sedimentation of time* in which time moves backwards. This second dimension of time is marked by the continuous reinterpretation of a certain moment in time, e.g. the year 1864 when lactic acid fermentation did not yet exist. Thus, corresponding to the historical vantage point of interpretation there are different interpretations of ‘the year 1864’ from the perspective of the years 1865, 1998, and so on.

Latour discusses the relationship between humans and technology in terms of *mediation*. He argues that ‘there is nothing that we can define philosophically or sociologically as an object, as an artefact or piece of technology.’⁶¹ Rather, there are different forms of ‘technical mediation’ by which both human and non-human agents come to form new actants. The first meaning of technical mediation concerns the goal ‘displacement’ of human and non-human actants: when human and non-human actants interact their original goals (or functions) are displaced to form a new ‘composite’ goal. In this process, all of the actants involved are transformed as well.⁶² Latour uses the debate on gun regulation as an example in this context. It is not guns that turn people into killers, nor is it people that turn guns into dangerous weapons. Rather, *both* the ‘goals’ of the gun *and* those of the person holding it become transformed.⁶³ The second meaning of technical mediation relates to ‘composition,’ which denotes the fact that action is constituted by a combined set of agents – ‘action is simply not a property of humans *but of an association of actants*, and this is the second meaning of technical mediation.’⁶⁴ As a result the same symmetry which applies to the ‘fabrication’ of scientific facts also holds in the case of the ‘use’ of technical artefacts. The third meaning of technical mediation is to do with ‘the folding of time and space.’ The number of actants and the composition of objects and their stability varies in time and space: ranging from different actants existing independently side-by-side, to a conglomerate of actants being integrated ‘into a single punctuated whole,’ or a black box. These different stages of integration are reversible and processes of disintegration are marked by crises, which make the different stages of integration of objects observable to the student of science and technology.⁶⁵ The fourth

⁵⁹ Ibid, p. 170.

⁶⁰ Ibid, p. 171.

⁶¹ Ibid, p. 190-191.

⁶² Ibid, p. 178-180.

⁶³ Latour elaborates: ‘This translation is wholly symmetrical. You are different with a gun in your hand; the gun is different with you holding it. You are another subject because you hold the gun; the gun is another object because it has entered into a relationship with you. The gun is no longer the gun-in-the-armory or the gun-in-the-drawer or the gun-in-the-pocket, but the gun-in-your-hand, aimed at someone who is screaming’ (Latour, 1999a, p. 179-180).

⁶⁴ Latour, 1999a, p. 182.

⁶⁵ Ibid, p. 183-185.

aspect of technical mediation involves the term *delegation*, on the basis of which Latour seeks to describe the process by which not only the meaning of an action is changed, but also the mode in which it is expressed, e.g. when the enforcement of the speed law is no longer effected by words and signs but is translated into a material form of expression, such as a speed bump.⁶⁶

However, my thesis differs from an ANT perspective in that the aim of my study is not simply to describe the coming into existence of a particular scientific artefact or technological object, i.e., the polygraph. While I have examined the development of the polygraph, I have taken a more multi-faceted approach in order to explore how lie detection came to be instituted as a technique of knowledge production and intervention. As a consequence of this, my focus has been broader than it would have been had I sought to trace the ways in which human and material actors combined in order to constitute ‘polygraphy’ as an actor-network. ANT focuses on how a certain historical actor-network is constituted by the different entities enlisted in it and describes the nature of the different entities or actants and the connections that they form. In the context of my study, such an analysis would seek to explain how the different entities involved in the history of lie detection (ranging from particular institutions such as the courts, police departments or crime laboratories, different actors such as early psychologists, police reformers, instrument manufacturers, patent examiners, individual developers and examiners to various instruments) are enlisted and transformed in order to constitute polygraphy as a stable actor-network – despite its contested nature. In short, the focus would be on tracing the different ‘associations’ that were formed among actors, and the ‘substitutions’ of actors that take place along its trajectory. By contrast, my study seeks to frame polygraphy in terms of the development of a *particular practice which institutes certain power effects*. In other words, I have sought to investigate how polygraphy was instituted as a psychological knowledge practice across particular locations, and how it has intervened on the human subject. This means that while the ‘entities’ that appear in the history of lie detection are certainly taken into account, they are not viewed as a horizontal ‘actor-network’. Rather, I have investigated different aspects of lie detection as technique of knowledge production and intervention. This means: first, tracing how different ways of capturing deception emerge out of psychological discourse; second, examining the role of the instrument in the development of polygraphy; third, considering changing lie detection practices and their status as ‘expertise’; and fourth, analysing the placement of lie detection as a technique of knowledge production and intervention by also taking into account the contested nature of the lie detection examination.

Although this thesis does not explicitly draw on an ANT perspective, it nevertheless does take ANT’s focus on various ‘ontologies’ as a sensitizing device for considering how human and

⁶⁶ Ibid, p. 185-187.

material actors are elaborated. For example, in my analysis of the way in which the notion of the 'lie detector' comes to mediate lie detection practices, I consider the ontological uncertainty that defines the polygraph as instrument in the polygraph examination and how this uncertainty constitutes its special function in mediating the subject's bodily responses during the examination. More broadly, while this thesis does not apply the three main historiographical approaches that have been elaborated in the sociological study of the history of science and technology, I have integrated methodological principles and considerations elaborated within this field that are more closely related to the issues raised in the history of lie detection. As I discuss in the next sections, there are issues that are specific to the history of lie detection that have rendered this more varied (or piecemeal) approach necessary. This includes an account of how the available historical sources have mediated my approach to the history of lie detection.

2.4 *Lie detection, criminal justice and science*

While polygraphy has become widely applied in the field of criminal investigation by law enforcement institutions, and has even been hailed as a 'scientific technique of detecting deception,' it has not managed to gain entry to the criminal court as 'scientific evidence.' Nevertheless it is part of a broader movement inaugurated in the early 20th century which sought to combat crime by means of 'scientific crime detection' – a movement that has resulted in the formation of the 'forensic sciences.' In order to understand the variable scientific status that is accorded to polygraphy by law enforcement agencies and by the criminal justice system, I have traced the way in which the rules governing what counts as 'legitimate knowledge' are constructed in these two realms. By examining the boundaries which certain types of knowledge fail to overcome, insight can be gained into the *modus operandi* of institutions of social control and the way in which knowledge is disseminated, legitimised, and applied within these institutions. Such an analysis requires that what counts as 'science' is not taken as a given. Rather, the distinction between 'science' and 'pseudo-science' (and polygraphy has been widely associated with the latter) must be conceptualised as a variably constructed boundary. The sociology of science offers the methodological maxim of the 'symmetry of knowledge' which, instead of judging knowledge on the basis of whether *according to current standards* we believe it to be true or false, traces the ways in which it is elaborated and seeks to establish the reasons for its being classified as either 'true' or 'false'. This maxim was originally developed by Bloor in his 'Strong Programme' for a study of the sociology of science.⁶⁷ Bloor maintains that scientific knowledge should not be treated as a 'special' type of knowledge which is somehow independent of its conditions of production. Rather it is

⁶⁷ Bloor (1976).

important to apply the *same principles of explanation* to what is considered ‘true’ knowledge and what is deemed ‘false’ knowledge. The principle of the symmetry of knowledge therefore allows researchers to analyse the ways in which knowledge is stabilised or destabilised in different circumstances. In the context of my study, the principle also means not taking a position on the debate over the ‘scientificity’ or ‘pseudo-scientificity’ of the lie detection examination.

In order to trace the ways in which science is marked off from pseudo-science, Gieryn has employed the notion of *boundary-work*. More specifically, he uses this concept in contradistinction to the term *demarcation*, which has conventionally been utilised in the philosophy of science. Whereas philosophers of science have sought to identify certain properties that are intrinsic to the scientific method in order to ‘demarcate’ science from other forms of knowledge, Gieryn and others have shown that science cannot be distinguished from pseudo-science or ‘non-science’ – as he more broadly calls it – in a straightforward way.⁶⁸

Gieryn’s first elaboration of the concept of boundary-work draws on the study of ideology. Boundary-work consists in ‘their [i.e., scientists]’ attribution of selected characteristics to the institution of science (i.e. to its practitioners, methods, stock of knowledge, values and work organization) for purposes of constructing a social boundary that distinguishes some intellectual activities as “non-science.”⁶⁹ Gieryn seeks to expand on the notion of ‘boundary-work’ in a later article which maintains that ‘boundary-work occurs as people contend for, legitimate, or challenge the cognitive authority of science – and the credibility prestige, power, and material resources that accompany such a privileged position. Pragmatic demarcations of science from non-science are driven by a social interest in claiming, expanding, protecting, monopolizing, usurping, denying, or restricting the cognitive authority of ‘science.’⁷⁰ Gieryn contends that the boundaries of science are not necessarily determined by certain practices but also by the way in which the science is *represented*. He suggests that we might use the analogy of a topographical map and the landscape that it represents, and think of science in terms of a cultural map which – like a topographical map – includes ‘those features of reality most useful for achieving pragmatic ends (legitimizing authority to knowledge claims or hiking through wilderness).’⁷¹ The notion of boundary-work can usefully be applied to aspects of my study.⁷²

First, in terms of the third strand in this history of lie detection (i.e., the consideration of the changing lie detection practice and its status as ‘expertise’), the notion of boundary-work can be used to examine a conflict which arises between two central figures in the development of

⁶⁸ Cf. Laudan, L. (1983) for a history of the demarcation of science, cf. also the other papers in the same collection Laudan, R. (1983); for another early collection of articles on this subject cf. Wallis (1979).

⁶⁹ Gieryn, 1983, p. 782.

⁷⁰ Gieryn, 1995, p. 405.

⁷¹ Ibid, p. 406.

⁷² For a more comprehensive overview of Gieryn’s approach to studying the construction of scientific boundaries, cf. Gieryn (1999) in which he uses the notion of boundary-work in different case studies on phrenology, organic farming, cold fusion, etc.

the lie detection examination regarding the use of the lie detection examination, John Larson and Leonarde Keeler. While the former, holding a Ph.D. in physiology, developed the final set-up of the lie detection examination in the early 1920s, the latter developed and commercialised the polygraph itself, thereby making possible the increased spread of the use of lie detection in criminal investigation. Larson expressly opposed the commercialisation of the polygraph and sought to undermine Keeler's practices as 'unscientific.' In doing so, he took recourse to Keeler's lack of academic credentials and contravention of the 'norms of scientific practice.' Understanding this strategy in terms of boundary-work is certainly helpful, as I will later demonstrate in an evaluation of Alder's historical analysis of Larson's and Keeler's different knowledge strategies. Alder opposes the strategies of both Larson and Keeler, but in such a way as to present Larson's version of lie detection in a more favourable light – that is to say, as more *legitimate* – than that of Keeler. However, by deeming one version of knowledge as more acceptable by virtue of the fact it appears to correspond more closely to pre-conceived standards of scientific – or more specifically, psychological – practice, Alder simply *reiterates* an assumed or implicit distinction between 'false' and 'true' knowledge rather than asking how such distinctions are generated by different actors as they contend for scientific authority. Moreover, in considering the shift from the 'epistemology of fear' implemented in polygraphy to an 'epistemology of recognition' as an academic interest re-emerged in the 1970s, I examine the ways in which proponents of cognitive methods of detecting deception – the so-called guilty-knowledge test – do boundary-work in constructing the scientificity of their approach over and against polygraphy. The notion of boundary-work is important in the examination of the strategies that proponents of the 'guilty-knowledge' test use in setting themselves off from polygraphy for a similar reason provided above. It ensures a symmetrical analysis of knowledge practices rather than according epistemological authority to knowledge practices which seemingly correspond to the most recent standards of psychological knowledge framed in terms of psychological testing and probability.

Second, as regards the fourth strand of my analysis (i.e., the consideration of the contested nature of lie detection as evidence), the notion of boundary-work will be applied to a discussion of the status of the lie detection examination in the criminal courts. Instead of exploring how a 'scientific' institution sets itself off from 'non-scientific' institutions, I use the notion of boundary-work to analyse how the criminal justice system employs a specific conception of science in order to allow into its judging processes certain types of knowledge as opposed to others which threaten to upset the structure of its workings. In other words, I will explore how the criminal justice system established a boundary between science and non-science in order to protect its *own* legitimacy. In this way, I extend Gieryn's notion of boundary-work to consider not only how 'scientists' (i.e., lie detection specialists) construct their own boundaries but also,

more broadly, the way in which institutions – in this case the courts – elaborate understandings of science *without* being producers of the knowledge which they sanction.⁷³

In discussing the status of lie detection evidence and its placement at the entrance of the criminal justice system (and beyond), I have used a combined approach which considers secondary as well as archival sources. As regards the use of secondary sources, I use the work of two historians of science, Golan and Alder, as two main interlocutors. Golan's historical analysis of the court case *Frye v. United States* (which provided the basis for the exclusion of lie detection evidence) is taken as a starting-point for gaining an understanding of how the courts constructed a boundary enabling them to legitimise the barring of lie detection evidence. His research is expanded by a consideration of the complementary boundary-work that was undertaken by lie detection examiners in reaction to the rejection of lie detection evidence. Alder, mentioned above, serves as the second interlocutor in extending the discussion of the rejection of lie detection evidence.

2.5 *The lie detector and the polygraph*

The consideration of the second strand of this thesis (regarding the status of the instrument in the development of lie detection as technique of knowledge production and intervention) also requires an examination of the notion of the 'lie detector' in relation to the main instrument which comes to be used in lie detection, the 'polygraph.' 'Polygraph' is conventionally thought of as a scientific term, whereas 'lie detector' tends to be considered a popular term for the self-same instrument. But careful analysis of both instruments demonstrates that quite different claims have been made on behalf of these instruments regarding their capacity to detect lies. This analysis will draw on a methodological aspect of evaluating knowledge in the sociology of science which concerns the 'diffusion' of knowledge. Sociologists of science and technology have been arguing against a view of science which depicts the public distribution of knowledge that is generated by scientists as a process of simplification and possible distortion.⁷⁴ According to Hilgartner, this 'dominant view of science popularisation' is problematic insofar as it presents an 'idealised notion of

⁷³ I mean this in the narrow sense of the actual carrying out of studies, interpreting results, developing certain practices – as I said in the introduction to this chapter, knowledge does not function independently of the system in which it is used.

⁷⁴ Cf. Shinn and Whitley (1985); Cooter and Pumfrey (1994); Hilgartner (1990); Kitzinger (1990); Myers (2003); also Lewenstein (1995); a related field is constituted by different studies concerned with the 'public understanding of science' (PUS) – here SSK has successfully furnished critiques of approaches which have unthinkingly used the distinction between public knowledge and science by carrying out surveys on the public attitudes towards science or public literacy or developed mental models which serve to analyse 'lay' understanding of science and technology; instead SSK has shown how the terms 'science' and 'public' are in fact variable and that the way in which people engage with scientific knowledge takes place on multiple levels. Cf. Wynne (1995) and Lewenstein (1995) for an overview of this field.

pure, genuine scientific knowledge' which accords scientists an ultimate claim to knowledge.⁷⁵ Some sociologists of science have argued that scientists actively enlist this notion of popularisation in order to legitimate their own authority and to exclude accounts of scientific knowledge which may not conform to their own views or interests. In opposition to such an hierarchical view, sociologists of science argue that the boundaries between what is considered proper science and a 'popularised' version of science is not clear-cut and that the way in which scientific knowledge is presented, distributed and legitimated follows varied and complex patterns.⁷⁶ Additionally, the view that an understanding of communication within and about science needs to be extended beyond the simplistic distinction between science and its popular accounts, means that the dissemination of scientific knowledge cannot be conceived of as one-directional (whereby knowledge travels from science to society). Rather, it has to be conceived of as a *cyclical flow* of information. As part of this flow, popularised accounts of science may feed back into and mediate the practices of scientists themselves.⁷⁷ What makes a study of the lie detector and the polygraph especially intriguing in this context is that the 'lie detector' emerged into the public realm *before* the 'polygraph' had been developed. This allows for an examination of the reactions of lie detection specialists to the lie detector, as well as a consideration of how the notion of the lie detector informed their practices and representations of lie detection. This evaluation will draw on the analysis of the media representation of the lie detector which has been provided by Bunn, a historian of psychology. Bunn locates his analysis between the history and sociology of science popularisation, but stresses a different (albeit related) perspective in the literature first systematically promoted by Cooter and Pumfrey.⁷⁸ This perspective is not only concerned with demonstrating that there are no rigid boundaries between science and its popularisation, but additionally, seeks to provide an analysis of popular science itself as a specific field of knowledge. The focus therefore shifts to an analysis of how scientific knowledge is taken up in popular culture and how it may be transformed to form 'its own natural knowledge which differs from and may even oppose elite science.'⁷⁹ Bunn applies this perspective to an

⁷⁵ Hilgartner, 1990, p. 521.

⁷⁶ Rather than opposing the scientific text as expression of pure knowledge to all other accounts of science, processes of science communication may be conceptualised along a continuum moving 'upstream' and 'downstream' depending on their relative closeness to the locations in which scientific knowledge is produced. In this model the communication of scientific knowledge is broadened beyond the scientific text to include different forms in which scientific knowledge is shaped and communicated about ranging from lab shop talk, grant proposals to mass media articles (Hilgartner, 1990, p. 528). The inclusion of different genres of communication rather than an exclusive focus on texts has led to a consideration of language use in the generation of scientific knowledge including interactions between scientists, as well as scientists and 'lay' audiences. Additionally, analyses of the enlistment of visual media in the representation of science are carried out (Myers, 2003).

⁷⁷ Myers (2003).

⁷⁸ Cooter and Pumfrey (1994).

⁷⁹ Ibid, p. 249.

examination of the history of the lie detector by locating the instrument within the interstices of popular psychology, the police professionalization movement and the mass media. In the course of his analysis, Bunn applies a Foucauldian approach in order to reconstruct the discourse that developed around the lie detector. In part, my study seeks to re-interpret and extend Bunn's analysis of the discourse surrounding the lie detector. While Bunn's analysis is valuable, it tends to run together the history of lie detection on the one hand, and the history of the lie detector on the other. This is a reflection of his particular use of sources, which are mainly drawn from newspaper and magazine articles. Within the terms of his own framework, this allows Bunn to make a cogent argument as regards the placement of polygraphy as 'popular science.' Yet as I argue in the thesis, while lie *detection* came to be located outside what might be considered an 'elite' scientific arena, it nevertheless cannot be reduced to the history of the lie *detector*. Rather, the consideration of archival and primary sources throws up a more complex picture of the role of the lie detector in the development of practices of lie *detection*.

2.6 Sources

The difference between my approach to the history of lie detection and that of Bunn, who constructs the history of the lie detector on the basis of the analysis of media sources, has been the result of my own tracing of the different sources that are available on the history of lie detection. These sources have had a significant influence on the construction of my analysis. Any piece of historical research is guided not only by its own research questions but also by the available sources. In some cases the choice of sources relates to the questions one is asking or how one understands history – as in the case of Bunn. In other cases, the nature of available sources will tell its own additional story, and thus contribute to the modification of the research question or the understanding of the nature of the historical entity that one is studying. This has been the case with my research. The detection of deception emerges in the early 1900s. In its early period, not only media sources on the detection of deception can be found – which Bunn uses in constructing a pre-history of the lie detector. Rather, in the period from the early 1900s until the late 1920s, the detection of deception mainly appears in academic publications in psychological and criminological journals. However, from the 1930s academic publications on lie detection increasingly disappear, while academic publications start re-appearing in the scientific journals from the late 1970s. The scarcity of historical sources on the development of lie detection in this period made the location of different materials on its further development necessary.

Firstly, I traced the institutional connections that were formed and the individuals that were involved in the development of lie detection. Secondly, I contacted several institutions which hold archives on the history of psychology as well as the main professional polygraphic association, the American Polygraph Association.⁸⁰ On this basis, I was able to locate archival material on the further development of lie detection from the 1920s until 1950s. There are two institutions in the history of lie detection, which proved to be of significance in its development: first, the Berkeley Police Department, which became one of the main institutions in a police reform movement that sought to professionalise the police and implement scientific methods of criminal investigation in the first third of the 20th century. Its efforts to integrate scientific methods of criminal investigation came to include the use of lie detection. In researching this connection, I was able to locate not only archival material on the history of the police department, but in addition, collections of the papers of the two most significant individuals involved in the early development of lie detection – Larson, who initiated the use of lie detection examinations in criminal investigation in the early 1920s, and Keeler, who developed the polygraph in the 1920s and whose practices were instrumental in shaping the development of polygraphy as a separate profession. These are located at the Bancroft Library at the University of Berkeley. The second major institution which served as a hub in the development of lie detection was the Scientific Crime Detection Laboratory (SCDL), which was the first major crime laboratory to have been opened in the US, in Chicago in 1929. The formation of the laboratory was again an expression of the increased modelling of crime control in terms of scientific practices. Keeler was employed by the laboratory and from this setting facilitated the spread and commercialisation of polygraphy. Between 1929 and 1938, the laboratory was affiliated to the Law School of Northwestern University. Tracing this connection, I located archival sources on the history of the SCDL and lie detection at Northwestern University Archives, where I also came across an additional collection containing Keeler's papers at the Dr. William J. Yankee Library, Department of Defence Polygraph Institute in South Carolina. The papers include further material on Keeler's activities in commercialising polygraphy. An overview of the sources that I consulted can be found in Appendix A.

The different nature and availability of historical sources in the different periods of the history of lie detection resulted in the finding that a change in the location of the detection of deception took place from an academic setting to the setting of criminal investigation in its early history. This change is connected to the institutionalisation of polygraphy as an applied

⁸⁰ While this American Polygraph Association maintains an archive of the professional journal *Polygraph*, it does not hold any sources on the history of lie detection. I additionally contacted the Archives of the History of American Psychology at the University of Akron, which maintains a collection of psychological instruments but does not hold any sources relating to the history of lie detection.

technique. Unlike Bunn, who does not consider this shift, I have sought to examine to what extent this shift points to a change in lie detection practices also in light of Alder's analysis referred to above. I proceeded by carrying out an in-depth analysis of the academic sources published between 1900 and 1930 in connection with the broader psychological and criminological literature of the time. This led to the identification of the first strand of my analysis, namely, the tracing of how it became possible to capture the lie on the subject's body within the framework of early psychological discourse and the broader framework of the human sciences. In this context, I have tried to reconstruct methodological shifts in how the detection of deception went about capturing deception, leading eventually to the constitution of the straightforward 'lie' as an object of knowledge on the subject's body. It is this object which forms the basis of the polygraph examination. I have approached the literature that emerges in the detection of deception from the 1970s in a similar manner, tracing how methodological shifts in the detection of deception from an emotional to a cognitive conception of deception are set within psychological discourse and practice.

By equally taking the primary academic sources as an expression of the move of lie detection from one setting to another, my analysis of archival material was geared towards tracing the developments which mediated the placement of lie detection outside the academic setting, and establishing how this movement shaped lie detection as a knowledge practice in the period from 1920 until 1970. This was done by charting the technical development of the instrument and its commercialisation through the analysis of notes on experiments, technical drawings, Keeler's correspondence with instrument manufacturers, and the patent application process. In conjunction with an examination of different representations of lie detection in the media (as analysed by Bunn) and by lie detection specialists, this allowed for the development of the second strand of my analysis. This strand concerns the role of the instrument itself in shaping lie detection practices. I analysed the shift of lie detection from the academic setting to the law enforcement setting by reconstructing a conflict that developed between Larson and Keeler. My analysis of this conflict, which has already been mentioned in section 2.4 above, was based on correspondence that took place between key figures who were involved in early lie detection, speeches, and a manuscript drafted by Larson. These sources have allowed me to elaborate different models of expertise that were connected to the emergence of polygraphy as an applied knowledge technique and the disappearance of Larson's academically oriented model. The analysis of academic sources from the 1970s onwards, not only in terms of the move from an emotional to a cognitive conception of deception, but also in terms of their institutional location, allowed me to further expand on the historical evaluation of the success of polygraphy in instituting itself versus the failure of recent academic methods in the cognitive detection of deception to take

root. These considerations have constituted the third strand of my analysis, regarding the change in lie detection practices and the status of the expert.

On the basis of an historical examination of each of the four strands identified in the sections above, this thesis seeks to provide a sociological analysis of how the polygraph examination is constituted as an applied technique of knowledge production and intervention at the entry of the criminal justice system and beyond – as one of the ‘bits and pieces,’ which constitute and intervene on the ‘modern’ soul as part of the ‘political technology of the body.’

A final note needs to be taken of the main geographical site of this study, which so far has remained implicit. As regards the location of the history of lie detection, at least *physiological* lie detection, which forms the focus of this study, it is to a large degree an American history. As discussed in the next chapter, the first experiments into lie detection were carried out in Europe and the United States. As historical sources show, from the 1920s, however, research and application of physiological lie detection methods became (and have remained until recently) a mainly American affair.⁸¹ Consequently, this thesis takes the US as its main geographical site. However, this thesis does not focus on explaining the specifically ‘American character’ of lie detection *per se* by seeking to, for example, explicate its cultural determinants. As I elaborated on above, it focuses on developing an understanding of the development of lie detection as a particular knowledge practice and its mode of operation. In this it must self-evidently take into account the context in which it developed, e.g. the American movement of police professionalisation and the structure and functioning of the criminal justice system. However, this does not provide an answer to the question why physiological lie detection as regards its early development as well its current use has largely been based in the United States. This is an intriguing question. It has been suggested that the success of lie detection might have been due to a naive trust in the power of science or things *appearing* as scientific in the solution of social problems in the United States which is not apparent in Europe.⁸² This explanation is unsatisfactory for it takes the view that lie detection is pseudo-scientific for granted and makes a broad claim about American culture which is not historically grounded. The examination of the specifically ‘American’ character of physiological lie detection, in my view, would require a broader comparative history of the development of legal and criminal psychology and its varied integration in different national criminal justice systems in the US and in Europe.

⁸¹ As I elaborate on in chapter 7, the use of polygraphy in the monitoring of paedophiles and sex offenders has started to spread beyond the confines of the US. Additionally, other countries have taken up polygraphy in criminal investigation. However, this has taken on the form of adopting American practices in polygraphy and an overall dependence on the US polygraph industry. Polygraph operators are frequently trained either in the US or by American polygraph operators. Moreover, the instruments are bought from US manufacturers. Additionally the US remains the leader in the development and application of polygraphy. The polygraph is used in criminal investigations in Canada, Israel, Japan, South Korea, Mexico, Pakistan, the Philippines, Taiwan, and Thailand (Vrij, 2000, p.171).

⁸² Ben-Shakhar and Furedy, 1990, p. 117.

Such a comparative history may take on the form of a history of the development of the ‘science(s) of credibility’ from the beginning of the 20th century. The question of the ‘truth’ status of an individual’s utterances has been one of the central problematics in the administration of (criminal) justice. This problematic has been connected to different strategies in externalising subjective truth, which are linked to different notions of how it can be captured. With the emergence of legal and criminal psychology from the end of the 19th century, the notion developed that the ‘science of mind’ could provide a scientific assessment of the truth status of the subject’s utterances and thus put the elaboration of judicial truth on a scientific footing. It was claimed that the construction of judicial truth on the basis of subjects’ statements could be rendered in terms of scientific – psychological – truth. The psychological assessment of statements of subjective truth took on two forms, both of which were pursued in Europe and the US at the end of the 19th and early in the 20th century. One form of elaborating the truth of the subject’s statements involved early methods in detecting deception, which usually centred on detecting the suspect’s truthfulness or deception regarding his guilt. The other form – identified as ‘witness psychology’ or ‘psychology of testimony’ – centred on establishing the credibility of the witness’ statements. This line of research conceived of the problematic of the truth status of the subject’s statements in different terms. It ventured to establish whether a witness’ statement could count as a ‘true’ representation of a certain event based on studies of perception and memory. Here the scientific establishment of the credibility of the subject’s utterances was constructed not in terms of the *intention* of the subject (to deceive or be truthful) but rather in terms of the ‘objective’ *mental capacity* of the subject to represent a past event.⁸³ Thus, the question was not so much whether he was deceptive but rather to what extent he might be ‘deceived’ by his own mind. However, in the further development of legal psychology these two forms diverged as regards their geographical placement. In the US, the question of credibility was soon exclusively framed in terms of constituting the *suspect’s* guilt or innocence on the basis of his ‘lie’ or ‘truthfulness’ using physiological methods of detecting deception. The psychology of testimony was no longer systematically pursued. By contrast, physiological methods of detecting deception disappeared in Europe and legal psychology became centred on establishing the credibility of the *witness’* statements (which might include the suspect’s statements). Here the institutionalisation of ‘witness psychology’ and the ‘psychology of testimony’ took precedent. This not only involved the question whether the witness’

⁸³ Cf. Binet (1905); Binet and Clarparedo (1906); Stern (1910; 1939) for European experiments on the psychology of testimony, cf. Cattell (1895); Bolton (1896); Münsterberg (1907; 1908) for American ones. Stern was an important figure in the introduction of the psychology of testimony founding the journal *Beiträge zur Psychologie der Aussage* (Contributions to the Psychology of Testimony) in 1903 (Hale, 1980, p. 108). He was also crucial in the general establishment of applied psychology in Germany (Bartol and Bartol, 1999, p. 5).

statements could be counted as 'true' representations. Rather, it considered which objective methods of questioning needed to be implemented in eliciting a 'truthful' account ('suggestibility' being identified as one of the central problems).⁸⁴ As part of the psychology of testimony an interest in the detection of deception re-emerged in the 1960s. However, the psychology of testimony in European countries, especially Germany and Sweden, moved towards the analysis of the subject's speech searching for 'objective cues' of truthfulness and deception in the 'verbal content' of his utterances,⁸⁵ by contrast to the detection of deception in America which located the lie in the movements of the body.⁸⁶

As these different developments imply a comparative history of the 'science(s) of credibility' would examine the enmeshment of psychological and legal practices with the regard to how the former become enlisted in the latter (the detection of the guilt of the suspect vs. the assessment of the witness' testimony). In this context, it would evaluate how the problematic of 'subjective truth' is differently framed at the intersection of psychology and jurisprudence. This would take into account the varied locations of where the 'truth' of the subject's speech may be found (his body, his memory or his speech) and would open out to a broader analysis of different conceptions of the 'psycho-legal' subject and varied constructions of judicial truth in the accusatorial system of the US versus inquisitorial systems that are prevalent in (continental) Europe. It is only on the basis of such a comparative analysis, that the specifically American character of physiological lie detection could be established. The scope of this thesis is too limited for a comparative evaluation of this scale. However, the history of physiological lie detection as it is presented in this thesis might serve as a basis for such a broader analysis in the future.

⁸⁴ Cf. Stern (1905); Mönkemöller (1930); Arntzen (1993); Bender, Röder and Nack (1995). The psychology of testimony has constructed certain types of individuals, especially the child and the teenager but also women, as less credible and thus in need of particular methods in the establishment of the truth status of their statements (cf. Michel, 1907; Steller, Wellershaus and Wolf, 1992; Wolf and Steller, 1993).

⁸⁵ Cf. Undeutsch (1967); Trankell (1963/1971); Granhag and Strömwall (2004).

⁸⁶ However, there has been an increasing exchange between European researchers on the verbal assessment of 'credibility' and the American physiological detection of deception in recent years. Three international conferences were held in 1981, 1988, and 2003 in Italy and Sweden (Yuille, 1989; Granhag and Strömwall, 2004), which brought together European analysts of verbal contents of deception and American polygraphists. A comparative history of the 'science of credibility' would trace the increasing exchange between practitioners in witness psychology and lie detection at the backdrop of their varying implementation in European and US criminal justice systems.

Chapter 3 The Lie as an Object of Knowledge

This chapter traces the first attempts to establish a scientific way of capturing deception. These attempts were made at the intersection of criminology and psychology in the period from 1904 until about 1923. They constituted what is now commonly referred to as lie detection, and provide the starting point for a plethora of techniques that have been developed since the beginning of the 20th century and continue to be developed as a means of ‘catching’ the lie. Although people went about capturing the lie in different ways, there was one particular instance of this which came to attract the most attention: the *criminal lie*. One of the founders of ‘criminalistics,’ Hans Gross, stated:

‘In a certain sense a large part of the criminalist’s work is nothing more than a battle against lies. He has to discover the truth and must fight the opposite. He meets this opposite at every step. [...] Utterly to vanquish the lie, particularly in our own work, is of course, impossible, and to describe its nature exhaustively is to write a natural history of mankind. We must limit ourselves to the consideration of a definite number of means, great and small, which will make our work easier, will warn us of the presence of deception, and will prevent its playing a part.’⁸⁷

As regards the development of the means that would warn of deception, the psychological practices and the criminological context in which they were to be applied were bound up with each other from the beginning. As we will see, research on the detection of deception was characterised by the way in which experimental set-ups directly mirrored or simulated criminal justice settings, and were marked by a concern with the applicability of the methods or results in a criminological setting. Moreover, this research was not carried out in the laboratory first and only then applied in the criminological context. Rather, in the early development of the detection of deception, research and application were closely intertwined: simultaneously, psychologists carried out experiments on the detection of deception as well as using these methods on criminal subjects. As we will see in the following chapters, as research on the detection of deception developed further it lost its link to the experimental setting. This was connected to a second movement, occurring later on, whereby the detection of deception instituted itself as a separate profession – polygraphy. It was no longer to be carried out by academically educated individuals, who also engaged in research on lie detection, but rather by the police officer or independent polygraph operator trained exclusively in its application.

This chapter shows how the detection of deception became intelligible within the broader framework of how the human sciences went about creating and intervening upon the human subject and became elaborated on the basis of the knowledge practices of early psychology. At the basis of the endeavours of the human sciences lay a certain way of constructing knowledge of the human subject, which centred on the body and the idea (in part, elaborated

⁸⁷ Gross, 1905/1911, p. 474-475.

on the basis of 19th century physiology) that measuring its movements by means of physiological instruments would allow for a scientific analysis of the subject's inner life, the criminal's character, and the psychiatric patient's maladies.

This chapter traces how the straightforward 'lie' as object of detection emerged as the basis on which the guilt of the subject could be established. In doing so, the chapter examines how changing techniques employed in the detection of deception implied different understandings of what psychologists were detecting and how, in turn, these techniques shaped the way in which deception was framed in each setting. As I will argue, these changing techniques can be understood in terms of two reconfigurations on the basis of which the lie emerged as a seemingly physiologically discrete, recordable – in short, an *objective* – phenomenon. This process involved the move of the detection of deception from the mind to the body becoming associated with the emotion of *fear* and the reframing of deception itself. In the final constitution of the detection of deception the lie as simple falsification was rendered as a measurable entity on the basis of an evolutionary split between cognition and emotion that was drawn in early psychology. This split between the 'truthful' emotional body of the criminal on the one hand, and the lying subject (who could control his thought and his speech) was made possible through the material elaboration of the body as a moral and epistemological entity. As the lie became legible on the script of the subject's body, the moral evaluation of the lie was translated in terms of one of the guiding distinctions according to which the human sciences conceptualised human behaviour: the *normal* and the *abnormal*. As a result, the lie was rendered as a psychological condition expressed by the abnormal functioning of the body on the basis of which not only the guilt of the criminal suspect could be established, but the subject could also be termed as immoral.

3.1 *Measurability*

A crucial precondition for the development of lie detection was the use of physiological techniques of measurement. These techniques were underwritten by a commitment to the idea that measurements could be translated into an objective understanding of the human subject's inner life. To this end, a range of techniques were applied: in the development of lie detection, they revolved around externalising deception by means of physiological measurements such as blood-pressure, respiration, and reaction-times.

The use of such measurements in the detection of deception stemmed from the more general study of mental phenomena across criminology, psychiatry and psychology. In replacing the ephemeral soul of the subject with the scientific study of mind – or, as Hacking has argued, by inventing a 'surrogate for the soul'⁸⁸ – physiology was used to construct the human subject

⁸⁸ Hacking, 1994, p. 36-37.

on the basis of movements of the body.⁸⁹ This construction drew on a mechanical conception of the body which had emerged only recently, alongside the development of physiology and medical science in the 19th century. The earlier ‘anatomical’ conception of the human body elaborated knowledge on the basis of the dissection of the dead (diseased) body. By contrast, the development of physiology brought with it a change in focus: while anatomy was based on a structural view of the body, physiology centred on explaining the human body through its functions.⁹⁰ This was connected to the elaboration of knowledge based on the living body, which was to be gained by making its internal functions visible through the use of instruments. The modern human body was thus constituted by a new mode of observation as part of which apparatuses increasingly mediated the relationship between the human body and its observer in physiology as well as medical science. Some of these instruments, such as the stethoscope or the ophthalmoscope, worked by modulating the observer’s perception. Others transformed the observer’s mode of observation itself, and as a result, the body that was to be observed. Instruments such as the sphygmograph (indicating changes in blood pressure) or the galvanometer (indicating changes in skin resistance) created ‘a pattern that was not a *picture of reality* but a *manufactured or constructed representation*.’⁹¹ These representations gained their authority as ‘objective representations’ by virtue of the fact that they had been manufactured by instruments that operated independently of the observer, whose senses were deemed to be increasingly unreliable. The patient’s (or the experimental subject’s) body was transformed into an inscription, which took on the form of graphs or charts to which numerical values could be assigned. By means of these inscriptions, the body was transformed into a continuous ‘body-in-time’, whose functions could be quantified and its patterns compared across time. Furthermore, the quantification of the body’s functions lent themselves to a comparison across bodies, and to the establishment of regularities. As ‘immutable mobiles,’⁹² graphs and charts could travel as a patient’s case file or as the results of physiological experiments: to be compared, ordered, and systematised.⁹³

⁸⁹ As is well-known early criminology, especially as practiced by Lombroso also drew on other techniques - anthropometry, phrenology, and physiognomy - which sought to construct the character of the criminal based on external measurements of the body. These disciplines, especially phrenology and physiognomy became highly disputed by the end of the 19th century. For an insightful history of how Lombroso used measurements in constructing the criminal, cf. Horn (2003; 2006).

⁹⁰ Tansey (1993).

⁹¹ Frank, 1988, p. 213.

⁹² Latour (1986).

⁹³ For histories of how the development of physiological and medical instruments transformed the elaboration of knowledge of the body in physiology cf. Frank (1988) and in medical practice cf. Reiser (1978; 1993) and Bynum (1994). The implementation of a changed conception of the medical body was by no means linear. For example, Evans (1993) provides an analysis of the resistance of medical practitioners against an ‘instrumentalised’ mode of observation as part of the introduction of blood-pressure measurements in the US. For the role that instruments have played in the history of psychology, cf. Albert and Gundlach (1997) and the special issue of the journal *History of Psychology*, Vol. 8, No. 1.

In the human sciences, physiological measurements became the basis on which to variously construct the human subject and study a range of mental phenomena. Thus, depending on the context in which physiological measurements were used and the setting in which they were applied, they could become the means through which to develop different interpretations of what they denoted. At the intersection of criminology, psychiatry and psychology, they were used to construct human types that were conceptualised as ‘abnormal’ – specifically the criminal and the mental patient, two categories which overlapped and which moved along a continuum. In psychology, physiological measurements could denote the emotional life of the individual subject. In elaborating their knowledge of the individual, these disciplines borrowed from one another. It was in the midst of such borrowing that methods of lie detection developed and came to centre on capturing the lie on the basis of the emotions. Emotions were seen as remnants of our evolutionary history which we share with other animals and, being connected to certain bodily states, prepare us to react appropriately in dangerous situations. Emotions were defined through their visceral expressions that were seen to be beyond our control. According to this view, our common evolutionary roots as they are expressed in the emotions were to be distinguished from that which makes us unique as humans and which is under our control: our capacity to think.

As a well-known psychologist of the time, Jastrow, put it:

‘The life of feeling and emotion is aeons older than that of thought, of cerebral redirection and control. We are far older emotionally than intellectually and can never deny, never outgrow our evolutionary birthright, whatever its handicaps. In the duality of the nervous system is written the organic preamble to the chapters on feeling and thinking.’⁹⁴

While the earliest type of measurement which was used in the detection of deception – reaction-time in word-association experiments – constructed mental processes through physiological measurements, it did not follow the logic of distinguishing between cognition and the emotions in terms of an evolutionary, biological mechanism. In the final elaboration of the lie detection examination, however, the detection of the subject’s lie was to be made intelligible on the basis of the split between cognition and emotion elaborated in early psychology: the subject’s lie was interpreted as an expression on the body’s script of the ‘evolutionary birthright’ which the criminal suspect cannot control. As a result, the lie was moved from the ‘chapters on thinking’ to the ‘chapters on feeling.’

Four measurements were used in early lie detection research. Three of these concerned bodily measurements related to blood circulation (pulse, blood-pressure, etc.), respiration, and galvanic skin resistance. The fourth type of measurement centred on the reaction-times of subjects in word-association tests. As early as 1895 one of the arguable founders of

⁹⁴ Jastrow, 1928, p. 35.

criminology, Cesare Lombroso, used a so-called plethysmograph (which measured changes in blood volume) in order to assess the guilt of a criminal suspect.⁹⁵ In 1904, the German researchers Wertheimer and Klein developed a so-called '*Tatbestandsdiagnostik*' (translated as 'Association Reaction Method of Mental Diagnosis'⁹⁶), using word-associations in overcoming the 'deceptive will' of the suspect.⁹⁷ In a similar vein, the renowned Swiss psychoanalyst C.G. Jung, who carried out word-association tests to assess psychopathological conditions, used the technique to establish the guilt of potential culprits.⁹⁸ In the United States, these word-association tests were emulated by Hugo Münsterberg, an early figure in 'applied psychology,' and by a number of other American psychologists.⁹⁹ The Italian psychologist Vittorio Benussi – working at the University of Graz, Austria – was the first to carry out research into the respiratory symptoms of lying in 1914.¹⁰⁰ While galvanic skin resistance only became integrated as a measurement in 1934 (when the polygraph as an instrument had already been developed), its potential in the detection of deception was acknowledged by researchers early on.¹⁰¹

As the national backgrounds of the above-named researchers suggest, the first researches into and application of methods of lie detection were carried out in both Europe and the United States. From roughly 1920 onwards, however, methods of lie detection had mainly become an American endeavour. Two formats of experimentation or examination were used: one form of deception test directly mirrored, and was applied in, a criminal justice setting. The other format involved some kind of mental task such as adding or subtracting numbers. Subjects who lied disobeyed the experimenter's instructions: for example, by adding when being asked to subtract. These experimental tests in the laboratory as well as word-association tests were increasingly abandoned in the 1920s and the 'criminological test format' using physiological

⁹⁵ Ferrero-Lombroso (1911).

⁹⁶ Yerkes and Berry (1909).

⁹⁷ Wertheimer and Klein (1904).

⁹⁸ Jung (1905; 1910).

⁹⁹ Münsterberg (1908).

¹⁰⁰ Benussi (1914).

¹⁰¹ In the late 19th century, the first experiments involving human skin conductivity and its possible relationship to psychological processes were carried out by Tarchanoff and Féré (Binswanger, 1907/1908; Prideaux, 1920; Hilgard, 1987). Concurrently with the rise of an interest in this phenomenon, debates emerged as to its psychological significance. Was it related to emotional processes? If it was, was it an expression of conscious or subconscious emotions? Or was it related to the attempt to suppress emotions (this was the question most relevant to forensic practice, as suppressed emotion was translated into suppressed guilt)? Was it merely a sign of attention? Although forensic opportunities in the study of psychological processes through this physiological phenomenon were acknowledged, early researchers of lie detection were sceptical of its use. The lie detection researchers Marston and Larson believed that it was an indicator of emotional processes, but noted that the measurement was too sensitive for a meaningful 'diagnosis' of deception (Marston, 1938; Larson, 1921; 1922; 1923). However, in 1939, the galvanometer became integrated into the polygraph (LKC, Box 49, Folder 1059, Box Vol. 3: 'From Handbook of Operation and Service Keeler Polygraph,' n.d). In 1939, an article was published which described the galvanometer as the most valid instrument in the detection of deception (Summers, 1939). In more recent research on the detection of deception galvanic skin resistance has even become the most significant bodily measurement (cf. Chapter 7).

measurements became the focal point of lie detection research. In this movement, which I will be discussing in the following sections, deception was transformed from a construct which could be located in the mind to a sign which could be read on the script of the subject's body.

In the following analysis, I will focus on the word-association technique developed by Jung, Wertheimer and Klein from 1904, the 'discontinuous' blood-pressure method developed by Marston between 1913 and 1915, and the continuous method (developed by Larson between 1921 and 1923) which marks the final structure of the lie detection examination. In each description, I will consider how deception is framed as an object of knowledge. In tracing the two reconfigurations on the basis of which the detection of deception moved from the mind to the body and came to centre on the lie, we will see that each of these reconfigurations contributed to what was to become the basic model of polygraphy.

3.2 *The Deceptive Will*

In his inaugural lecture at the University of Zurich in 1906, C.G. Jung elaborated on the significance of association experiments for psychopathology. He argued that 'the ancients already knew that the flow of our representations and ideas does not proceed without any laws.'¹⁰² Rather, on the basis of the first experimental researches by Francis Galton and Wilhelm Wundt, it could be shown that when a subject was asked to respond to a word presented to him with a word that immediately appeared in his mind, certain necessary relationships could be deduced between the 'stimulus' word and the 'associated' word, and that these relationships allowed for the postulation of the 'lawfulness of ideational associations' (*Gesetzmäßigkeit der Ideenverbindungen*).¹⁰³ As a result,

'The [association] experiment would assume the character of something implacable, of something causally inevitable. The experimental subject cannot do otherwise, he must produce the respective representation that pertains to a certain stimulus, just like the nervous system, that has been stimulated at the same point *ceteris paribus*, also must always contract the same muscle. If we accept the necessity of the laws of association, we have to conclude that the experimental subject is completely at the mercy of the experiment, because he necessarily has to have the thought that is associated with the stimulus word.'¹⁰⁴

These 'necessary' responses, which would allow for an analysis of the subject's thought processes, were combined with a form of measurement that had first been used in the analysis of perception: reaction-time. Reaction-time was measured by means of a

¹⁰² Jung, 1906, p. 146 [my translation].

¹⁰³ Association psychology can be traced further back than Galton, who published association processes based on his introspections in 1879 (Galton, 1879). Locke introduced the term 'association of ideas.' The English philosopher Hartley provided physiological speculations as to the nature of associations as early as the middle of the 18th century. The early English psychologist Bain published the first monographs on the topic in the middle of the 19th century (Hilgard, 1987, p. 18).

¹⁰⁴ Jung, 1906, p. 147 [my translation].

‘chronoscope,’ which could indicate the most minute time intervals.¹⁰⁵ In the first psychological laboratory instituted by Wilhelm Wundt in Leipzig in 1879, for example, it was used to study how long it would take an experimental subject to react to different colours of light, numbers, and simple geometric shapes. In combination with word-association tests, reaction-times were examined to trace processes of thought: were there differences in reaction-times depending on the kind of associations that experimental subjects produced, i.e. were certain representations more complex than others?¹⁰⁶ But for Jung and others, words and their reaction-times revealed a different relationship: rather than, as previously, establishing the basic relationships of processes of thought, Jung held that association words and reaction-times could allow access to a subject’s inner psychological life. In short, they could be used to detect emotional ‘complexes’ which could result in the diagnosis of a psychological pathology.¹⁰⁷

This development may be interpreted as having been inspired by a different model of experimentation in early psychology, first developed in France in the second half of the 19th century. Danziger calls this model the ‘clinical experiment.’ Early experiments that were carried out by Wilhelm Wundt had been geared towards developing a general understanding of the workings of human consciousness. In these experiments, the subject did not attain significance as a specific individual. Rather, the reactions of experimental subjects were taken as expressions of how the mind (universally conceived) worked. By contrast, having developed in a medical context, the clinical experiment constructed the subject as a *particular* individual suffering from a certain psychological condition, which was to be researched and treated.¹⁰⁸ Researching and diagnosing the particular individual proceeded by elaborating human types (e.g. the ‘hysteric,’ the ‘epileptic,’ etc.) that were considered to be ‘abnormal’ or ‘pathological.’ This depiction of the human subject as a certain type based on his

¹⁰⁵ The chronoscope, i.e. a device which could measure minute time intervals (up to 1/1000 of a second) using electromagnetism, was developed from the 1840s. Originally developed in a military setting and also used in physics and ballistics, it was transferred to physiology on the basis of early physiologists’ interest in the nature of reflex action (Schmidgen, 2004; 2005a).

¹⁰⁶ Schmidgen (2005b). The early experimental psychology as carried out by Wundt initially placed an emphasis on the study of sensation in elaborating a science of human consciousness. This was partly due to the methodological indebtedness of psychology to physiology, which had studied processes of sensation from its beginnings. It was also connected to the second discipline from which psychology elaborated its epistemological foundations: philosophy. Psychology was elaborated on the basis of a Kantian notion of science, which drew on a mechanistic conception of the natural sciences (Kant himself denied that psychology could be constituted as an empirical science). Early psychology sought to institute itself as a legitimate science following this mechanistic model by conceiving of the processes of the mind in terms of components or elements. According to this view, if the most basic components of the mind – such as sensation – could be identified and described in quantifiable terms, psychology had a claim to scientific status (Zupan, 1976, p. 147-149). This ‘elementarism’ was also connected to the idea that more complex processes of the mind resulted from a combination of its basic components. As a result, in Wundt’s laboratory, research into reaction-times was geared towards identifying the different processes which were thought to make up more complex psychological processes (ibid, p. 155-156).

¹⁰⁷ Cf. Jung (1906; 1910; 1918/1969).

¹⁰⁸ Danziger, 1990, p. 52-53.

psychological make-up did not remain restricted to the mental patient. It also came to include the criminal, whose ‘criminality’ was equally thought to be grounded in psychological abnormality. The clinical experiment expressed the notion – increasingly prevalent in experimental psychology and fields drawing on its methods, but still foreign to Wundt’s programme – that the object of experimentation or investigation might at the same time be the object of a particular treatment or intervention. In Jung’s conception the word-association test was thus

‘not merely a method for the reproduction of separated word couplets, but it is a kind of pastime, a conversation between experimenter and test person. In a certain sense it is even still more than that. Words are really something like condensed actions, situations, and things. When I present a word to the test person which denotes an action it is the same as if I should present to him the action itself, and ask him, "How do you behave towards it?" "What do you think of it?" "What do you do in this situation?"’¹⁰⁹

In this ‘conversation,’ a list of words was presented to the subject or the patient and he was asked to respond as quickly as possible to each word. The time it took the subject or patient to respond to each word was recorded. In his studies Jung came to construct a list of one hundred words, which he stated ‘are chosen and partially arranged in such a manner as to strike easily almost all complexes of practical occurrence.’¹¹⁰ The following table shows a list of response words and reaction-times:

Stimulus Word	Reaction	Reaction-time (Min. Sec.)
Head	Hair	1.4
Green	Meadow	1.6
Water	Deep	5
Stab	Knife	1.6
Long	Table	1.2
Ship	Wreck	3.4
Question	Answer	1.6
Wool	Knit	1.6
Insolent	Gentle	1.4
Lake	Water	4
Ill	Well	1.8
Ink	Black	1.2
Swim	Know	3.8

Table 1: Results of a Word-association Test¹¹¹

¹⁰⁹ Jung, 1910, p. 223.

¹¹⁰ Ibid, p. 220.

¹¹¹ Taken from Jung (1907).

The words 'water,' 'ship,' 'lake,' and 'swim' might seem innocuous, but in combination with reaction-times that are much longer than for the other words, they assume a new significance. And indeed, upon further questioning, the subject admitted that she had considered committing suicide by drowning herself.¹¹² Thus, lengthened reaction-times – as well as the production of senseless or unfitting reaction words – acquire a meaning regarding the state of the subject's mind. They point to the fact that the person's 'adaptation to the stimulus word is disturbed,'¹¹³ and as a consequence, that the person is 'imperfectly adapted to reality.'¹¹⁴ The 'actions, situations, or things' called forth by the stimulus word are connected to resentful emotions, which impede a quick and certain response to the stimulus word. The subject's 'mal-adaptation' to reality, his pathology, is made intelligible on the basis of interpreting time intervals in terms of the deviation from a normal, unimpeded state.

If the word-association test could bring out emotional complexes, could it also touch on those 'actions, situations, or things' which a criminal suspect concealed and which therefore assumed a special significance in his mind? Jung affirmed that it could, reporting his first case of trying and successfully detecting the guilt of a criminal suspect in 1905.¹¹⁵ Concurrently, the German psychologists Wertheimer and Klein, having carried out a number of experiments proposed a so-called '*Tatbestandsdiagnostik*'¹¹⁶ ('Association Reaction Method of Mental Diagnosis'¹¹⁷) based on the principles of word-association tests. Just as an emotional complex could be struck in a mental patient expressing his pathology, a complex might be struck in the suspect expressing his criminal guilt. Thus, the technique of detecting psychic disturbance or trauma as deviation from a norm could be transferred to the criminal case and transformed into a means of making visible the 'deceptive will' (*Täuschungswille*).¹¹⁸ Wertheimer and Klein argued that the 'deceptive will' of the suspect was the most 'dangerous' factor in ordinary statements, for their contents could be shaped by the suspect's will.¹¹⁹ But as word-associations called forth necessary associations, the 'deceptive will' could be overcome: words relating to the details of a crime could be presented to the suspect, and if he was guilty, would touch upon the 'representational complex' (*Vorstellungskomplex*) of his crime.¹²⁰ He would thus unwillingly produce an association word which related to his crime. Moreover, if he attempted to escape the necessary association, his 'deceptive will' would turn against him,

¹¹² Jung, 1907, p. 249-250.

¹¹³ Jung, 1910, p. 225.

¹¹⁴ Ibid, p. 225.

¹¹⁵ Jung (1905).

¹¹⁶ Cf. Wertheimer and Klein (1904); Gross (1905); Wertheimer (1906). A dispute developed as to who was to be credited for the development of the word-association technique in relation to 'emotional complexes.' For a review of the dispute cf. Wertheimer, *et al.* (1992).

¹¹⁷ Yerkes and Berry (1909).

¹¹⁸ Wertheimer und Klein, 1904, p. 79.

¹¹⁹ Ibid, p. 75-76.

¹²⁰ Ibid, p. 77.

because the attempt to push the representation out of his mind and replace the immediate association with an alternative one would focus his attention even more on the complex of his crime.¹²¹ He might thus be able to produce a simulated association word, and this would be given away by a lengthening of his reaction-time or the nature of his response word.¹²² By contrast, the innocent suspect could be distinguished from the guilty criminal as the stimulus words would not strike an existing complex. The format of the experiment or examination followed the same format explained above. As words encompassed a person's actions, expressions denoting the criminal act and material details of the site where it had taken place were rendered into a list of words to be interspersed with words that were not of significance to the particular case. In examining a nurse suspected of having stolen money from another nurse, for example, Jung used the words 'cupboard, door, open, key, yesterday, banknote, 70, 50, 20, money, watch, pocketbook, chain, silver, to hide, fur, dark reddish, leather, centimes, stencil, receipt, Dosenbach,' and 'theft, to take, to steal, suspicion, blame, court, police, to lie, to fear, to discover, to arrest, innocent' as 'stimulus words.'¹²³

Jung's and Wertheimer's research was soon taken up by researchers in the United States. Jung's work, in particular, was published in English and well-known in the US, where he accompanied Freud on a lecture trip in 1909. He lectured on the association technique in the establishment of psychopathologies and the detection of guilt at Clark University. The latter was emulated in university experiments.¹²⁴ One of the most prominent proponents of the word-association technique in the United States was Hugo Münsterberg, who had carried out his doctoral research under Wilhelm Wundt. Subsequently, he became professor at the Philosophy Department of Freiburg University, teaching courses in philosophy and psychology and setting up one of the first psychological laboratories at a German university. While his work in experimental psychology was not received as amicably in Germany, it was well-regarded in the United States. William James, one of the central figures in early American psychology, who valued Münsterberg's work and referred to it in his *Principles of Psychology*, invited him in 1892 to join Harvard as professor of psychology and to reinvigorate the Harvard Psychological Laboratory as its director.¹²⁵ While at Harvard, Münsterberg increasingly occupied himself with developing 'applied psychology' as an independent field of knowledge which could actively aid in the solution of social problems as well as the advancement of society. He argued that experimental psychology had matured to a stage where its knowledge and methods should be applied to the solution of practical problems in

¹²¹ Ibid, p. 79.

¹²² Ibid, p. 79-81.

¹²³ Jung, 1910, p. 231.

¹²⁴ Spillmann and Spillmann, 1993, p. 322-324; Hale, 1980, p. 45.

¹²⁵ Spillmann and Spillmann, 1993, p. 322-324; Hale, 1980, p. 45.

such areas as education, medicine, art, economics and law.¹²⁶ Thus Münsterberg was part of the movement in psychology that I referred to above: the psychological laboratory increasingly took part in the ordering of the social world, and conversely, the social world and its subjects (the worker, the pupil, the criminal, etc.) were increasingly defined and intervened upon using knowledge practices that had been developed in the laboratory. In his work on industrial psychology, for example, Münsterberg developed measures for best performance for different vocations by analysing work tasks and connecting these to tests of attention, memory, intelligence, and so on.¹²⁷ By these means, the individual worker was assessed for his psychological ‘fitness’ for a particular job. His individual performance as defined by psychological tests was set in relation to other individual performances by means of statistical analysis, resulting in the ranking of individuals on the basis of ‘norms’. This ranking of individuals then became the basis of their management, the definition of measures in order to increase their performance.¹²⁸

Münsterberg was also vocal in his views as to how the expert psychologist could put the establishment of ‘truth’ in legal proceedings on a scientific footing through the application of his methods. In a similar vein to other reformers of the criminal justice system who campaigned that the application of science would lead to ‘true justice’, he sought to enlist public support for the application of psychological knowledge to the elaboration of judicial truth, publishing articles in popular magazines and writing a monograph entitled *On the Witness Stand*. In this book, Münsterberg referred to Jung’s and Wertheimer’s work and elaborated on the usefulness of the word-association test in combination with reaction-times in testing the truthfulness of criminal defendants.¹²⁹ In opposition to the ‘barbarism’ of the third degree, i.e. violent methods of interrogation geared towards eliciting a statement from suspects – which ‘decent public opinion’ could only reject rightly on the basis of ‘the instinctive conviction that the method is ineffective in bringing out the real truth’¹³⁰ – experimental psychology could provide a scientific means of assessing the criminal’s mind by

¹²⁶ Münsterberg, 1908, p. 10.

¹²⁷ van Strien, 1998, p. 207-208.

¹²⁸ Cf. Hacking, 1994, p. 36-37; Danziger, 1990, p. 190. This is a classic example of how, according to Foucault, ‘individualisation’ (i.e., techniques which allow for the ranking of individuals in relation to others) and ‘normalisation’ (i.e., definition of measures on the basis of these techniques in order to amend individuals’ behaviour) come to form the basis of the human sciences in implementing the modern ‘disciplinary regime’ (Foucault, 1975/1991).

¹²⁹ Münsterberg himself used the technique to evaluate the confession of a criminal defendant in a court case in 1907. The case evoked nationwide and even international attention involving a bombing carried out by a former labour unionist, Harry Orchard, and led to demonstrations by unionists across the country. Münsterberg attended the trial and subsequently carried out a number of psychological tests including a word-association test on Orchard. Before the verdict had been given, Münsterberg gave a press interview which was taken up by the European and American press reporting on the ‘lying-machine’ and raising questions as to the effect of his disclosure regarding the impartiality of the trial (Hale, 1980, p. 116-118).

¹³⁰ Münsterberg, 1908, p. 74.

uncovering the ‘facts which he wants to keep hidden in his soul,’¹³¹ using the word-association technique. Placing an emphasis on reaction-times, he stated that

‘The chronoscope of the modern psychologist has become, and will become more and more, for the student of crime what the microscope is for the student of disease. It makes visible that which remains otherwise invisible, and shows minute facts which allow a clear diagnosis. The physician needs his magnifier to find out whether there are tubercles in the sputum: the legal psychologist may in the future use his mental microscope to make sure whether there are lies in the mind of the suspect.’¹³²

In word-association, the idea of the lie as a ‘quantum phenomenon’ (i.e. as an intentional effort to deceive or misrepresent reality at a *specific junction in time*) is as yet undeveloped. Instead, the goal is to tease out through measurement a *general* will to deceive. The suspect’s attempt to hide the ‘true’ representation by replacing the immediate association with an alternative one and thus to simulate ‘actions, situations, or things’ is indicated by the time which is required for the replacement of the ‘true’ representation to be pushed aside. Alternatively, the nature of the association word signifies a disturbance between the subject’s thought processes and his speech. In this process, the ‘deceptive will’ of the suspect is turned against him, as the attempt to focus his attention on something other than the ‘true’ representation focuses his mind even more on it. In a similar vein to the complex of the mentally ill, deception becomes apparent as a deviation from ‘normal’ reaction-times, which denote ‘true’ representational processes of the mind. We find here a reasoning which will also transpire in later methods of the detection of deception, and which is connected to how the notion of normalcy operates in the human sciences. The notion of the ‘normal’ comes to pervade the human sciences: taken up from physiology, in which the notion of pathology denotes its corresponding binary as well as most intimately connected to the development of statistics in the 19th century, it makes possible the classification and differentiation of individuals in relation to a (variously defined) norm. A divergence from this norm does not simply point to something that differs from it. Rather, it is indicative of something that ‘deviates’ from it in a normative sense, and which must therefore be remedied. In the context of the detection of deception, deception is thus made intelligible not only as an act which becomes apparent through mental measurements. Rather, by conceptualising deception in terms of deviation, the detection of deception translates a moral valuation of deception into psychological terminology and establishes ‘truthfulness’ as the ‘normal’ and ‘healthy’ state of the individual’s mind.

Overall, however, word-association tests were to remain rooted in the study of human types elaborated in psychopathology and psychoanalysis: Jung turned increasingly towards psychoanalysis on the basis of Freud’s influence and thus moved the word-association test

¹³¹ Ibid, p. 82-83.

¹³² Ibid, p. 77.

from the realm of experimental testing and more firmly towards clinical analysis. His publication on studies in word-association reflects this: it contained word-association studies on ‘imbeciles and idiots,’ the ‘epileptic,’ and the ‘hysteric.’¹³³ In the US, word-association tests took a different route in contributing to the development of standardized mental testing: the American researchers Kent and Rosanoff developed the Kent-Rosanoff test to assess the mental state of subjects on the basis of a comparison of their responses to frequency tables that had been drawn up from the word-associations of 1000 ‘normal’ subjects.¹³⁴

Between 1910 and 1920 a shift became apparent in the development of lie detection. The focus of study was no longer on the identification of the deviation of utterances from thought processes through variations in reaction-times. Rather, it moved from the measurement of *mental* processes to the measurement of *bodily* processes. While deception was still conceptualised as a ‘complex’, this complex was now to be found in the body’s viscera and associated with the ‘basic’ emotion of fear. As we will see, the transformation of the location of deception also brought with it a change from the identification of deception to the identification of the lie – it was transformed from variable responses into a simple *falsification*. While the detection of deception was significantly reframed in this process, the identification of the lie on the subject’s body was still indebted to the early attempts to externalise the subject’s ‘will to deceive’ on the basis of measuring the processes of the mind. It appropriated its method of isolating deceptive from truthful statements by means of relevant and irrelevant ‘stimuli.’

The shift of the detection of deception from the mind to the body was not sudden - research into the potential use of word-association tests continued into the 1920s.¹³⁵ Moreover, as deception moved from the mind to the body, word-association tests were used in some set-ups before the lie took the form of a simple ‘no.’¹³⁶ Additionally, research on word-associations using reaction-times and psychological research using other physiological measurements should not be seen as two completely separate traditions on a more general level. In studying the psychopathology of individuals, Jung and others also combined both, a fact which is elaborated upon in a more detailed fashion by Geoffrey Bunn, whose analysis I consider in the next chapter.¹³⁷

¹³³ Jung (1918/1969).

¹³⁴ Kent and Rosanoff (1910), Hilgard (1987).

¹³⁵ Cf. Marston (1920; 1925); Goldstein (1923); Crosland (1929).

¹³⁶ Larson, who will be discussed at greater length below, used a mixed format of direct questions and the Kent-Rosanoff and Woodworth questionnaires in his early research on lie detection (these questionnaires were developed to assess the mental state of individuals) (cf. Larson, 1921; 1922; 1923). In 1923, he concluded that the asking of questions was more ‘practical’ than the use of word-association lists (Larson, 1923, p. 424).

¹³⁷ Cf. Jung (1907); Jung and Peterson (1907); Jung and Ricksher (1907); Binswanger (1907/1908).

3.3 *The Emotional Body*

In transforming the lie from a mental construct into a bodily one, blood-pressure measurements became the central physiological measurement in the detection of deception. In 1895, Lombroso had been one of the first criminologists to use a *plethysmograph*, which measured changes in blood-volume, in order to assess the affective state of a suspect and his potential guilt. His technique focused on evoking an emotional response by suddenly mentioning the crime or confronting the suspect with a picture of its victim.¹³⁸ He thus posited a direct link between the emotional reactions of the suspect (as evidenced by the plethysmograph) and the suspect's guilt. In transforming deception into an object of knowledge on the basis of which the guilt of the suspect could be established, this chain of translation was lengthened: deception became connected to the emotion of fear, which in turn pointed towards the suspect's guilt.

From 1913 until 1915 William Moulton Marston carried out research into measuring physiological concomitants of deception at the Harvard Psychological Laboratory. In 1917, he applied these physiological concomitants in connection with medical and psychiatric examinations of criminal defendants that had been referred to him by a probation office. He did so in order to determine whether the defendants should be kept on probation, or whether their case should be dismissed or in order to make other recommendations regarding the defendant's status.¹³⁹ Marston had studied law and psychology and was working under Hugo Münsterberg, who (as we saw in the previous section) was an avid proponent of applying the methods of experimental psychology to concrete or practical ends. Similarly, and to an even greater extent than Hugo Münsterberg, Marston did not confine himself to the academic realm. Although he published academic articles during the 1920s on lie detection as well as putting forth a theory of the emotions, he also promoted the use of lie detection in popular magazines. Not being able to secure an academic position, he successfully established himself as 'consulting psychologist' in the 1930s, providing psychological insights into widely discussed topics such as crime and sex in the media and developing the comic character *Wonder Woman* in the 1940s.¹⁴⁰ Additionally, as we will see in chapter 5, Marston was the first to attempt the introduction of lie detection examinations as scientific evidence in court in the so-called Frye case. This case not only became the precedent on the basis of which lie detection examinations were to remain excluded from the criminal courts.

¹³⁸ Lombroso-Ferrero, 1911, p. 225.

¹³⁹ Marston, 1921, p. 554.

¹⁴⁰ Bunn (1997a), cf. chapter 5, p.175-235.

Among the different measurements that Marston tested (including reaction-times and galvanic skin resistance), he came to regard systolic blood pressure as the most reliable measurement of physiological concomitants of deception.¹⁴¹ In 1917, he published an article entitled ‘Systolic Blood Pressure Symptoms of Deception’¹⁴² in the *Journal of Experimental Psychology*.¹⁴³ His experimental set-up used the following format:¹⁴⁴

“The subject came to the experiment as to an examination by a prosecuting attorney, resolved to save a friend who was accused of a crime. He sat down at a table beside the experimenter (but protected by a screen) and found on the table two papers face down; one marked “L” (Lie) and the other marked “T” (Truth). If, in saving his friend, the subject chose to lie, he turned over and read the “L” paper. This was a story prepared by the experimenter relating simple events, supposed to have been witnessed by the subject, and proving the friend guilty. At the end of the story were recorded certain facts, supposed to have been established by other witnesses, which the subject must admit in forging an alibi for his friend. He then proceeded, with these facts and the true story before him, to think out a consistent lying alibi. If the subject chose to tell the truth, he turned over the “T” paper, the contents of which were unknown to the experimenter, and found a consistent story, admitting the facts supposed to have been established, but completely exonerating his friend. This story was the *truth*, it was the only account he knew of the affair, and he told it as such. In either case the subject had 10 min., or until he announced he was ready, to thoroughly familiarize himself with the story he was about to tell, but was free to refer to the chosen paper any time he wished. The experimenter had prepared ten questions covering the incidents of the “L” story and an assistant had prepared the “T” story to successfully cover the questions, and the facts supposed to have been established. [...] Thus it was impossible for the experimenter and jury to know whether the subject was telling a story of his own, or the one composed by the assistant. The questions were then put to the subject, and the jury closely observed his manner while answering. They rendered a “verdict” as to whether he had lied or not, basing their judgment upon the internal consistency of the story as well as upon the subject’s appearance while answering questions. These verdicts were written and

¹⁴¹ Some of Marston’s research into different methods of detecting deception was undertaken at the instigation of the Psychological Committee of the National Research Council ‘with a view to determining their value in government service during the war [...]’ (Marston, 1921, p. 553). Together with Marston, the psychology professors, Leonard, D. Troland and Harold E. Burt – who later published on respiratory symptoms in the detection of deception – formed a ‘testing committee’ which surveyed the association technique, and galvanometric, respiratory and blood pressure measurements of deception (Marston, 1938, p. 59). In his ‘popular’ description of the development of the lie-detector test, Marston states that ‘the Army Intelligence Service and the Bureau of Criminal Investigation, Department of Justice, needed some practical method of distinguishing German spies from loyal Americans’ (Marston, 1938, p. 59). While Marston was not employed by the army as an officer subsequent to the submission of the report of the testing committee, he nevertheless worked on spy cases for the Bureau of Investigation as a civilian (ibid, p. 59). In 1918, Marston carried out experiments and training measures with the Psychological Co. 1 at Camp Greenleaf in an effort to train officers as deception testers (Marston, 1921; 1938). The programme did not last for long: the armistice was declared soon after it was established. I cannot elaborate on the military aspects of the detection of deception here. The use of lie detection methods in the identification of potential spies or ‘security leaks’ in government departments was taken up in the 1940s. I shall discuss this use of lie detection methods in Chapter 6.

¹⁴² The pumping cycle of the heart is divided into two phases: the *systole* during which the blood is ejected, and the *diastole* during which blood fills the ventricles (Thews, Mutschler, and Vaupel, 1999, p. 186). Marston maintained that the use of the systolic blood-pressure was preferable to the diastolic pressure: ‘First, the use of the systolic eliminates the local effects of minor affective states; secondly, it eliminates the important and irrelevant factor of intellectual work; thirdly, it is less susceptible to modification by physical pain than is the diastolic; and fourthly, it tends to record only the unequivocal changes in the b.p. system brought about through increase of heart-beat unimpeded by inhibitory reflexes or antagonistic functioning of the vaso-motor apparatus’ (Marston, 1917, p. 121-122). As I show in further detail below, the argument that systolic blood-pressure eliminates the factor of intellectual work is especially significant. It is indicative of the transformation of deception from a mental to a bodily and emotional construct set within the distinction of cognition and emotion of early psychology.

¹⁴³ Marston, 1917, p. 125-126.

¹⁴⁴ This set-up was emulated by other researchers (cf. Burt, 1921; Landis and Gulette, 1925; Landis and Wiley, 1926). Landis and Gulette concluded that on the basis of their results they could not make a significant and reliable distinction between truth and falsehood based on blood-pressure. They also arrived at the result that no uniform truth or falsehood graphs could be plotted (Landis and Gulette, 1925, p. 231-235).

passed in. The jury then left the room, and the experimenter recorded his own judgment, which was based entirely upon the b.p. record. The subject gave his introspection, a final reading was taken and the instrument removed. The b.p. was recorded five times, in each experiment of Series A, (1) before the subject turned over the paper, (2) after he announced that he was ready, (3) after the fifth question, (4) after the last question, and (5) after his introspection. Complete notes of the subject's story were taken by the experimenter.¹⁴⁵

Note that Marston's set-up was marked by the attempt to simulate in as realistic a manner as possible a criminal court proceeding. The subject was instructed to act as a *witness*, he was questioned by an experimenter who acted as a *prosecuting attorney*, and there was a *jury* which passed judgment on the subject's credibility. The normative character of the experiment is expressed in the formal requirement of the set-up which connected the T (Truth) story to the virtual suspect's innocence and the L (Lie) story to the suspect's guilt. Marston's results showed 'a uniform and significant systolic pressure curve' indicative of the 'deceptive consciousness.'¹⁴⁶ Additionally a Truth curve was identified which indicated

'that, during the telling of a truthful story to a suspicious and critical audience there is more or less typical emotional (or other central) grouping of conscious factors which tend to inhibit any general emotional reactions to an environment capable of increasing pressure, and which exert a positive influence over physiological conditions.'¹⁴⁷

Deception, on the other hand, produced a marked rise in blood-pressure. It is precisely here that the emotion of 'fear' first appears. This rise in blood pressure was so high and so prolonged that, for Marston, it could *only* be attributed to the emotions of fear and (to a lesser extent) anger. The resulting lying curve or "L" curve was characterised by the fact that

'the rise of an "L" curve occurs in regular, climactic manner. The pressure starts its rise close to the beginning of the recital in every record as in the typical curves above, climbs with varying abruptness but the great consistency of movement to a definite climax, and then recedes. Subsequent questions may cause secondary climaxes, but these are patently subsidiary to the steady, persistent climb and fall of the pressure curve taken as a whole.'¹⁴⁸

Additionally,

'The apex of each curve is correlated very closely with that point in the subject's testimony which marks the crisis, or climax, of the whole "job" before the subject. This was determined partly by introspection, but chiefly by observations on the manner and attitude of the subject, and by noting the whole construction and plan of the false "alibi." Thus, like the other elements of "significance" in "L" curves, such correlation is capable of *objective* determination.'¹⁴⁹

Figure 1 shows the lying curve and the truth curve that were plotted for one of the subjects in the experiment:

¹⁴⁵ Marston, 1917, p. 124-125.

¹⁴⁶ Ibid, p. 128.

¹⁴⁷ Ibid, p. 129.

¹⁴⁸ Ibid, p. 130.

¹⁴⁹ Ibid, p. 130.

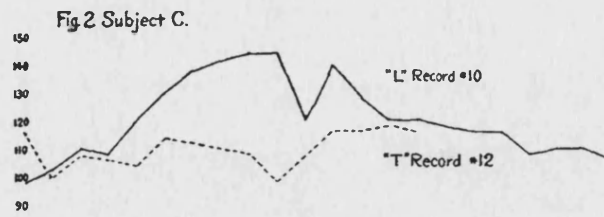


FIG. 2

Figure 1: 'Lying Curve' and 'Truth Curve'¹⁵⁰

When discussing the introspective records of the experimental subjects, Marston returned to the question as to which emotions accompany deception. On the basis of the subjects' reports, he concluded that fear and anger were the two major emotional concomitants of deception, fear being always present and anger only being present when the subject felt in danger of being detected.¹⁵¹ However, it is not just fear that resulted in the characteristic shape of the lying curve. It was also the result of the struggle of the subject to *conceal* his fear:

"Thus a significant lying curve is a function of the struggle between the involuntary impulse to express fear in response to awareness of danger, and the voluntary focusing of attention to exclude the fear from consciousness. As the ideational elements of the deception become more and more complex, the awareness of danger becomes more and more firmly established in the foreground of consciousness, and, as the stimulus is thus enhanced, the "natural response" of fear becomes stronger and stronger."¹⁵²

Deception in Marston's set-up is constructed as a narrative. This narrative should be as consistent as possible in order not to give away the subject's deception.

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physiological changes takes on the shape of a classical narrative – that is to say, up of tension resulting in a climax which is followed by a short anti-climax. In the word-association test, deception is marked by a struggle. But in this instance, it is no longer expressed through the attempt of a subject to 'conceal' his

capacity for *thought* and *speech*. It is this capacity which defines our social order, but which also brings with it the *social* possibility of misrepresentation.

The emotional processes identified by Marston became the central focus in the development of lie detection. In particular, fear came to be seen as the primary emotion which defines the 'lying complex.' However, as the basic set-up of the lie examination was developed, the mode of their *externalisation* changed. The mode in which deception and its underlying emotions were externalised was, in fact, reminiscent of the logic of the word-association test. In a similar vein to the insignificant and significant 'stimuli' which were used to distinguish the reaction-times of the guilty subject from the reaction-times of the innocent subject, deception was now isolated by asking 'relevant' and 'irrelevant' questions. Yet following Marston, the emotional reactions of the body (rather than the reaction-times produced by the 'deceptive will') now served as the basis on which to distinguish between a truthful answer and a deceptive one. Thus, by reconfiguring the comparative logic of the word-association test on the basis of asking questions that could only be answered by 'yes' or 'no', and by connecting the subject continuously to the instrument, the straightforward lie emerged as object of knowledge to be identified as a discrete sign on the subject's body. In the next section, I provide a description of the institution of what came to be the final set-up of the lie detection examination. Subsequent to this description, I shall return to an analysis of the broader shift in transforming the lie from a mental construct into a bodily/emotional one.

3.4 *The Reduction of the Lie*

The next step in the development of lie detection brought with it a changed institutional setting - it involved a move from the psychological laboratory to the police department, more specifically the Berkeley Police Department. In the 1910s, the Berkeley Police Department had become a national model of 'progressive' law enforcement in the US under the auspices of its chief, August Vollmer. He was considered one of the main figures of a police reform movement that had started at the end of the 19th century in the US and which sought to re-organise what was perceived to be a corrupt and partisan organisation into an efficiently run professional organisation. Vollmer was guided by the belief that the social and behavioural sciences should be applied to police work and that 'scientific methods' of criminal detection and identification should be a central part of crime control.¹⁵³ As I will elaborate on in the following chapter, the police department was to become one of the central institutional loci of the detection of deception as tool in the establishment of

¹⁵³ Carte and Carte (1975); Walker (1977).

criminal suspect's guilt. In 1920, John A. Larson, holding a Ph.D. in physiology and biochemistry, joined the Berkeley Police Department to establish a classification system for fingerprint records. Having developed an interest in lie detection and read Marston's work, Larson

[...] felt that Marston's reported method had many limitations because predicated upon a rise of blood pressure as well as upon a discontinuous method. He had the laboratory technician, Earl Bryant, assemble a smoked drum, a Jaquet Chronometer, an Ellis Pneumograph and a modified Erlanger Capsule and was ready for test procedure.¹⁵⁴

Larson did only rarely carry out experiments in a laboratory setting as (for example) Marston and Wertheimer and Klein had, but investigated the possibility of using methods of lie detection in actual criminal cases from the very beginning. In later years, he even denigrated the value of laboratory research in the detection of deception, arguing that only 'real' cases would allow for an adequate study of deception. His first case involved a theft at a dormitory of a sorority in Berkeley. Larson questioned all students living at the dormitory and – based on the results – identified a 'guilty' suspect who subsequently confessed. Referring to this and similar cases, Larson published an article on the 'Modification of the Marston Deception Test' in 1921. In the article, he agreed with Marston that blood pressure was a valid measurement in deception detection. However, in elaborating on his doubts stated in the passage just cited, he criticized Marston's technique on the grounds that by only taking blood-pressure measurements at certain intervals 'during the intervening periods, any fluctuations were lost.'¹⁵⁵ Rather, by connecting the subject to a blood-pressure instrument, a sphygmomanometer, for the entire duration of the examination, one should be able to trace the body's changes over time. Additionally, by simultaneously recording the subject's changes in breathing by means of a pneumograph, one might be able to determine the effect of breathing changes on the heart-rate.¹⁵⁶ Denoting the different types of measurements, Larson called his instrument assembly 'cardio-pneumo-psychograph.'

Furthermore, Larson argued that deception might not necessarily be accompanied by a rise in blood pressure. Rather, a deceptive response could produce the most varied changes in blood-pressure and respiration depending on the individual's make-up:

1. Increase in blood pressure – a rise.
2. Decrease in blood pressure
3. Increase in height.
4. Increase in frequency.
5. Summative effects.
6. Incomplete inhibition.

¹⁵⁴ JLP, Carton 2, Folder 15: John Larson, "Police and Forensic Psychiatry Needed in State Hospitals," p. 5-6, April 1950.

¹⁵⁵ Larson, 1921, p. 392.

¹⁵⁶ Ibid, p. 392.

7. Complete inhibitory effect.
8. Irregular fluctuations, especially noticeable at the base of each cardiac pulsation.
9. Combination of any of the above effects in the same individual.
10. These changes may occur with but little latent period, or then may be accumulative in effect, and more generally distributed.¹⁵⁷

In terms of the format of the examination, the subject no longer told a story which was deemed true or false, as in Marston's discontinuous set-up. Instead, closed questions were asked. These questions only allowed for a "yes" or "no" answer. The exact time when a question was asked and answered was recorded. The questions and answers thus became *discrete entities*: 'psychological stimuli' which were designed in such a way as to directly tap into a 'deception complex.' Deception, here reduced to the falsification of a particular state of affairs, was directly correlated with the concurrent physiological changes recorded on to a graph by the instrument. Here, we begin to see the emergence of the bi-partite transition from the detection of deception in the mind to its detection in the body, and the accompanying shift in understandings of deception itself.

As regards the methodology of the detection of deception, Larson's set-up recalls the logic of the word-association test, which sought to isolate deception by comparing responses to 'significant' and 'insignificant' stimuli. There are two different types of questions which are asked in Larson's set-up: 'relevant' questions which concern a particular crime or a transgression (e.g. 'Did you steal X?'); and 'irrelevant' questions which do not concern the crime and the answers to which are known (e.g. 'Is your name X?'). And yet in Larson's hands, this approach relies on a vastly different understanding of what it means to 'externalise' a 'deception complex' than we encountered in the word-association test. That is to say, it is an approach that fundamentally transforms the *object* of detection. The word-association test was marked by the attempt to detect a complex through the study of the relationships between words and the subject's reaction-times. Deception in this context is conceived of as an attempt by the subject to produce associations other than the ones he or she would 'normally' make, and to produce these alternative associations as quickly as he or she would on stimulus words that do not touch on a guilt complex. In Larson's detection set-up, by contrast, the meanings of words are *shifted into the body's responses*. Whereas in the word-association test, deception is identified on the basis of the analysis of variable relationships between utterances, Larson's technique for detecting deception confine 'semantic' possibilities, and focus instead on the interpretation of variable physiological responses to binary declarations. Having been moved to the body's reactions, deception is no longer identified through the measurement of a *mental* process – the replacement of a 'true representational complex' with an alternative one which is indicated through a

¹⁵⁷ Larson, 1923, p. 450.

lengthening of reaction-time. The process of making the lie apparent on the body's script might be seen to be analogous to what Latour calls 'shifting.' Shifting denotes a process whereby the action of a particular actor is delegated to another one – most notably a material one. What is special about the process of shifting is that the 'very matter of expression'¹⁵⁸ is changed. In this case, the lie is transformed from a speech act into a squiggly line on graph paper, thereby folding the subject's inner life into the body's chart. The continuous recording of bodily reactions, in combination with the questions asked and the answers given, could allow for the comparison of reactions to questions not only *across* lie detection examinations but also *within* a single lie detection examination:

'In addition to controlling the innocent person against the suspect, the questions should be so planned that the emotional response of the same individuals should be controlled as fully as possible.'¹⁵⁹

The nature of the irrelevant questions was geared towards eliciting a 'neutral' response indicating a specific level of tension which could be contrasted with the fear of the detection of deception. Thus, by contrast to Marston's set-up where an *entire narrative* is declared either truthful or deceptive and in integrating the logic of the word-association test, Larson's set-up emulates a more 'experimental logic' by attempting to *isolate* a deceptive response as definitely and discretely as possible. The table below illustrates the manner of questioning used by Larson. It is an excerpt from a list of questions that Larson asked suspects in a watch theft case. Figure 2 below shows a reproduction of a prisoner's 'deceitful' record in which deviations from a relatively consistent pattern have been 'diagnosed' as lies.

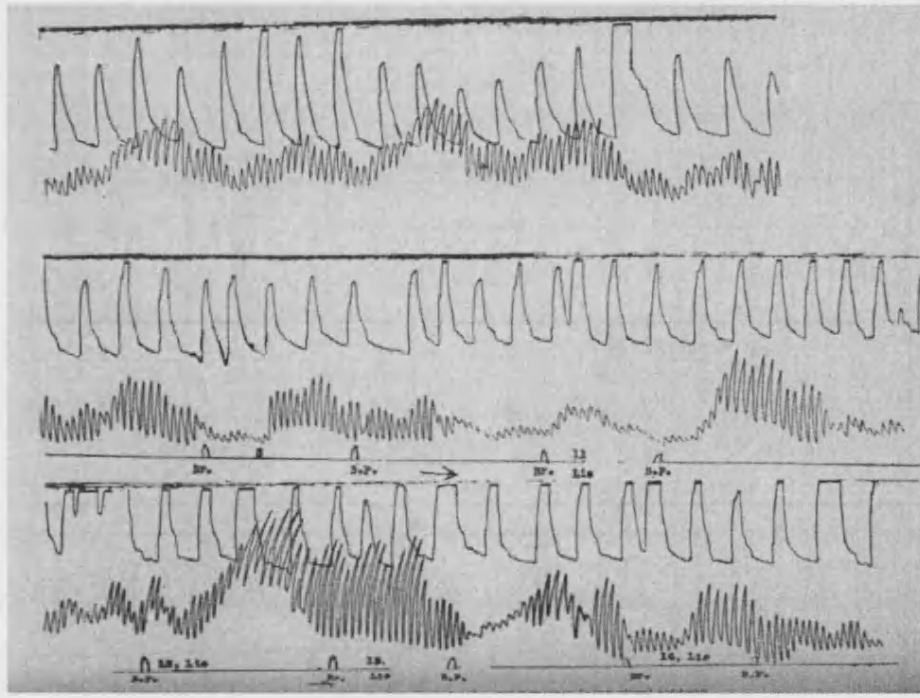
<ol style="list-style-type: none"> 1. Do you like the movies? 2. Do you like to swim? 3. Do you like to work? 4. Do you like to dance? 5. Did you take the watch from the top of the towel rack? 6. Did you sell the watch belonging to _____ ? 7. Have you ever been arrested? 8. Have you lied yet?

Table 2: List of Questions Posed by Larson in a Lie Detection Examination¹⁶⁰

¹⁵⁸ Latour, 1999a, p. 186.

¹⁵⁹ Larson, 1921, p. 394.

¹⁶⁰ Taken from Larson (1932).



a normal response. This response was defined

of a stimulus word given in order to obtain
as:

ancement of the test, regardless of the physical or nervous

'[...] the record of the suspect at the comme
type of the individual.'¹⁶²

of examination was as follows: phase one -

Thus the overall organisation of this type
establishment of the 'normal' (Morton in f

measurement of the rise or fall of blood pressure counts, Larson *establishes the lie as a discrete phenomenon*. His analysis is based on a comparison of the variation of physiological reactions recorded alongside an interrogation which follows a tightly controlled format. The physiological reactions are compared to a 'normal' physiological state of the individual ascertained at the beginning of the examination. Thus the presence of the apparatus has shifted from being an intermittent one. In Marston's set-up the instrument is completely controlled by the examiner who attaches the instrument to the subject's arm, obtains a reading which is noted down and removes the instrument again. The 'lying curve' is plotted after the examination, which signifies the general pattern of its progression. In the case of the cardio-pneumograph, the apparatus assumes a role of *co-presence* in which it acts as a mediator between the subject's body and the examiner. The machine 'translates' or externalises 'in time' (i.e., continuously) the physiological changes of the subject during the examination into a script which can be read by the examiner and is interpreted in a process that synchronises the read-out, the questions asked by the examiner, and the responses given by the subject.

In Marston's work, deception takes on the form of a story elaborated by the subject, which accordingly follows the typical structure of a narrative containing a long build-up of tension, a climax, and an anti-climax. The 'lying curve' assumes this shape mirroring a classical narrative. In Larson's set-up, by contrast, deception is reduced to a 'yes' or 'no' answer and, increasingly, the examination is divided into discrete phases that are defined in terms of temporal units of oral or silent activity that bear a special relationship to the recording of bodily changes taking place during the examination. The lie's discrete physiological pattern emerges out of the comparison of the reactions and replies of the subject across the entire examination and – potentially – with the records of other subjects. This is, however, not a unique pattern in Marston's sense – there is no 'lying curve,' the general shape of which can be identified in all cases of lying. The physiological pattern of the lie can take on many different patterns and can be characterised by a wide variation of changes in respiration and blood pressure, as Larson's list of physiological indicators of the presence of the lie (reproduced above) aptly demonstrates. Nevertheless, the physiological pattern that is shown on the read-out of the instrument is specific to the lie – it becomes apparent in its deviation from the 'normal' physiological responses of the subject's body. With Larson's set-up then, what has emerged on the basis of the reconfiguration of the comparative logic of the word-association test and the movement of deception from the mind to the body, is the straightforward 'lie' as a seemingly discrete and recordable sign on the script of the subject's body.

The most philosophically minded researcher on the detection of deception, Vittorio Benussi, who carried out experiments on the respiratory symptoms of deception had stated in 1914 that

[...] the successful lie is a bigger achievement than the telling of the truth as much as the ethical judgement might be to the contrary. Intellectually speaking the person who conveys something, which he has gained through insight, or which he remembers does hardly have to *achieve* something; he only has to translate the thoughts given to him into words, he does not have to work on creating those thoughts themselves in that instance. [...] The intellectual state of a person, whose goal it is to lie actually, that is successfully, is completely different; this is especially the case when he does not only convey something *completely imaginary*, but precisely when he wants to replace something, which to him corresponds to the state of affairs, with something invented.¹⁶³

By 1923, deception had been transformed in such a way that its cognitive achievement was no longer at issue – rather, the physiological processes were designed to betray a lie that was not cunning, but a simple falsification: a ‘yes’ or a ‘no’.

3.5 *Fear in Deception*

Having provided an historical description of the way in which the detection of deception became reconfigured in its early development between 1904 and 1923, I will now return to a broader analysis of how the straightforward lie had become intelligible as object of detection. In a more general sense, it did so on the basis of psychology’s conception of the interaction between the mind and the body. In capturing the lie on the basis of an interpretation of bodily functions in terms of fear, and in reducing deception to a simple falsification, lie detection operationalised a distinction between emotion and cognition that had been elaborated in early psychology.

In writings in 19th century ‘mental’ philosophy – a branch of philosophy out of which American psychology partly emerged – emotions had still been portrayed as ‘physical, aesthetic, and volitional and were appreciated for their multitudinous, nuanced, and both culturally and cognitively diverse forms.’¹⁶⁴ By contrast, from the middle of the 19th century onwards, psychological knowledge of the emotions was formed around ‘describing them as natural and biological mechanisms. The location of emotions simultaneously was moved from volition – in the head – to the *physiological* and *visceral* – in the *body*.¹⁶⁵ The emotions of fear and anger were seen to be basic – as Jastrow put it at the beginning of this chapter, they attested to our ‘evolutionary birthright.’¹⁶⁶ As biological mechanisms which humans shared with their

¹⁶³ Benussi, 1914, p. 262 [my translation].

¹⁶⁴ Morawski, 1997, p. 226.

¹⁶⁵ *Ibid*, p. 226-227.

¹⁶⁶ In early psychology a distinction was drawn between *feelings* and *emotions*. There was much debate as to how this distinction could be drawn and different suggestions were provided as to the basis of their classification. Feelings were conceptualised as being marked by a qualitative difference, while emotions (such as fear, love or rage) were characterised by their unchangeable quality. This again points towards a conception of the emotions as *uncontrollable by the subject*. For a then current authoritative collection of positions on feelings and emotions based on papers held at the so-called Wittenberg Symposium cf. (Reymert, 1928).

ancestors, they were perceived to be beyond the control of the subject. Rather, fear and anger were expressions of the so-called 'fight-or-flight' mechanism of the human Autonomic Nervous System.¹⁶⁷ This mechanism was explained in terms of its evolutionary utility:

Numerous ingenious suggestions have been offered to account for the more obvious changes accompanying emotional states – as, for example, the bristling of the hair and the uncovering of teeth in an access of rage. The most widely applicable explanation proposed for these spontaneous reactions is that during the long course of racial experience they have been developed for quick service in the struggle for existence. McDougall has suggested that an association has become established between peculiar emotions and these ingrained native reactions; thus the emotion of fear is associated with the instinct for flight, and the emotion of anger or rage with the instinct for fighting or attack. Earlier James had pointed out that “fear has bodily expressions of an extremely energetic kind, and stands, beside lust and anger, as one of the three most exciting emotions of which our nature is susceptible.”¹⁶⁸

The physiological changes of fear and anger prepare the human subject to act, to flee or to attack: ‘the “tripod of life” (heart, lungs, and brain) as well as the skeletal muscles – are, in times of excitement, when the adrenal glands discharge, abundantly supplied with blood taken from organs of less importance in critical moments.’¹⁶⁹ These emotional processes are ‘involuntary’ (as opposed to ‘voluntary’) processes of the body, which the human subject can control. In the context of the detection of deception, these ‘involuntary’ processes of the body betray the processes of the subject which are under his control: his thought and his speech. Even those bodily processes which he can partly control – his breathing, for example – turn against him, as the attempt to suppress the fearful state of the body becomes apparent as a pattern on the body’s script. As a result, the body’s mechanism designed to *protect* the subject in situations of danger turns against him in the lie detection examination. The psychological explanation of the basic emotion of fear allows deception to become intelligible in the context of the criminological setting. The biological mechanism of the fight-or-flight mechanism is transformed into the *fear of detection*. As Keeler states:

‘Although little is known concerning the mental processes involved in deception, *the apparent effect is observed in the bodily changes accompanying the emotion of fear, primarily fear of the consequences of exposure*. Awareness on the part of the guilty subject of the procedure and of the resultant physiological changes intensifies this fear, thereby further accentuating the accompanying bodily changes.’¹⁷⁰

¹⁶⁷ Modern physiology conceptualises the human body in terms of the human nervous system, which is divided into two parts: the *Central Nervous System* comprising the brain and the spinal cord, and the *Peripheral Nervous System* which consists of ‘the nerves and ganglia outside the central nervous system’ (Carlson, 1998, p. 60). The peripheral nervous system is further divided into the *somatic* nervous system, which controls the movements of the skeletal muscles and is subject to voluntary control, and the *autonomic* nervous system (ANS), which controls the vegetative functions of the body and cannot be consciously controlled. The physiological reactions thought to accompany the emotions of fear and anger in polygraph examinations are attributed to the sympathetic division of the ANS which ‘controls functions that accompany arousal and expenditure of energy’ (Carlson, N., 1998, p. 83) Researchers into lie detection working during the period covered in this thesis used Cannon’s work (Cannon 1915/1953) as the authoritative account of the connection between the sympathetic division of the ANS and the emotions of fear and anger.

¹⁶⁸ Cannon, 1914, p. 263-264.

¹⁶⁹ Ibid, p. 269.

¹⁷⁰ Keeler, 1934, p. 154-155 [my italics].

In turning the lie into an emotional construct, deception becomes increasingly defined in terms of the split between *uncontrollable emotion* (that can be measured on the body) and *cognition*: to quote Jastrow again, it is moved from the ‘chapters on thinking’ to the ‘chapters on feeling.’ As we saw in my description of the earliest attempts at detecting deception, the word-association test, deception is conceptualised as a *mental process*, which might be captured on the basis of the deviation of reaction-times of the subject’s utterances. Deception in this case does not yet take on a definite form. Rather, what is externalised through the analysis of utterances is a *general* will to deceive. Along, with the word-association test, there were other experimental formats which sought to detect deception on the basis of setting mental tasks, some of which already employed bodily measurements. In such formats, subjects were instructed to deceive the experimenter by misrepresenting items that had been printed on a card or to reverse mathematical instructions by (for example) adding when being asked to subtract.¹⁷¹ Just like the word-association test, these tests disappeared in the 1920s, as the detection of deception shifted to the detection of the simple lie on the emotional body of the criminal suspect. As fear and anger become apparent in Marston’s discontinuous blood-pressure tests, Marston seeks to reduce deception to its emotional concomitants by *excluding* possible bodily processes which might accompany mental work. He argues that by using the systolic rather than the diastolic blood-pressure, one can be quite certain that blood-pressure measurements will only be connected to *emotional* changes, for it ‘eliminates the important and *irrelevant* factor of *intellectual work*.’¹⁷² However, in his set-up the shift to the lie as a fully emotional construct is not yet complete. In Marston’s set-up, deception still takes on the form of a story – it is still a *fully formed speech-act*, involving a complex narrative of an event whose ‘falsity’ does not yet contain a precise reference point.

As the straightforward lie emerges as a sign on the subject’s body, the move towards capturing deception as an emotional construct is completed. In keeping with the physiological understanding of the emotions, Larson argues that the reduction of the lie to a one-word reply is intended ‘to minimize disturbances incident to the mechanism of speech.’¹⁷³ Thus as a physiologically defined entity, deception can only become apparent on the subject’s body if its ‘voluntary’ aspects are reduced to a minimum. For this reason, the attempt to capture deception, somewhat ironically, involve its increasing *disappearance*.¹⁷⁴ Not only the discreteness of the lie as it is framed as a physiological response, but also the form that the lie

¹⁷¹ Benussi (1914); Burt (1921); Landis and Gulette (1925).

¹⁷² Marston, 1917, p. 121-122 [my emphasis].

¹⁷³ Larson, 1923, p. 424.

¹⁷⁴ This ‘disappearance’ of the lie as a speech act becomes most explicit in the late 20th century as the detection of the lie moves into the brain. In experiments that measure changes in brain waves or functions, subjects no longer even reply, but rather press buttons indicating ‘yes’ or ‘no.’

takes as a 'yes' and 'no' answer, point to an additional aspect of lie detection which is most pronounced in Larson's set-up. As indicated in Montaigne's observation that was cited in the Introduction to this thesis, the lie comes in a thousand different shapes. Deception as a speech act may, for example, take on the form of an evasion by elegantly side-stepping an issue: it can involve the embellishment of certain aspects of a story, or their dramatisation. It could be a careless white lie told in order to please or avoid offense. The different shapes of the lie which reach so far that one might wonder whether to call them a lie (and thus make one think that truth might indeed come in different colours and shades as well) are here reduced to a *binary distinction*. As a result, lie detection operates on the basis of a conception of the lie and truthfulness which reduces the complexity and ambiguity of these various instances of the lie, letting them emerge as seemingly distinct categories on the script of the subject's body which can be modelled on the scientific binary of 'true' and 'false.'

The evolutionary split between cognition and emotion that is elaborated in early psychology is put to work in the lie detection examination through the distinction between the emotional body of the suspect and the deceptive subject. In the next section, I provide an analysis of how the distinction between the *emotional body* and the *deceptive subject* is grounded. The elaboration of the body as an epistemological and normative entity is crucial to this process.

3.6 *The Truthful Body and the Lying Subject*

In the last section, I discussed the distinction between cognition and emotion that was developed in early psychology. Increasingly, this distinction came to define the lie detection examination as the lie emerged as a discrete entity that could be measured on the body. However, in order for the lie to be *read* in terms of fear, the body must be *elaborated* in a certain way. In this section, I provide an analysis of how the split between the emotional body and the deceptive subject is instituted in the lie detection examination. This depends on the setting up of a 'triad' consisting of the subject, the examiner and the instrument. In making the lie apparent on the suspect's body, the way in which experimental psychology constructs and intervenes upon the body in generating knowledge is translated into the lie detection examination itself. The body is placed in a grid, as part of which a normative and epistemological distinction between the internal and the external movements of the body is developed.

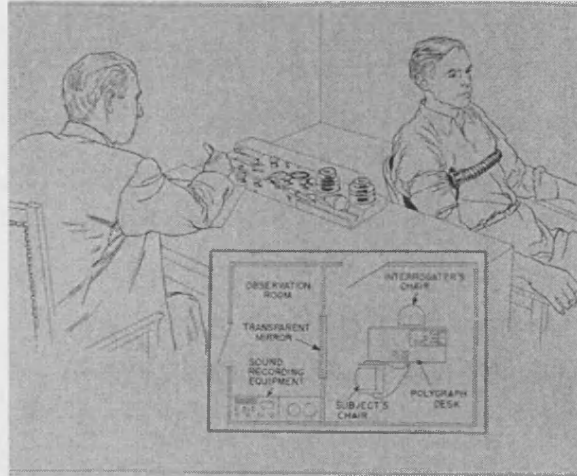


Figure 3: Spatial Set-Up of the Lie Detection Examination¹⁷⁵

We might start by taking a look at the different constituents of the triad of the lie detection examination and how they are positioned vis-à-vis each other. In the above figure, the classical set-up of the polygraph examination from the 1920s onwards can be seen. The subject was attached to the instrument. He or she was seated in a chair placed next to the instrument, or sometimes sat with their back to the instrument. As a result, the subject could not see the machine or the examiner who sat behind the instrument. The examiner was seated in front of the instrument panel so that he could manipulate the instrument and the read-outs which it produced during the examination. This triad was placed in a room which, it was intended:

Should be quiet, modest, uniform in temperature, and well ventilated. Colours should be conservative, and should create an atmosphere of comfort and ease.¹⁷⁶

Engineering a space which neither imposed nor distracted was supposed to have a certain effect on the body:

‘Man responds almost continuously to his immediate environment, to other individuals, to sounds, to doors, to pain, and to other stimuli. Therefore, since the value of the deception test depends upon bodily responses to certain stimuli, all attending circumstances must be devoid of irrelevant factors. External stimuli that cannot be eliminated must be kept constant throughout the examination. Quiet, modest surroundings and a comfortable position add immeasurably to the accuracy of the results obtained. Elimination of extraneous noise, drafts and any factors which will influence the subject is essential.’¹⁷⁷

In this way, the set-up of the lie detection examination mirrored the setting of the classical psychological experiment, which similarly proceeded by constructing knowledge on the basis of a logic of exclusion. This meant that the subject was only to be affected by the experimenter’s stimuli, set against a neutral background. The construction of knowledge in

¹⁷⁵ Taken from LKC, Box Vol. 3: ‘Handbook of Operation and Service Keeler Polygraph,’ n.d.

¹⁷⁶ LKC, Box 29, Folder 777: Associated Research Inc, ‘Keeler Polygraph, Instruction Manual,’ p.5, 1940.

¹⁷⁷ Ibid.

this space was intimately connected to the implementation of a power structure. In terms of this structure, the subject's body was placed inside a grid in which his bodily movements and his speech were subjected to observation, control and intervention. The spatial organisation of the psychological experiment was to become mirrored in the later setting of interrogation rooms where lie detection examinations were carried out. These examinations further intensified the surveillance effect that was already implicit in the experimental set-up. The distinctness of their function – *interrogation* – was geared towards creating an atmosphere of confrontation with the suspect, underlining that any attempt to escape from detection would be futile.

In terms of the elaboration of the social roles taken by the subject and the examiner, lie detection drew both on the experimental set-up as it was elaborated in experimental psychology from the end of the 19th century, and the power structure which it implemented in the generation of knowledge. In early psychological experiments in Wundt's Leipzig laboratory, the experimenter and the experimental subject exchanged roles frequently – experiments consisted of groups of colleagues studying related phenomena of the 'individual consciousness.' While a psychologist might pose as an experimental subject in one experiment, he would take on the role of experimenter in another. As a result, the social roles of experimenter and subject were *symmetrical* and *exchangeable*.¹⁷⁸ However, as psychological research moved away from the study of the fundamental processes of the 'individual consciousness,' and towards the intervention upon the subject, the roles of the experimenter and the subject became *hierarchical* and *static*. The experimenter now took on the role of a psychological expert versed in scientific knowledge vis-à-vis the 'lay' subject, who was instructed and exposed to differential treatment and who was not part of the process of knowledge generation as regards the interpretation and the use of research.¹⁷⁹ Rather, as experimental practices developed, subjects were frequently not informed (or even misinformed) as to the actual aims of the experiment. In the lie detection examination, the role of the examiner as a psychological expert – as representative of 'science' – was emulated. As we will see in the following chapters, from the 1930s this role came to intersect with the role of the criminal investigator and his role as a 'representative' of social control.¹⁸⁰ While drawing on lie detection as a psychological technique, the examiner came to represent a 'specialised technician' rather than an academic psychologist who was applying his expertise in the area of lie detection. This would eventually lead to conflicts over the form of expertise that the lie detection specialist should have in the detection of the lie.

¹⁷⁸ Danziger, 1990, p. 49-52.

¹⁷⁹ Ibid, p. 64-67.

¹⁸⁰ Bunn, 1997a, p. 240-241; Bunn elaborates this argument from Danziger's analysis.

Within this space, a distinction was opened up between the uncontrollable emotional body of the criminal suspect and the deceptive subject. The distinction worked in two ways: on the one hand, it was constituted by the way in which its placement elaborated an epistemologico-normative grid. On the other hand, it was constituted by the way in which its epistemological boundaries were defined. Both dimensions of the body intersected and served in the production of the body as a site for externalising the lie.

1. *The placement of the body*: Starting with the very first experiments in lie detection, the subject's body was always placed in such a way that the subject could not see the graphs that were produced by the *physico-mechanical interaction* of his body and the instrument. This arrangement expresses an epistemological and normative structure which deems the connection between the body and the instrument to be a reliable and controllable source of externalising the truth of the subject's lie in opposition to the subject's appearance and his speech, which can be controlled by the subject and therefore enable him to hide the 'truth.' In turn, the reactions of the body are hidden from the subject, 'protected' from his interference. There is a mirroring of processes in this game of hiding the truth and making it visible – the subject's hiding is accompanied by the hiding of the externalisation of his physiological processes from him. The underlying logic of this split between the body and the machine on the one side, and the subject's speech and his appearance on the other, is that of *non-contamination* of the one by the other. It also reinforces the dual and impersonal character of the examiner's superiority. His role as representative of science and social order is heightened by the seating arrangement in which he is removed from the immediacy of face-to-face interaction. By facing away from the examiner, the subject does not only interact with an unequal interaction partner, but is also unable to address that partner. If he utters a lie, it is not a lie that can be directed at the examiner. As a result, the examiner is not *subject* to the subject's utterances but only *judges* them.

2. *The boundaries of the body*: The spatial placement of the subject's body vis-à-vis the instrument is further supplemented by the division between internal and external bodily processes. At the beginning of this chapter, we saw how psychology elaborated a research programme in which mental events were studied through physiological measurements. I discussed how the connection between the bodily reactions and emotional processes was framed in terms of voluntary and involuntary processes. This distinction was further elaborated by the spatial division of the body into its internal and its external processes. In 1914, Vittorio Benussi, who had carried out experiments into the respiratory symptoms of deception, argued that intellectual as well as emotive processes were marked by definite somatic expressions and while the external instantiations of those processes could be controlled by the subject, the

internal processes were beyond his or her control.¹⁸¹ As a result, tapping into these internal processes could lead to a reliable statement about the mental state of the subject.

'Now all these external symptoms of internal processes can mostly be repressed through practice or can at least be minimised to such a degree that they will become undetectable for a very experienced observer. [...] However, the experimental treatment of these external forms of expression takes up from where the ordinary human ability to observe can hardly provide any clues. Man's inability to observe/sense (*Merkunfähigkeit*) is replaced by the recording precision (*Registrierfeinheit*) of the apparatuses.'¹⁸²

According to this view, the boundary between internal and external bodily processes constitutes an *epistemological* boundary in so far as reliable knowledge can be found 'within' the body. This knowledge cannot be captured by the human eye, which is limited to observing the unreliable external appearance of the human subject. The unreliability of appearances is here depicted as a mechanical relationship established between the subject's capacity to control his outward bodily reactions, and the limited (and therefore equally unreliable) senses of the observer – the examiner. In this portrayal, the 'recording precision' of the instrument does not just provide an extension of the human senses, or a kind of prosthetic enhancement of human vision. Rather, it establishes a new relationship in which the 'true' state of the subject's being is transformed into a script that can be read by the examiner. Because the emotions that are expressed in the viscera cannot be controlled by the subject, their translation into a script *reveals* the subject's lie. As a result, the epistemological distinction between the internal and the external processes of the body that is part of the scientific construction of the subject's inner life in the human sciences is complemented by a *normative* distinction in the lie detection examination: the emotional body as it is transformed into an inscription on the basis of the mechanical interaction between the instrument and the subject's body is translated into a body which *cannot* lie, a 'truthful' body. In the next chapter, we will see that the role of the instrument in the lie detection triad is more intricate still. Not only does the instrument serve in the mechanical translation of bodily movements into a script. In addition, the instrument comes to play a performative role in the modulation of the subject's bodily responses.

3.6 *Lying as Complex*

In the last two sections I established how the lie is constituted as an emotional construct on the basis of the distinction between cognition and emotion. It is the uncontrollable emotional body of the subject that gives the deceptive subject away. This becomes possible through the way in which the subject's body is elaborated as a site of knowledge and intervention in the lie

¹⁸¹ Benussi, 1914, p. 244.

¹⁸² Ibid, p. 244-245.

detection examination. The notion that the internal processes of the body can be translated into a 'true' representation of the subject's inner state that had been elaborated in the human sciences is carried into the lie detection examination, establishing the emotional body as a 'truthful' body. On the basis of this moral elaboration of the body, the lie emerges on the body's script as a result of the entwinement of a physiological and normative evaluation, centring on the notion of the 'normal.' In the section on the word-association test, I already pointed towards the significance of how the notion of the normal and the 'abnormal' or 'pathological' operates in the human sciences. In the lie detection examination, the reference point for the 'diagnosis' of the lie is the 'normal,' which is established at the beginning of the lie detection examination itself. It reflects the subject in his normal – that is to say, *truthful* – state. Like in the word-association test, the designation of bodily reactions as 'normal' allows for the same operation, which has made the term so powerful in the human sciences since the 19th century.

The term 'normal' combines two connotations: it refers at once to what is *average* or *typical* and to what is *good* and *right*.¹⁸³ On the basis of this dual connotation, the human sciences are able to differentiate types of people in relation to pre-defined norms, and to intervene on those who are not deemed to correspond to the norm. For those subjects who are classified on the basis of the corresponding binary of the normal, the abnormal or the pathological are not only considered to differ from the norm. In being elaborated from the second meaning of the 'normal,' they are also deemed to deviate from it in a normative sense. Having been elaborated from physiology, the normal is constructed in terms of 'health.' Those that are construed as abnormal – the criminal as well as the mental patient – are therefore held to be in need of treatment or intervention. This two-sided notion of the 'normal' is carried into the lie detection examination by linking a normative and physiological evaluation: the lie is an act which deviates from the norm in two senses. Truthful behaviour is seen as the norm based on a moral evaluation of socially desirable behaviour of the individual. The physiological expression of truthful behaviour corresponds to 'normal' physiological reactions of the body. It is marked by a physiological pattern that is consistent (for there may be pathological conditions such as hypertension, etc. which are accompanied by physiological variations, which nevertheless show a consistent pattern) and invariable to a certain degree. A 'deceptive' pattern, by contrast, is marked by the deviation from this physiological norm, which can take on many forms – it is marked by inconsistency and variation. On this basis it comes to encompass the contravention of the moral and social norm of 'truthful' behaviour.

The distinction between the consistency of the truthful subject, as opposed to the variability of the deceptive subject, is carried into the emotions of fear which are thought to be present

¹⁸³ Hacking, 1990, p. 163.

whenever the subject is lying. One of the main issues in the translation mechanism, which seeks to capture the lie on the basis of the body's response of fear is the criticism, still dominating the critique of lie detection techniques today, that the lie detection examination might capture fear but it cannot distinguish between the fear of the innocent and the subject's lie.¹⁸⁴ Early lie detection specialists surmise that the fear of the innocent is a 'normal' fear – it is constant and can therefore be easily distinguished. It is comparable to tension or nervousness rather than 'full-blown' fear and the fear inherent in deception proper. In an article of 1923, Larson discusses twelve cases which he regards as exemplary of the 'thousands' of cases carried out by him and his colleagues. Case 4 deals with the examination of a group of 38 girls that was carried out in an effort to detect a shoplifter. Larson discusses the role of fear in the context of the examination. With respect to the former he states that while there may be a certain amount of nervousness or fear present in innocent subjects, 'the tension usually remains at about the same level, decreases, or else fluctuates slightly, whereas in the case of the guilty suspect in whom the tension is increased by deception, the record changes and often very markedly.'¹⁸⁵

According to this reasoning, the physiology of the lie can be clearly distinguished from other conditions by virtue of the establishment of the normal at the beginning of the examination. This allows for control over 'physiological' and 'pathological' conditions (which can additionally be studied using the cardio-pneumograph):

'Pathological or physiological factors do not interfere with the interpretation of the records, provided that the suspect is conscious of deception, if present, as the condition of the subject can be obtained in the first portion of the test. Thus the time of day, relation to meals, sleep, etc., in no way interfere with the test since the changes in the record are relative and the condition, pathological or physiological, is ascertained at the beginning of the experiment and any changes due to deception will cause variations in the record.'¹⁸⁶

The lie thereby becomes a psychological condition which can be set apart from the conditions of the sick and the pathologies of the mentally ill. While it can be distinguished from them, the lie nevertheless moves on the same plane as medical illness and psychopathologies: it is organised around an understanding which identifies the lie as a 'complex' or 'syndrome.' In the same manner as medical conditions and psychopathologies, the lie as 'complex' is in need of treatment. This function of purging the complex is fulfilled by the confession at the end of the detection of deception examination: 'the marked irregularities due to the effects of repression involved in the deception process disappear with the confession.'¹⁸⁷ Thus, to return to the beginning of this section, the normative relief of confessing one's guilt is

¹⁸⁴ Cf. Chapter 7.

¹⁸⁵ Larson, 1923, p. 436-437.

¹⁸⁶ Ibid, p. 452.

¹⁸⁷ Larson, 1922, p. 326.

accompanied by the body returning to its normal (truthful) state. In this way, the lie detection examination carries the idea that the confession provides relief. It also carries inklings of the sinner's redemption drawn from the Christian confessional, whose consoling function is integrated into the way in which the human sciences elaborate the confession as one of the main techniques of constituting the individual as well as disciplining the individual on the basis of the discourse which he proffers about himself. Yet as a psychological technique which seeks to elicit a confession by means of turning the body against the subject, this function of the lie detection examination equally masks the inquisitorial mechanism which underlies the lie detection examination and which I will discuss further in chapter 6.

The subject's denial is betrayed by a body which cannot lie, but is constructed as a reliable source of making the subject's hidden emotions visible. In its 'truthful' reactions it portrays the 'abnormality' of the subject's speech. Thus the lie becomes a complex, a syndrome to be classified along other psychological conditions involving some kind of repression. The construction of the lie as psychological condition which points towards the suspect's guilt fulfils a special function, which is most pronounced as the final elaboration of the lie detection examination is developed. As noted above, the framing of the lie as a simple falsification which can be read on the emotional body of the suspect establishes it as a discrete sign on the subject's body. In this way, the detection of the lie comes to fit the scientific binary of true/false, which in turn is translated into the statement of the subject's guilt or innocence. In framing the detection of guilt in terms of a 'scientific' statement of the subject's lie, the lie detection examination does not only seek to establish whether the suspect has committed a certain act. Rather, the detection of guilt is connected to a moral valuation. The suspect is not only established as guilty of a crime. He is equally established as immoral on the basis of the 'abnormality' of his body's functioning.

3.8 Conclusion

This chapter has traced the emergence of the lie as an object of knowledge on the basis of which the subject's guilt could be established. This was made possible by developments in early psychology, as part of which the 'inner life' of the individual was subjected to scientific observation and analysis on the basis of physiological measurements. I argued that the straightforward lie emerged as an object of knowledge on the basis of two re-configurations. I showed that in its early development, the detection of deception was geared towards overcoming the 'deceptive will' of the subject through an interpretation of the relationship between the subject's utterances and his reaction-times. In this conception, deception was located in the mind and had not yet taken a definite form. As detection of deception

techniques developed, deception was moved from the mind to the body, particularly in Marston's discontinuous use of blood measurements. Here, deception took the form of a narrative, and for the first time became connected to the emotions of fear (and, in early research, anger). As part of the institution of the final set-up of the lie detection examination, Larson appropriated the logic of the word-association test by (in a similar manner to the word-association test's significant and insignificant stimuli) distinguishing between 'relevant' and 'irrelevant' questions. However, deception was no longer apparent in the deviation expressed in the lengthened reaction-times of the mind's 'deceptive will,' but rather appeared as a sign on the body's script. But by contrast to Marston's set-up which conceived of deception as a narrative that could be represented by the plotting of the lying curve on the basis of measurements taken at certain intervals, Larson's continuous measurement of bodily changes which allowed for the comparison of bodily reactions to relevant and irrelevant questions reconfigured the detection of deception in such a way that deception took a definite form. By configuring questions so that they could only be answered by 'yes' and 'no' and be correlated with the body's responses, the detection of deception had been reframed in such a way that what had become detectable was the straightforward lie. No longer constructed in terms of a generalised conception of deception and the different forms that deception might take, the lie as a simple falsification had appeared as a seemingly discrete and objective entity, which could render the intentional categories of truthfulness and deception in terms of the scientific binary of 'truth' and 'falsehood.'

In this movement, making the lie legible as a discrete entity on the body's script became intelligible within wider psychological discourse on the basis of the distinction between cognition and emotion and the understanding of the lie as complex expressed through its deviation from normal physiological functioning. As a biological mechanism which humans had inherited from their ancestors in the fight for survival, the emotion of fear was understood as being beyond the subject's control. Raging freely inside the body, it could betray the subject's lie, whose mental properties had been reduced to its barest minimum. Externalising the lie was dependent upon an epistemological and normative elaboration of the 'truthful' body and the 'deceptive' subject in the triad of the examiner, the subject, and the instrument. The body's internal processes – translated into a script through the mechanical interaction of the body and the instrument – seen to be uncontrollable by the subject, were taken as a 'true' reflection of the subjective state of the individual. This was in contrast to the individual's external deceptive appearance and his speech, which were thought to be under his control. The lie became apparent on the body's script through its physiological evaluation as a deviation from the 'normal' state of the body. The distinction between the normal and the abnormal combined a physiological as well as moral evaluation of the subject's responses: the

normal functioning of the body as an expression of what is good and right were associated with truthfulness, while abnormal responses corresponded to the breach of the moral order by the lying subject. As physiological deviation, the lie could be elaborated into a psychological condition – a ‘syndrome’ or ‘complex’ – which was in need of treatment in the same manner as other psychological or pathological conditions. Rendering the detection of the guilt in terms of the lie as a psychological condition fulfilled the special function of not only establishing whether a suspect had committed a certain act, but equally rendering him as immoral.

This chapter has focused on tracing the methodological changes in the emergence of lie detection, which were necessary in transforming a generalistic detection of the deceptive will into the detection of the straightforward lie. However, this analysis of the development of lie detection remains incomplete. As we have seen, early techniques in the detection of deception were developed by experts trained in one of the disciplines from which lie detection elaborated its framework – psychology, psychiatry, physiology. These experts did not only use physiological measurements in the detection of deception, but equally applied them in the elaboration of ‘abnormal’ or ‘pathological’ human types on the basis of an analysis of their ‘complexes.’ There were especially two human types, the mental patient and the criminal, which came to be studied in this vein. In this early period, then, while the straightforward lie had emerged as object of detection, methods of detecting deception were still set within a psychological analysis which was geared towards developing an understanding of the nature of the individual, his character and personality. However, as lie detection developed in the 1920s and 1930s, it was to lose its connection to the academic setting in which it had emerged. This meant that it was no longer to retain the ‘epistemological depth’ which formed part of the analysis of the offender. Rather, it was to move to the area of criminal investigation as represented by the police department and the crime laboratory and to follow more immediate epistemological aims. In this, the further development of lie detection was to be crucially influenced by the emergence of two entities: the ‘lie detector’ and the ‘polygraph.’ While the former related to the media representation of lie detection, the latter became the main instrument to be used in lie detection and contributed to its institutionalisation outside the academic setting. In the next chapter, I shall trace the movement of lie detection from the academic realm to criminal investigation by placing a special focus on the role that the lie detector and the polygraph played in the development of lie detection practices.

Chapter 4 Disentangling the Polygraph, the Lie Detector and Lie Detection

The purpose of the last chapter was to show how the simple lie as object of detecting the suspect's guilt emerged from the practices and conceptual framework of early psychology. I suggested that in its early history, the detection of deception underwent a set of interrelated transformations through which deception was moved from the mind to the body. As part of this transformation, the lie as a speech act was reduced to a simple falsification modelled on the distinction between cognition and emotion that was drawn in early psychology. In chronological terms, Chapter 3 took us from the early 1900s to the 1920s. But while the straightforward lie had been construed as object of detection in John Larson's set-up by 1923, lie detection had not yet established itself as a separate endeavour. This chapter concerns itself with the beginnings of how lie detection – more specifically polygraphy – began to develop into a separate practice during the 1920s and 1930s.¹⁸⁸ In particular, it will examine the role that the *instrument* has played in the development of lie detection.

Up to this point in the analysis, we have come across a variety of instruments and instrument assemblies which were used in lie detection: the *chronoscope* (measuring minute time intervals), the *galvanometer* (measuring changes in skin resistance), the *pneumograph* (measuring changes in respiration), the *plethysmograph* (measuring changes in blood volume), the *sphygmograph* (measuring changes in the pulse rate), the *sphygmomanometer* (measuring changes in blood-pressure), and the *kymograph* (a recording device for translating measurements into graphs). There were different makes of these instruments and a series of manufacturers who produced them. They belonged to the standard equipment of any physiological or psychological laboratory. Depending on the research interests of individual researchers and their preferences for certain makes, these instruments could be modified and combined into *instrument assemblies*. The same practice applied in early lie detection research: the Italian psychologist Benussi used a Marey pneumograph, a Marey or Lehmann sphygmograph, and a kymograph at the University of Graz in his research on respiratory symptoms of deception.¹⁸⁹ Larson's assembly at the Berkeley Police Department consisted of an Ellis Pneumograph, an Erlanger

¹⁸⁸ In this thesis I use the term 'lie detection' to refer to the knowledge practice of physiological lie detection more generally. Equally, the term 'lie detection specialist' is used to denote individuals who act(ed) as experts in lie detection. By contrast, the terms polygraphy and 'polygraph operator' are more specific. They refer to a particular type of lie detection practice, first instituted by Leonarde Keeler on the basis of his development of the polygraph (which gave the profession its name) and the commercialisation of the instrument and training in lie detection, which established physiological lie detection as a separate profession focused on its application. Polygraphy today has become coterminous with physiological lie detection. It is one of the tasks of this thesis to describe this development as well as the specific shape that polygraphy took and where it settled as it became separated from its academic beginnings.

¹⁸⁹ Benussi, 1914, p. 247.

Sphygmomanometer, and a Jaquet chronometer, which translated the respiratory and blood-pressure tracings onto smoked paper.¹⁹⁰ However, the list of different instruments associated with lie detection in its early history might strike us as odd, for when we speak of lie detection in an everyday context we would not refer to plethysmographs, sphygmographs, or pneumographs. Rather, we would simply talk about only one instrument: the *lie detector*.

So, if the lie detector had not made an appearance in the early history of lie detection, how did it emerge and what did it consist of? The historian of psychology, Geoffrey Bunn, provides an analysis of the emergence of the lie detector in which he argues that it was constituted at the intersection of popular psychology, the professionalising police force and the media. In the 1920s, not only the 'lie detector' emerged, but efforts were being made by one lie detection specialist, Leonarde Keeler, to develop a single instrument which could be used in lie detection. On the basis of a patent which he secured in 1931, Keeler had the first such instrument manufactured and called it the 'Keeler polygraph.' The commercialisation of this polygraph was crucial in facilitating the institutionalisation of lie detection as psychological expertise in criminal investigation and the development of polygraphy as a separate profession.

The chapter proceeds first by furnishing a historical narrative of the polygraph and the context of the police professionalization movement within which it became set based on archival material. Secondly, I provide an extended summary of Bunn's history of the lie detector. These two narratives will then allow me to extend and reframe Bunn's approach to the history of lie detection and present an analysis of the role that the instrument(s) have played in its development. Bunn's study conceptualises the history of lie detection in terms of the history of the *lie detector*. This reinforces his central thesis that lie detection was constituted as a popular form of knowledge. By contrast, I will show that while the history of lie detector is indeed intimately linked to the history of lie detection, they must not be run together. In disentangling the history of the polygraph and the lie detector, I provide an analysis of how lie detection practices became reframed in their move from the academic realm to criminal investigation and how the media representation of the lie detector as an instrument which could read the subject's mind came to mediate these practices.

4.1 *The Development of the Polygraph*

Through Larson, lie detection had moved from the psychological laboratory to the Berkeley Police Department. The individuals involved in the early development of methods of lie

¹⁹⁰ JLP, Carton 2, Folder 15: John Larson, "Police and Forensic Psychiatry Needed in State Hospitals," p. 5-6, April 1950.

detection that we encountered in the last chapter – Jung, Wertheimer and Klein, Münsterberg and Marston – had all been working with methods of the detection of deception within academic institutions. This did not mean that they had carried out experiments without applying their methods. Rather, they had equally applied lie detection methods in a small number of criminal cases as individual psychological experts. Larson’s application of lie detection examinations at the police department was significant insofar as lie detection became integrated into a movement that had started at the end of the 19th century. This movement sought to professionalise the police and to model criminal investigation according to scientific methods of crime detection.

However, while Larson initiated the application of lie detection examinations within police departments, he also represented a transitional figure in the development of lie detection. On the one hand, by arguing that the detection of deception could only be studied in *actual cases*, he legitimised the removal of lie detection from its study in the laboratory. He justified this by drawing a distinction between ‘criminal’ and ‘experimental’ deception, thus driving a wedge between the knowledge that could be generated in the laboratory and its application in the social world.¹⁹¹ This division allowed him to establish criminal deception as a separate phenomenon in need of a practical solution, which could only be defined in its place of existence: that is to say, criminal investigation. Yet his own model of lie detection was to diverge from how lie detection came to be elaborated in criminal investigation at police departments. Larson remained connected to the academic approach. It was linked to a model of lie detection which sought not only to detect the subject’s lie but to *understand* the criminal on the basis of an analysis of his personality and potential pathology. This was to take him from the police department to other institutions including mental hospitals, prisons and children’s detention homes in seeking to study and apply the detection of deception. In this, he ventured towards ‘ascertaining how far abnormal individuals may be grouped according to type,’ by means of ‘[...] a survey of several thousand individuals in the penal and insane institutions of the state. These cases are treated first by securing controls and then probing for complexes.’¹⁹² By contrast, as methods of lie detection became used at police departments, they became remodelled around the aim of apprehending the subject on the basis of his lie and centred on the application rather than simultaneous research on lie detection.

The Berkeley Police Department was considered to be one of the major institutions in the police reform movement. The central modern law enforcement agency – the police – had only evolved as an independent institution in the US from the older system of the ‘watch’

¹⁹¹ Larson, 1923, p. 448.

¹⁹² Larson, 1922, p. 328.

from the 1830s onwards.¹⁹³ The novelty of this agency was two-fold. Firstly, law enforcement activities were for the first time vested in an independent agency with full-time staff. This became connected to the developing notion of the police as a profession. Secondly, this agency also assumed a novel function: taking an active role in the prevention of crime by means of continuous and regular patrol, thus instituting modern surveillance.¹⁹⁴ By contrast to their European counterparts, American police forces were locally controlled and closely entangled with the ‘political machines’¹⁹⁵ that operated in American cities.¹⁹⁶ The police were central to these political machines in maintaining control over the wards of the cities and also provided an employment opportunity for the great influx of immigrant groups such as Germans and Irish populating the cities. The police were therefore rooted in the lower and lower-middle class immigrant communities among whom they worked. For this reason, the police fulfilled a crucial role in defining, regulating, sanctioning (and also profiting from) ‘vices’ such as gambling, prostitution, etc. in such a way that it conformed with the values and morality of the constituent community.¹⁹⁷ This conflicted with the values of middle- and upper-class Americans, who ‘feared that urban America was literally going to the devil.’¹⁹⁸ The representation of the police that served as backdrop for progressive reform was the picture of a corrupt, partisan, unprofessional and violent organisation.

From the late 19th century a reform movement which was part of broader ‘progressive’ currents in the US sought to ‘professionalise’ the American police on the basis of ‘scientific principles.’¹⁹⁹ Law enforcement agencies were reformed and ‘professionalised’ so as to provide continuous social control in terms of the policing of communities and the investigation of crimes. As a result, the integration and elaboration of scientific discourses in

¹⁹³ The system of the ‘watch’ involved the patrolling of cities in order to protect the city against crime, fire, and public disorder in colonial America. At first, the watch was only carried out a night-time. Later on day watches were implemented. The watch was not initially organised as a profession. Rather, borrowing from its English origins, the watch was defined as a collective responsibility. All adult men were required to serve on it and developed into a paid professional activity over time (Walker, 1992, p. 6) Another precursor of the police in the Southern US was the slave patrol system (Walker, 1998, p. 52). It is generally held among historians of the police that the American police developed as a result of a radical increase in public disorder, i.e. rioting and mob violence between the 1830s and 1870s. This was due to a number of reasons: ethnic conflicts between immigrant groups (mainly German and Irish), racial conflicts, and economic and labour conflicts – but also vigilantism in newly settled Western areas in the absence of government structures (Walker, 1977,1998; Monkkonen, 1992). The first police departments were formed in Boston in 1838 and New York City in 1844 (Walker, 1977, p. 4).

¹⁹⁴ Walker, 1977, p. 7.

¹⁹⁵ According to Fogelson, a political machine ‘was an association of loosely affiliated and largely autonomous ward organizations whose power depended on their ability to get out the vote on election day’ (Fogelson, 1977, p. 17). The police played a central role in organising and controlling votes frequently involving ‘voter fraud’ (Walker, 1977, p. 26).

¹⁹⁶ For comparative histories of European and American police systems, cf. Fogelson (1977), Walker (1977), and especially Miller (1976).

¹⁹⁷ Fogelson, 1977, p. 20-21.

¹⁹⁸ *Ibid*, p. 20.

¹⁹⁹ Fogelson argues that the police reform movement can in part be seen to reflect ‘the struggle between the Progressive elites and the political machines or between the upper-middle- and upper-class native Americans and the lower- and lower-middle-class first- and second-generation newcomers’ (Fogelson, 1977, p. 11-12).

the criminal justice system that had started in the 19th century was extended into the area of law enforcement on the level of the organization of law enforcement agencies themselves, as well as on the level of the control they sought to exert.

According to Walker, there were three strands of reform efforts which emphasised different aspects. The first strand stressed the 'professionalization' of law enforcement in crime control, including the development of scientific methods of crime detection. This orientation towards crime control came to take precedent over the other strands in the definition of the role of the police. A second strand focused on crime prevention and the definition of the social work role of the police.²⁰⁰ The third strand sought to develop efficient administrative structures modelled on emerging industrial conceptions of scientific management.²⁰¹ As regards the first strand, the emergent human (in addition to the natural) sciences served as a basis for a call for 'scientific' methods as a necessary response to the changing nature of crime:

'It may seem a paradox, and yet it is true, that no line of human "endeavour" is progressing as rapidly as criminality. The modern criminal is fully equipped with all the latest achievements of technique, and consequently, criminal activities have assumed a highly efficient at times a strictly scientific character.'²⁰²

Therefore, it was held, 'the fantastic atmosphere of the Sherlock Holmes type' operating on the basis of his 'mysterious "intuition"'²⁰³ was an image of the past. The professionalism and scientific acumen of criminals needed to be matched by the equivalent use of scientific techniques to combat them. The 'scientific' techniques that were considered covered a range of different methods. First and foremost, fingerprint identification, which at the beginning was principally used for collecting criminal records that allowed for the identification and keeping of records of criminals, but later also came to be seen as infallible form of evidence.²⁰⁴ In addition, ballistics, chemical analysis, but also more disputed forms of evidence such as handwriting analysis or graphology. All of these techniques were elaborated on the basis of the analysis of 'traces' of the crime, which instituted a new form of *reconstructing* crime. A whole plethora of disparate knowledge practices was enlisted in transforming the crime into an event that could be 'known' on the basis of the 'deconstruction' of the site into its infinite details. This narrative assumed its authority as a 'true' narrative: that is to say, a narrative of *what really happened* by virtue of the transformation of traces into 'scientific facts.' Thus it was argued that on the basis of science not only could truth be found, but also, real justice implemented. Methods of lie detection became part of this movement and assumed a special function in portraying the police as a new force oriented towards scientific methods of criminal investigation. They were

²⁰⁰ Douthit (1975).

²⁰¹ Walker, 1977, p. 33.

²⁰² Brasol, 1930, p. 100.

²⁰³ Ibid, p. 101.

²⁰⁴ Cole (2001).

especially suited to such a representation. The use of methods of lie detection in the 'scientific' construction of guilt could be employed to distinguish this new force from the picture of the old unprofessional and corrupt police, which had used brutal interrogation techniques – the so-called third-degree – in eliciting confessions from suspects.²⁰⁵ Those techniques were not only portrayed as inhumane and torturous, but were held to mask rather than bring out the real truth. The use of violence carried with it the danger of *false confessions*.

The enlistment of knowledge practices in criminal investigation was defined by a particular epistemology which was characterised by the simple aim of the quick identification and apprehension of the offender. Thus unlike the conglomerate of disciplines that underlay criminal psychology and criminology, criminal investigation did not draw on the aetiology of the crime in order to develop a deeper understanding of the perpetrator that stood behind the offence. Rather, the focus was often on the quick processing of cases. This (more immediate) epistemological aim was translated into a particular organisation of knowledge practices and a construction of 'scientific expertise' at police departments and other institutions involved in criminal investigation.²⁰⁶

The elaboration of 'scientific methods of criminal investigation' entailed the definition of new functions at police departments, among them the fingerprint examiner or ballistics expert. They assumed their status as experts not by virtue of academic credentials but rather on the basis of specialised training and apprenticeship.²⁰⁷ For this reason, they resembled technicians who were versed in the application of a particular technique. As lie detection became institutionalised at police departments and institutions in the service of criminal investigation, the expertise of lie detection specialists was constructed in a similar way. That is to say, their knowledge practices came to correspond to the epistemological aim of criminal investigation at police departments. Meanwhile, the detection of deception as carried out by academics had been set within a deeper understanding of the criminal's personality. By contrast, as lie detection moved to criminal investigation it became centred on simply identifying the offender *on the basis of his lie*. The orientation of lie detection according to this more immediate

²⁰⁵ Bunn, 1997a, p. 86-87.

²⁰⁶ Valier (1998) makes a similar argument. She contends that many methods of scientific criminal investigation did not seek to establish a 'deeper reality of the crime' but rather treated evidence in terms of a superficial processing. This argument is framed in terms of a critique of Ginzburg's (1980) analysis of techniques of identification. He sets this analysis within a broader discussion of the emergence of what he calls the 'conjectural' paradigm at the end of the 19th century. He seeks to show that this paradigm became a dominant mode of elaborating knowledge at the end of the 19th century, especially in the human sciences but was also apparent in fields such as art history and criminal investigation. The conjectural paradigm is modelled on a 'medical semiotics' as part of which an involuntary and seemingly trivial symptom or sign is interpreted in terms of a deeper underlying reality (disease, an individual's character, etc). While Valier agrees that this paradigm might be valid in some areas such as criminal psychology as well as early methods of identification, it did not apply in other areas such as chemical analysis or graphology. Rather, the development of these techniques and their area of application have to be taken into account in analysing their epistemological depth.

²⁰⁷ Dillon (1977); Cole (2001).

epistemological aim of criminal investigation was to become possible on the basis of the development of the polygraph, which allowed for the reframing of lie detection as knowledge practice around the notion of technical expertise prevalent at law enforcement agencies.

If scientific techniques were to be used in the establishment of the truth of crimes, then the institutional setting of scientific crime detection should resemble the one of 'the scientist'. The laboratory – signifying the central locus where knowledge is generated – became a model institution for scientific crime investigations. While there was a call for the implementation of laboratories and institutes for the scientific study of crime and the criminal from early in the 20th century (and the first efforts were being made at implementing police laboratories up until the mid-twenties),²⁰⁸ the first major crime detection laboratory – the 'Scientific Crime Detection Laboratory' – was founded in 1929 in Chicago. After the Berkeley Police Department, the Scientific Crime Detection Laboratory was to become the next institutional hub in the development of lie detection.

August Vollmer, the head of the Berkeley Police Department, became one of the central figures in the police reform movement. At the Berkeley Police Department, he advocated the professional training of policemen, the recruitment of college students and graduates – so-called 'college cops' – into the police force, the organisation of the police department along rational principles of public administration, a changed organisation of patrolling through the implementation of technological innovations such as radio communication and the automobile, the keeping of criminal records and the introduction of scientific methods of criminal investigation.²⁰⁹ As part of his belief that police officers should receive professional and scientific training, Vollmer established the Berkeley Police School in 1908. This training programme consisted of a series of lectures in the forensic sciences, and an introduction to practical police work by Vollmer and Walter Peterson from the Oakland Police Department.²¹⁰ In his endeavours to institute training in scientific methods of crime detection, Vollmer successfully enlisted experts from the University of Berkeley to give these lectures. In 1916, a permanent three-year training programme was instituted at the University of Berkeley on the basis of Vollmer's initiative. As part of the programme and his wider efforts at implementing college-level education programmes in policing, Vollmer gave lectures in police administration at the University of Berkeley and lectured at the University of Chicago as professor for police administration from 1929 until 1931.²¹¹ As part of his broader engagement in police reform, he promoted the introduction of a national clearing house for criminal records and – based on his reputation as police chief in Berkeley – was called to carry out surveys and participate in the

²⁰⁸ Dillon, 1977, p. 106.

²⁰⁹ Carte and Carte (1975); Parker (1972); Walker (1977).

²¹⁰ Walker, 1977, p. 72-73; Carte and Carte, 1975, p. 26-27.

²¹¹ Carte and Carte, 1975, p. 64-65.

organisational reform of the police departments of San Diego, Los Angeles, Havana, Detroit, Chicago, Kansas City, Missouri, Minneapolis, Syracuse, Dallas and Portland.²¹² Additionally, he was responsible for the drafting of the police section of the so-called 'Wickersham Report,' which had been commissioned by the government to assess the state of 'lawlessness in law enforcement.'²¹³ With Berkeley as one of the central hubs in the development of a 'modern,' 'scientifically' oriented police force, and Vollmer as one of the gatekeepers in the police reform movement, it made sense that the early endeavours at applying psychological techniques to the solution of crimes might find a home there.

As noted above, John Larson was instrumental in developing what became the basis of the lie detection examination and in establishing a link between the institution of criminal investigation and the application of lie detection methods. Yet a further step was required before lie detection became fully settled in criminal investigation. This step was to depend on the development of an instrument specifically designed and promoted for use in lie detection. Larson, holding a Ph.D. in physiology and biochemistry, joined the Berkeley Police Department as a 'college cop' in 1920. Vollmer had heard Larson give a talk on 'Dactyloscopy and Heredity' at a symposium in Boston and had subsequently invited him to work for the department to set up a single fingerprint system for the Berkeley police records.²¹⁴ Larson accepted, and was made aware of Marston's work through a colleague. Having 'been thinking in this [Marston's] direction,'²¹⁵ Larson had the laboratory technician set up an assembly consisting of a Jaquet Chronometer (measuring time), an Ellis Pneumograph (measuring changes in breathing), and an Erlanger capsule (measuring changes in blood-pressure).²¹⁶ As with most instrument assemblies in psychological laboratories at the time, there was one big draw-back in Larson's set-up. It was heavy and took up a lot of space: 'At Berkeley the apparatus filled a table including two smoked drums.'²¹⁷ Additionally, the recording of blood pressure and respiratory changes onto smoked paper was inconvenient. Besides the fact that the setting up of two smoked drums required a lot of space, the use of smoked paper necessitated the sooting of the paper with an oil or gas lamp, and the shellacking of the paper in order to make the record permanent. This was a time-consuming, not to mention unhealthy, procedure.²¹⁸

²¹² Parker, 1972, p. 29.

²¹³ Vollmer (1932); National Commission on Law Observance and Enforcement (1931).

²¹⁴ JLP, Carton 2, Folder 15: John Larson, "Police and Forensic Psychiatry Needed in State Hospitals," p. 5-6, April 1950.

²¹⁵ AVP, Box 18, Folder Larson, John 1930-1951: Letter by John Larson to August Vollmer, 2/6/1951.

²¹⁶ JLP, Carton 2, Folder 15: John Larson, "Police and Forensic Psychiatry Needed in State Hospitals," p. 5-6, April 1950.

²¹⁷ JLP, Carton 1, Folder 3 Lying and Its Detection: Outline and Draft 1932: John Larson, 'Psychophysiological Laboratory in Police Departments, Clinics, Prisons and Mental Institutions with special reference to standardization, detection of complexes or resistances and removal of them (physiological reaction, effects of drugs, changes in oxygen tension and use of apparatus combining hypnosis and sound stimuli),' p. 3, 1958.

²¹⁸ Ford, 1924, p. 157.

While Larson was carrying out deception tests at the Berkeley police department in the early 1920s, Leonarde Keeler had become interested in lie detection. Keeler had become connected to the Berkeley Police Department through his family's acquaintance with the chief of the department, August Vollmer. As a result of his reputation as a key figure in professionalizing the police force, Vollmer was called to Los Angeles in 1924 to reform the Los Angeles Police Department. Keeler accompanied Vollmer to Los Angeles, and during Vollmer's one-year stay carried out deception tests on 500 criminal suspects.²¹⁹ While in Los Angeles, Keeler set out to modify Larson's assembly. The changes that he made to the assembly took two directions: one concerned the transformation of the clunky apparatus into an integrated instrument that could easily be moved; the other concerned the production of more detailed tracings, that would not only allow for a more precise interpretation of relative changes across the record but also for a 'quantitative' statement of the variations in blood-pressure and respiration in standard units of measurement. The first interpretations of lie detection records had proceeded on the basis of relative changes. The possibility of rendering interpretations on the basis of being able to assign numbers to physiological changes, of providing a quantitative statement, was considered important in order to legitimatise lie detection as a scientific endeavour, corresponding to psychological notions of 'objectivity' which were constructed on the basis of measurability and quantifiability. With the help of Hiram Edwards, a physiology professor at the University of California at Los Angeles, a new kymograph was integrated into the assembly. This was driven by an electrical motor and used ink pens to record physiological changes on white paper.²²⁰ With this new addition, tracings were no longer recorded on 'a long belt of smoked paper' of a particular length, but could instead be recorded on 'a nice clean strip of paper of any length.'²²¹ As a result, a continuous graph of the subject's blood-pressure and respiratory tracings could be produced for 20 minutes or more instead of just a few minutes. Additionally, a new 'pressure-reducing device' was integrated into the sphygmograph, which was sensitive to small changes in pressure and resulted in a greater amplitude of the blood-pressure tracings. Moreover, 'this machine weighed about twenty pounds, so that it was easy to carry.'²²²

Once Keeler had left Los Angeles, he started studying psychology at Stanford University, where he continued carrying out experiments on different blood-pressure measuring devices and developing an instrument that would integrate blood-pressure and respiratory measurements.²²³ While in Los Angeles, he had found that the blood-pressure changes of subjects were greater than could be recorded, due to 'the rubber diaphragms that had been used in the pulse

²¹⁹ Keeler, 1932a, p. 4.

²²⁰ This kymograph had been developed by Adalbert Ford (Ford, 1924) and was modified by Edwards (1925).

²²¹ Edwards, 1925, p. 311.

²²² *Ibid.*, p. 311.

²²³ Cf. LKC, Box 19, Folder 645: Leonarde Keeler, 'Notebook on Experiments, Leonarde Keeler 1925-1928, Stanford.'

recording system.²²⁴ Working under the direction of the Stanford psychologist Walter Miles, Keeler developed an instrument which eliminated the rubber pressure reducer, as well as the rubber tambours 'replacing the rubber pressure reducer and tambours with metal tambours thus making possible a quantitative blood pressure curve coincidental and in combination with the pulse beat curve.'²²⁵ Meanwhile, John Larson had moved to the Institute for Juvenile Research in Chicago, where he worked as a research psychologist, and continued his research into lie detection methods while training as a psychiatrist. Here, he also attempted to have a new apparatus designed. However, he could not acquire the necessary funds from the institute, nor a technician to build the instrument. He stated that he did not have the necessary technical skills to assemble a new instrument: nor had he 'come to this institution for the purpose of making apparatus.'²²⁶ Larson's conviction that he was not a technician but rather an academically trained expert became a resource upon which he was to depreciate Keeler's expertise in coming years. However, at this point he was still cordial towards Keeler, as 'the progressive individual' who had gone ahead and developed 'an improved instrument with more accurate quantitative blood pressure readings.'²²⁷

Keeler was to follow Larson to Chicago. While he also worked for the Institute for Juvenile Justice for a year, from 1929 he started working for the newly instituted Scientific Crime Detection Laboratory, thereby taking lie detection into its next major institutional hub. The laboratory was instigated by Chicago businessmen who were concerned over the state of crime in the city. It was set up as a non-profit organisation in affiliation with Northwestern University Law School.²²⁸ Thus the movement for the institution of scientific methods of criminal investigation was not only driven by a network of police reformers who enlisted academic institutions, but also by economic elites, and by citizens' perceptions of mass crime. The objective of the SCDL was 'to engage in the practical application of all branches of science to the detection of crimes and for this purpose to maintain a laboratory and a library; to conduct investigations, to cooperate with public officials and institutions of learning, to give instructions and expert advice, and to carry on and do all other acts and things that are necessary and incidental to carrying out the foregoing purposes.'²²⁹ In putting its objective into action, in the

²²⁴ Keeler, 1932b, p. 741.

²²⁵ Ibid, p. 741.

²²⁶ BPDR, Box 10, Folder Larson, John, A. 1924-1926: Letter to Herman Adler by John Larson, 24/5/1926; Cf. also BPDR, Box 10, Folder Larson, John, A. 1924-1926: Letter to August Vollmer by John Larson, 14/6/1926: Larson had tried to recruit another scientist (named Fantus) in assembling a new instrument, but was blocked by his superior at the Institute for Juvenile Research – the psychologist Herman Adler – when it came to securing the funds to have the instrument built.

²²⁷ BPDR, Box 10, Folder Larson, John, A. 1927-1932: Letter by John Larson to August Vollmer, 27/7/1927.

²²⁸ LGP, Box 17, Folder 1: 'Memorandum of Agreement between Scientific Crime Detection Laboratory, Inc. and Northwestern University,' 12/9/1929.

²²⁹ LGP, Box 17, Folder 1: 'Incorporation Certificate by the State of Illinois Office of the Secretary of the State,' 8/7/1929.

1930s it came to integrate a *microscopy* laboratory, a *ballistics* laboratory, an *ultra-violet* laboratory, a *photographic* laboratory, and an *electrical* laboratory.²³⁰ In addition, it set up a 'psychology department,' which was lead by Keeler, and focused exclusively on lie detection.

As part of its efforts at promoting itself and the implementation of scientific methods of criminal investigation, the laboratory set up the *American Journal of Police Science*. This journal was geared specifically towards the discussion of scientific methods of criminal investigation, and sought to enlist the support of the professions engaged in the criminal justice system, ranging from police officers to legal practitioners. For example, in 1936, an 'Annual Short Course for Prosecuting Attorneys' was organised, lasting one week and providing lectures on various methods of scientific crime detection including lie detection and the legal admissibility of scientific evidence by the staff of the SCDL.²³¹ Additionally, all staff members of the SCDL engaged widely in recruiting public support by giving public lectures, talks in front of different citizen associations, appearing on radio shows, and giving interviews.²³² Thus at the SCDL, lie detection became set within and drew support from wider efforts to implement and promote scientific methods of crime detection in law enforcement. It was here that Leonarde Keeler was to further the commercialisation of his instrument, as well as to initiate the development of 'polygraphy' as a distinct profession.

As an individual with business acumen, Keeler made the simultaneous recording of the blood-pressure curve and pulse beat curve as one superimposed curve the basis for a patent application. This was filed on July 30, 1925, under the heading 'Apparatus for Recording Arterial Blood Pressure.'²³³ The application process was lengthy and the patent was only finally granted in 1931. As part of this process, the nature of the *novelty* of the instrument became subject to intense negotiation and the claims underwent a series of modifications. Keeler sought to have *both* the complete apparatus *and* the records that it produced patented, claiming that '[i]t is an object of my invention to provide means whereby the sphygmogram or cardiac cycle may be recorded simultaneously with and be superimposed on the slower oscillations in the arterial pressure, whereby the characteristics of each as well as their relation to each other at any moment may be readily ascertained.'²³⁴ In this way, Keeler and his attorneys presented both the

²³⁰ Northwestern University Archives, School of Law, Scientific Crime Detection Laboratory: 'The Scientific Crime Detection Laboratory of Northwestern University' n.d.

²³¹ cf. LGP, Box 17, Folder 12, for the programmes of the three courses held in the period between 1936 and 1938.

²³² This was also due to the fact that the laboratory was under constant financial strain and thus on the look-out for potential sources of funding. Partly supported by the businessmen who had been involved in its foundation, mainly Burt Massee (a major corporate figure in Chicago), as well as being funded through the university, the laboratory had problems in generating enough income from case work and expert advice to meet its allocated budget. One of the main sources of income was through the case work generated by lie detection cases (cf. LGP, Boxes 17 and 18).

²³³ US Patent Office, Leonarde Keeler, of Berkeley, California, Apparatus for Recording Arterial Blood Pressure, Serial No. 46,986 taken from *Polygraph*, Vol. 23, No. 2, 1994, p. 128.

²³⁴ *Ibid*, p. 128.

instrument itself and the record that it produced as an invention which would open up a new field of investigation for physicians and psychologists ‘a curve that more accurately and more completely represents the blood variations in the patient’s system, and by a study of this curve the investigator may ascertain a variety of facts which are not otherwise ascertainable.’²³⁵ The patent examiner took the position that while there may reside some novelty in the structural components – such as the metal tambours that Keeler had integrated into the instrument – the combination of measuring devices which produced a particular curve did not in itself constitute an *invention*. Rather, the combination of measuring and recording devices for blood-pressure measurement constituted a well-established *practice*. Additionally, the production of a single curve was a function of the combination of measurements which did not constitute a novelty in itself.²³⁶ In reply, Keeler’s patent attorneys asked that the examiner reconsider his position, arguing that ‘[a] comparison of the applicant’s disclosure with the prior art readily shows that the application has devised a blood pressure recording apparatus which brings out totally different results from similar apparatus shown in the prior art. The applicant’s apparatus produces a record which is fundamentally and essentially different from any records produced by any of the devices of the prior art.’²³⁷ These records were already being favourably used in ‘various psychological investigations’ and doctors and psychologists had shown an interest in the apparatus.²³⁸ After a six-year process of negotiation, the patent was finally granted, and covered claims for both the novelty of the apparatus and the curve that it produced.

The patent application process, and the patent itself, presented the instrument and the curve that it produced as a physiological innovation which would further the generation of knowledge across the medical and the psychological field. In the patent section describing the instrument, Keeler even argued that his ‘invention probably has its greatest value in the field of the medical profession.’²³⁹ However, the medical profession was to take little interest in Keeler’s invention. Likewise the psychological community. Rather, Keeler’s argument represented a rhetorical strategy in constructing the instrument as scientific novelty in gaining a patent. In 1930, before the patent was granted, Keeler and his father entered into an agreement with Western Electro-Mechanical Company in Oakland, California to have the instrument manufactured for sale as ‘Keeler Polygraph.’²⁴⁰

²³⁵ LKP, Carton 1, Folder Keeler Polygraph Early Research: letter by White, Prost and Fryer, patent attorneys, to patent examiner, 13/8/1929.

²³⁶ LKP, Carton 1, Folder Keeler Polygraph Early Research: letter by Patent Examiner to White, Prost and Fryer, dated 14/2/1929.

²³⁷ LKP, Carton 1, Folder Keeler Polygraph Early Research: letter by White, Prost and Fryer, patent attorneys, to patent examiner, 13/8/1929.

²³⁸ *Ibid.*

²³⁹ US Patent Office, Leonarde Keeler, of Berkeley, California, Apparatus for Recording Arterial Blood Pressure, Serial No. 46,986 taken from *Polygraph*, Vol. 23, No. 2, 1994, p. 129.

²⁴⁰ LKP, Carton 1, Folder Keeler Polygraph Early Research: ‘Agreement between Leonarde Keeler and Charles Keeler and Western Electro-Mechanical Co., Inc.’ 3/3/1930.

The final instrument, as it came to be manufactured,

‘consists of three units, one recording continuously and quantitatively the blood-pressure and pulse; another giving a duplicate blood-pressure pulse curve taken from some other part of the subject’s body or may be utilized for recording muscular reflexes of the arm or leg; the third unit recording respiration. The paper, perforated on its edges, is drawn by a sprocket feeder roll which is driven by a synchronous motor similar to that used in electric clocks. A differential gear train provides for three speeds and is easily shifted by the movement of a small lever. A ninety foot roll of paper supplies the recording chart, and the curves are recorded by means of combined lever arm and fountain pen.’

[...]

The whole is contained in a carrying case measuring 16x8x9 inches. All accessories, the lead to the 110 v outlet, signal magnet cord, blood-pressure cuffs and tubing, and pneumograph are carried in a compartment below the mechanism compartment. The instrument is portable and always ready for immediate use.²⁴¹

The figure below shows Keeler’s polygraph:

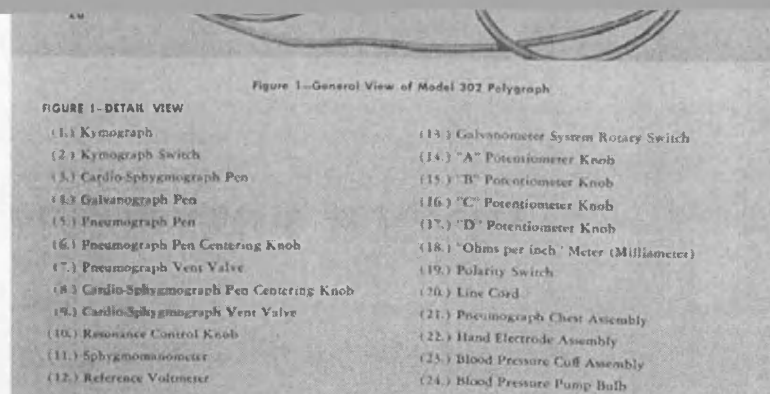
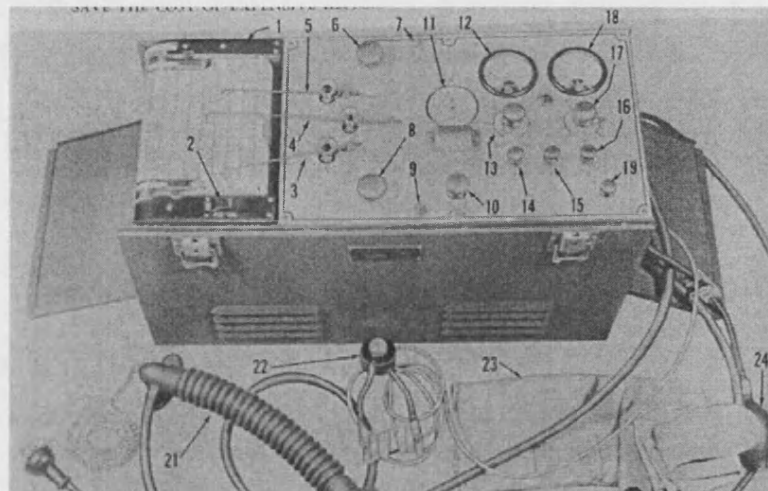


Figure 4: Picture of Keeler Polygraph (Model 302)²⁴²

The development of the polygraph constituted an important moment in the history of lie detection. But this was not by virtue of its declared novelty. As we saw, the patent examiner

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matter of fact, Keeler was not quite sure as to what his curve represented until he carried out an experiment at the Mayo Clinic in 1934, four years after the Keeler polygraph had gone into manufacturing:

‘Then a very important matter had to be settled once and for all. What does the polygraph curve really represent – blood-pressure, blood-volume or what? The opportunity to experiment on a dog at the experimental laboratories was afforded. We canulated the femoral artery of a large dog and made direct blood pressure tracings with a mercural manometer and smoked drum kymograph. On the other leg the polygraphy cuff was wrapped and our usual curve recorded. Adrenalin was injected into the dog on two occasions and histamine once. Although the blood pressure changes were not of as great a magnitude on the polygraph as the direct method, the direction of change was the same and relative in magnitude. In other words, we are recording blood-pressure continuously.’²⁴³

Rather, the polygraph was to play a major role in creating the field, for which its developer had designed it: *lie detection*. The patenting of the instrument as an integrated whole enabled Keeler to legitimise it as a scientific instrument and provided a condition upon which he could enlist a manufacturer to market it as such. Its serial production meant that it could simply be bought by individuals – such as the police officer – unfamiliar with the construction of instrument assemblies and the measurements that they represented, which were traditionally the province of the psychologist’s and the physiologist’s expertise. In the marketing of the instrument Keeler specifically addressed the law enforcement community. For example, a brochure of the instrument was headed: ‘A *practical* scientific instrument to aid in police interrogation, and for the study of psychological and physiological reactions.’²⁴⁴ The production of an integrated marketable instrument for the use in lie detection completed its move to criminal investigation for it catered to the way in which knowledge practices were constructed at police departments. In being able to acquire a defined set of technical equipment, a ‘black box,’ in conjunction with specialised training carried out by Keeler and his associates, the academic lie detection specialist was reframed into a police officer resembling a specialised technician trained in the simple application of lie detection. Moreover, in organising lie detection in this way it corresponded to the immediate epistemological aim of criminal investigation to apprehend the offender rather than to understand his individual nature and potential pathology as had been the focus of earlier academic detection of deception specialists, who conceived of it in broader psychological terms.²⁴⁵

Does this trail of technical developments, however, also mark the birth of the lie *detector*? As we will see in Bunn’s history of the lie detector, the process whereby the lie detector was

²⁴³ AVP, Box 17, Folder 5 Keeler, Leonarde: letter by Leonarde Keeler to August Vollmer, 19/3/1934.

²⁴⁴ LKC, Box 29, Folder 777: ‘Keeler Polygraph’ [brochure by Associated Research Inc.], 1940 [my emphasis].

²⁴⁵ This does not mean that no research into lie detection was carried out as polygraphy developed. Yet it came to be carried out within the confines of polygraphy rather than being tied to a broader psychological setting. Additionally a division of labour developed which marks professions generally. The main body of polygraph operators were to simply work as practitioners while a smaller number of individuals engaged in the advancement of the method, which was filtered back to the profession through changed training measures.

‘invented’ was not simply a technical affair, indeed to all intents and purposes it had already happened in the early 1920s. As Bunn suggests, the lie detector was *invented* somewhere else: in the newspapers. Nevertheless, the polygraph and the lie detector were to enter into a close relationship. This relationship was at once beneficial and threatening to the designer and future users of the instrument.

4.2 *The Emergence of the Lie Detector*

In his doctoral thesis, Bunn argues that the lie detector was created in the 1920s at the intersection of popular psychology, the police professionalization movement, and a ‘sensationalist’ media. He argues that the lie detector emerged not on the basis of the invention of a novel instrument, but rather through a shift of the *target* of criminology. While the same instruments – the pneumograph, the galvanometer, and blood pressure measurements – had been used in early criminology to study the ‘soul’ of the criminal in the period from 1907 until 1920, when criminology shifted its target to the criminal’s lie, the lie detector first emerged as a new entity in the newspapers.

In tracing the emergence of the lie detector, Bunn constructs a pre-history of the lie detector following Foucault’s methodological precepts. He argues that in the earlier period, newspaper accounts emerged on the use of physiological instruments in studying the criminal and the insane, which portrayed them as ‘soul machines,’ ‘machines for the cure of liars’ or ‘truth-compelling machines.’²⁴⁶ In his discussion, he especially focuses on newspaper accounts of the work of the psychoanalyst C.G. Jung and the experimental psychologist, Hugo Münsterberg. As we saw in the last chapter, both Jung and Münsterberg used word-association tests in conjunction with reaction-times, as well as the galvanometer and the pneumograph to study ‘emotional complexes’ but also found that they could be used to establish a criminal’s guilt. However, according to Bunn these measurements could not be termed ‘lie detectors’. Rather, the measurements were used in elaborating and treating certain human *types* which ranged from the mentally ill to the criminal. Thus their analyses centred on the evaluation of personality, where the criminal (along with the mentally ill) was constituted as a certain type of human being where the detection of guilt might constitute a first step in this analysis. Thus, when the lie did appear in the soul machine discourse, ‘the lie’ was *only* significant insofar as it was linked to a personological type – the patient or habitual criminal.²⁴⁷ In newspaper articles, psychology was hailed as a new scientific means of dealing with crime which could revolutionise the criminal justice system by providing a scientific way of bringing out the real truth. In providing an

²⁴⁶ Bunn, 1997a, p. 24.

²⁴⁷ *Ibid*, p. 51.

alternative to brutal interrogation methods, the above-mentioned ‘third degree,’ they not only provided a scientific way of establishing guilt, but were portrayed as progressive in that they were *humane*. While the lie detector would be greeted in the same way, the ‘soul machines’ were doomed to ‘historical obscurity’ since they were embedded in a ‘medico-eugenic discourse’ which targeted certain types of people considered to be abnormal such as the habitual criminal, the degenerate and the feeble-minded child. The use of instruments such as the galvanometer, the sphygmograph, and the pneumograph in the study of pathologies was to be replaced by intelligence testing and psychoanalysis, while the instruments themselves acquired a new name and a new target: the lie.²⁴⁸

According to Bunn, from 1921 articles appeared which reported on a new invention: the lie detector. These articles were marked by the fact that different inventors were named and that different stories were built around their invention. There were two main stories which either placed the invention of the lie detector at the Police Department in Berkeley or at the Harvard Psychological Laboratory in Boston. The first story located the lie detector in the context of the professionalising police and identified Larson, Keeler, or Vollmer (or all three) as inventors of the lie detector. According to the second story, the lie detector was invented by Marston at the Harvard Psychological Laboratory (we encountered Marston’s use of the discontinuous method of detecting deception in the last chapter).²⁴⁹ Depending on which story was picked, the other story had to be disregarded. After all, if the lie detector *was* an invention, there could only be one inventor of the lie detector.²⁵⁰ Apart from these two central stories, other individuals involved in lie detection also were credited with the invention of the lie detector. Having reviewed different stories of invention, Bunn seeks to problematise the notion of the ‘invention’ of the lie detector.

Elaborating on the fact that these lie detectors did not actually consist of novel instruments but were rather based on measuring principles that had been developed in the 19th century – the measurement of the action of the lungs going back to the 1860s, the sphygmograph to the 1860s, and the galvanometer to the 1890s – Bunn argues that in material terms these

²⁴⁸ Ibid, p. 75.

²⁴⁹ In the analysis that I present below I will not elaborate further on Marston’s role in the development of lie detection. Marston plays a more prominent role in Bunn’s account, which is geared towards showing how lie detection specialists participated in the media discourse. While I will return to Marston in chapter 5 as part of my discussion of lie detection as scientific evidence, since my focus is on the development of lie detection as a discipline, I shall focus mainly on Larson and Keeler. In the 1920s and 1930s, Marston moved away from academia and established himself as a ‘consulting psychologist.’ He wrote articles and popular books and additionally designed the comic character *Wonder Woman* (Bunn, 1997a, chapter 4). While he was still engaged in lie detection, it was more as part of his activities as popular psychologist – for example, he carried out lie detection tests in establishing the ‘best’ razorblade as part of a Gillette advertising campaign - rather than in terms of the development of lie detection in criminal investigation and as a separate discipline. For a more detailed account of Marston’s role in the development of lie detection and an analysis of his role in popular psychology cf. Bunn (1997b).

²⁵⁰ Bunn, 1997a, p. 116.

instruments could not be called inventions. Additionally, in methodological terms, the work of Marston and Larson was partly indebted to the methods of the ‘soul machines.’ While Marston was among the first to focus specifically on developing a means of detecting deception using blood-pressure measurements, he also continued research on the possibilities of using the word association test in detecting deception – the very test which had been part of the discourse of the soul machines. In this research, he identified different types of liars – the positive and the negative reaction type. For this reason, his research remained wedded to methods which sought to analyse persons in terms of *types* rather than specifically focusing on the *lie*.²⁵¹ In Bunn’s view, Larson’s work was equally reminiscent of the soul machine insofar as he still made use of the word-association test and using his instrument carried out research on the feeble-minded.²⁵² As can be seen in my own analysis, Larson’s psychiatric application of his ‘cardio-pneumo-pychograph’ in his research on the detection of deception covered a large range of construction of human types: from the detection of deception in the criminal to the identification of the psychotic.

In methodological terms, the implementation of the lie detector was completed when the subject had to answer closed questions. Thus on the level of the development of methods of lie detection, the shift from the soul machine to the lie detector was not immediate. Given that the instruments used – even the newly developed polygraph – were based on 19th century technology, and that the questioning techniques developed over a period of time (as I elaborated on in the preceding chapter), Bunn concludes that the notion of invention with regard to the lie detector is misleading.

Rather, what was involved in the implementation of the lie detector, was first, the coining of the term ‘lie detector’ in 1921 itself, and a shift of the target in criminology. One important moment in that shift was the publication of an article in the *Scientific American* in 1925, according to which the new scientific criminology saw lying as ‘the criminal’s first step.’²⁵³ With regard to the notion of invention, then, Bunn concludes that the media portrayal of the lie detector as an invention cannot be answered simply by trying to identify an original *inventor* or an original *instrument*. Rather, he seeks to answer the question ‘Why has the notion of invention been so important throughout the instrument’s history?’²⁵⁴ It was not the lie detector as a particular instrument that was invented. Rather what had been invented was a new *term*: lie detector. With that term, the idea of its ‘invention’ became possible. Bunn argues that the portrayal of the lie detector as invented formed part of a rhetoric which lent it scientific credibility. For the very reason that the lie detector constituted ‘an amalgamation of

²⁵¹ Ibid, p. 101-102. Cf. Marston (1920).

²⁵² Ibid, p. 97-98.

²⁵³ Ibid, p. 105.

²⁵⁴ Ibid, p. 80.

old technology applied to new ends,²⁵⁵ the notion of invention was necessary to establish it as a *novel scientific instrument*. As a result, Bunn argues, the lie detector was provided with an origin – a date and place of invention, whether Boston or Berkeley. The notion of invention provided it with an ‘origin myth,’ constituting a starting point for the establishment of lie detection as a scientific specialty. Additionally, the notion of invention was connected to a ‘mythic tradition’ which was inaugurated after the Civil War as part of which invention was considered the backbone of progress in industrializing America and inventors considered heroes. The notion of invention thus constituted one important aspect through which the *scientificity* of the lie detector in the media discourse was established.²⁵⁶

In elaborating on the constitution of the discourse on the lie detector, Bunn identifies three forms of rhetoric which came to define it: the rhetoric of *science*, *magic* and *law and order*. As part of the first two forms of rhetoric, the lie detector assumed its ‘scientific’ as well as ‘magical’ status through being constructed as a machine which could detect the lie by itself. As part of the first form of rhetoric, the notion of invention constituted one aspect through which the scientificity of the lie detector was established. Another aspect was its portrayal as a ‘black box.’ Newspaper articles often included photographs of the instruments themselves. However, the instrument was never described in detail. Rather its photographic portrayal was taken as self-explanatory: here was a scientific instrument. Newspaper articles even called it ‘black box.’²⁵⁷ Once Keeler had constructed his polygraph as a portable integrated instrument, the effect of the black box was strengthened further, as the ‘guts’ of the instrument remained hidden within its container. Additionally, many newspaper articles included reproductions of charts. One chart would present the even curve of the truth-telling individual, while another chart would show a peak identified as lie, often with an arrow pointing towards it. The chart had a double function – representing the curves on graph paper, it represented a scientific inscription. Secondly, it turned the lie into an event that could be ‘fixed in time and captured on paper.’²⁵⁸ As a result of the signification of the lie on graph paper it appeared as if the chart ‘could speak for itself.’²⁵⁹ The photographic depiction of the black box and the reproduction of the chart suggested that no human operator was necessary in its operation or the interpretation of the charts.

Bunn here points to a tension that I will elaborate on below, namely, that the portrayal of the lie detector as instrument which could detect lies without any intervention seemed to make the expert unnecessary, necessitating the stressing of expertise on the part of lie detection

²⁵⁵ Ibid, p. 119.

²⁵⁶ Ibid. 114-122.

²⁵⁷ Ibid, p. 135-138.

²⁵⁸ Ibid, p. 144.

²⁵⁹ Ibid, p. 144.

specialists. In Bunn's view, the idea of invention, the depiction of the lie detector as black box, and the reproduction of the chart served the construction of an 'ideological edifice': 'Because the physiological detection of deception was essentially an interpretive and therefore a human enterprise, an ideological edifice has to be constructed around the instrument to deflect potential criticisms of its subjective and therefore possibly arbitrary nature.'²⁶⁰ The scientific construction of the lie detector was mediated by another dimension: what Bunn calls the rhetoric of magic. In newspaper accounts, the so-called card trick was used to elucidate the workings of the machine: the subject had to pick a card from a deck of cards and the operator would tell him which one he had picked. Additionally, high accuracy rates were reported so that the lie detector was constructed as an instrument which was so accurate that it 'worked like magic.'²⁶¹

The most important aspect of what Bunn calls the rhetoric of magic was the attribution of *agency*. Being portrayed as an instrument which could detect lies automatically, newspaper articles also personified the instrument: The lie detector acted 'as a mechanical conscience.' It pointed its accusing finger, could read a person like a book, or had a peculiar genius for geography. It assumed a consciousness, having to be outwitted, betraying the subject or knowing all the answers.²⁶² According to Bunn, then, the machine possessed an almost supernatural agency which was constituted through the entanglement of its scientific and magical attributes. This agency was of an intimidating character while at the same time being constructed as a humane and scientific way of establishing a suspect's guilt. Connecting to the third form of rhetoric – the rhetoric of law and order – the lie detector could be enlisted as an expression of the new professional police force, which no longer engaged in brutal and coercive methods of interrogation, the 'third degree,' but instead relied on the lie detector as a scientific aid. Again drawing on its agency, the lie detector could take on the role of the *policeman*, the *judge*, the *jury* and the *witness* in detecting the lies of the guilty.²⁶³ The portrayal of lie detector in terms of its apparent ability to replace the central constituents of the criminal justice process in the media can be interpreted as one aspect for its exclusion as scientific evidence from the criminal courts. I will elaborate on this in the next chapter.²⁶⁴

In concluding his analysis, Bunn argues that the lie detector was not an instrument which was developed in the laboratory first and was then reported on by the newspapers. Rather, the lie detector was constituted as popular science at the intersection of popular psychology, the police professionalization movement and the media, keen on reporting on crime, from its

²⁶⁰ Ibid, p. 145.

²⁶¹ Ibid, p. 151.

²⁶² Ibid, p. p. 152-153.

²⁶³ Ibid, p. 155-156.

²⁶⁴ Bunn himself does not elaborate on the exclusion of lie detection evidence in court.

beginning.²⁶⁵ Bunn therefore seeks to undermine the traditional divide between science and popular culture. Drawing on Cooter's and Pumfrey's approach,²⁶⁶ he suggests that the lie detector serves as an example of how the popular domain can elaborate its own 'natural knowledge' which contradicts elite science and thus undermines the traditional 'diffusionist model' of the popularisation of science as part of which science is made in the laboratory and then disseminated in a simplified manner to the public. This view assumes that science has ultimate authority over the generation of knowledge and exists independently of the popular realm. Instead, according to Bunn, 'the history of the lie detector breaks down these oppositions. The instrument was not created in the laboratory first and 'popularized' later; the lie detector was a creation of popular culture from the moment of its inception. Polygraphy *is* popular science.'²⁶⁷ In that respect, he argues that his approach differs from Cooter's and Pumfrey's approach in that they stress the interaction between science and popular culture, whereas Bunn contends that the emergence of the lie detector was not the result of an interaction between science and popular culture. Rather, it was 'constructed through negotiations between lie detector pioneers, popular psychologists, police reform publicists, newspaper reporters, magazine article writers and other actors of the mass media.'²⁶⁸

4.3 *There Is No Such Thing As a Lie Detector*

While Bunn's analysis of the lie detector is valuable as regards the media discourse surrounding the instrument, it can be usefully extended and reframed. Bunn tends to conflate the emergence of the lie *detector* with the development of lie *detection*. This, I want to argue, is a function of his conceptualisation of the development of the lie detector at the intersection of the police professionalization movement, the mass media and popular psychology. It is this location of the instrument which leads him to conclude that polygraphy constituted 'popular science.' In doing so, Bunn leaves some important aspects of the development of lie detection untouched.

Firstly, I would like to contextualise Bunn's arguments within the approach that I have taken and secondly, extend his analysis by providing an examination of the role that the lie detector came to play in lie detection practices. Bunn constructs the history of lie detection around a narrative which focuses almost exclusively on how the instruments came to be portrayed in the media. This allows him to conceptualise the emergence of the lie detector in terms of a *horizontal shift* whereby the same measurements which were used in the 'prehistory' of the lie detector in the analysis of the criminal's personality came to centre on the subject's lie. Thus in his analysis,

²⁶⁵ Bunn extends his analysis of the logic of the lie detector as a form of psychological knowledge by arguing that it can be understood on the basis of Foucault's notion of 'semio-technique' developed in *Discipline and Punish* (cf. Bunn, 1997a, chapter 6).

²⁶⁶ Cooter and Pumfrey (1994).

²⁶⁷ Bunn, 1997a, p. 299.

²⁶⁸ *Ibid*, p. 301.

neither the development of *apparatus*, nor *technology*, nor shifts in *measurement* appear to have been significant: 'rather, it was a change in the object of knowledge. What made the lie detector possible was the repudiation of the importance of analysing the criminal in favour of detecting the lie.'²⁶⁹ While Bunn's perspective is not incommensurable with my own, there are nevertheless different foci in our approach. The difference occasions the identification of alternative shifts in the development of lie detection up to this point in its history.

My analysis in the last chapter, while covering the same period as Bunn's soul machines, was concerned with tracing the set of transformations in the early developments of the detection of deception on the basis of which the subject's guilt could be established within psychological discourse. For this reason, I focused on a *vertical shift* whereby the change of the locus of the detection of deception was deemed as highly significant. This runs contrary to Bunn's analysis. In examining this shift, I showed how – on the basis of methodological changes – the straightforward lie emerged by virtue of a transition from externalising deception by means of measurements of the mind towards making the lie apparent as a discrete sign through bodily measurements. I argued that this shift was made intelligible on the basis of the distinction between emotion and cognition that was elaborated in early psychology. This does not contradict Bunn's broader analysis of the shift from the analysis of the criminal's personality to the detection of the lie, but complements it by showing how capturing the lie became possible within psychological discourse on the basis of what might be called an 'epistemology of fear'.

Bunn, too, argues that the shift from the soul machine to the lie detector was completed only after the simple lie had emerged as object of detection. However, this shift was connected to a more specific set of changes concerning the development of lie detection as a practice than is covered by Bunn's analysis. The move from the analysis of the criminal's personality to the detection of the lie was centrally related to the movement of early research and application in the detection of deception from the academic setting to its institutionalisation in criminal investigation. It is on this level that Bunn's and my perspective diverge. While his construction of the lie detector within the triangle of police professionalization, the media and popular psychology is effective in arguing for the constitution of polygraphy as 'popular science,' it leaves the movement of the detection of the lie *between* distinctive institutional settings aside. This is significant, because this movement entailed quite differing models of lie detection and, as a consequence, different notions of expertise with regard to the detection of the lie. As will be discussed in further detail in the next chapter, these models were to become highly contested. For this very reason, it is vital that we keep the *polygraph* and the *lie detector* separate: the production and commercialisation of the polygraph made the institutionalisation of lie detection as a certain

²⁶⁹ Ibid, p. 69.

form of technical expertise in criminal investigation possible. In this, crucially, the polygraph *did not correspond* to the 'lie detector.' Rather, the portrayal of the lie detector in the media served in the promotion of lie *detection* as a scientific method of criminal investigation. But it equally threatened the institutionalisation of lie detection as a form of expertise. In the following then, I will take Bunn's analysis of the lie detector as an expression of the media discourse which developed around it and examine its role in relation to how lie detection was constructed as practice and special form of expertise.

In elaborating on Bunn's analysis, I examine more closely the reactions of lie detection specialists to the lie detector and the claims they themselves made on behalf of the use of instruments. As we saw above, Bunn argues that the lie detector was constructed as an instrument which could detect lies by itself. In the media discourse, the lie detector was constructed along the technological lines of 'invention' and 'machine.' By contrast to this portrayal of the lie detector, which Bunn also points to, lie detection experts at the same time denigrated the fact that the lie detector had been 'invented' and that it was a 'machine.' By drawing an analogy to other scientific techniques, which employed laboratory equipment in order to develop new knowledge, Marston argued that he had 'merely assembled some standard laboratory equipment, [...], and used it in a new way for lie detection just as everyone else has done since and just as chemists use test-tubes, retorts and Bunsen burners to perform experiments and discover new formulae.'²⁷⁰ Thus in his lie detection experiments 'he did not "invent" any of these instruments, nor did any living person.'²⁷¹

Like Marston, not only did lie detection specialists deny the fact that the 'lie detector' had been invented, they also declared that *there was no such thing as a lie detector*. Keeler stated: 'the polygraph is not a mind reader, nor does it ring bells, flash lights, or shock the subject when he lies. It is simply an apparatus that records the physical changes in the subject's body which accompany his emotional changes.'²⁷² Rather, the instrument used was to be seen as a *diagnostic tool*. Drawing an analogy between lie detection and medical practice, Keeler argued that just like 'a stethoscope, a clinical thermometer, or a blood count apparatus' could not be called an 'appendicitis detector,' the instruments used in lie detection could not be called 'lie detector.' Rather, in the same manner as the physician,

'in every case, the examiner must make his diagnosis from tangible symptoms, using whatever mechanical aids he has at his disposal. For instance, a patient is found to have a temperature of 102 degrees F., rigidity and pain in the appendix region, and a high leucocyte count. From this combination of symptoms the physician concludes that his patient is suffering with an infected appendix. Or, in another case, the patient has delusions of persecution, either systematized or ever changing fantasies, and various other symptoms which lead the psychiatrist to render a diagnosis of schizophrenia or some other psychopathic condition.

²⁷⁰ Marston, 1938, p. 23.

²⁷¹ Ibid, p. 50.

²⁷² Keeler, 1940, p. 16.

In detecting deception the same general procedure is followed. Certain situations, or conditions produce emotions which are accompanied by bodily changes. The flushing of anger, and the paling with fear, for example, need no introduction. But to discover, measure, and evaluate the less obvious bodily changes which accompany the emotions involved in deception requires just as much specialized care as the physician must exercise in making a complicated medical diagnosis.²⁷³

As the above quotation suggests, in counteracting the image of lie detector where the lie is simply and unproblematically shown on the graph produced by the instrument, the lie is the result of a complex diagnosis which the expert *renders* on the basis of the physiological changes which *indicate* the lie. Thus the instrument plays only a minor part in the detection of the lie. That is to say, it provides an objective translation of bodily changes, but these can only be rendered *meaningful* by the expert. Thus the media discourse and the account of lie detection specialists regarding the status of the lie detector diverged. On this level, the lie detector and the polygraph – which Keeler developed at the same time as the term ‘lie detector’ became common – alongside other instruments used in lie detection – were different objects.

When it came to lie detection practices themselves, however, lie detection specialists also drew on the notion of the lie detector. In the lie detection examination, specifically, they used a preamble to introduce the subject to the examination. One of these earlier preambles reads:

‘This is a test to find out whether or not you told the truth during the trial. Remember that any lies will be at once recorded by this machine, and these lies will be counted against you. So, think carefully upon your answers for any untruth may result in your going to jail. Answer all questions as briefly as possible and whenever possible by yes or no.’²⁷⁴

This preamble very closely mirrors the way in which the lie detector was portrayed in the media. The instrument is represented as a ‘machine’ which *records* lies. Just as in media representations, then, the instrument itself acquires super-human abilities oscillating between science and magic. At the same time, the role of the examiner in interpreting the charts produced by the examinee is implicitly diminished. In later versions of the preamble, examiners even drew directly on the ‘popular name’ of the instrument:

‘This instrument to which you are attached is the well known lie detector, which has been used successfully for many years for detecting guilt or innocence, and I’m sure it will not fail in your case. Now sit as quietly as possible and just answer my questions “yes” or “no.” If you have any explanations to make, you may do so after completion of the test.’²⁷⁵

As we saw in Bunn’s argument, this portrayal of the lie detector as a *recorder* of lies could be intimidating. Its portrayal as an agentic machine which could not be beaten and would catch anyone was geared towards creating ‘awe’ and ‘fear.’²⁷⁶ Representing the machine as lie detector imported this fear into the lie detection examination itself:

²⁷³ Keeler, 1934, p. 153-154.

²⁷⁴ JLP, Carton 3, Folder 2 Polygraphs: typewritten copies of preamble, n.d.

²⁷⁵ Lee, 1953, p. 104.

²⁷⁶ Bunn, 1997a, p. 154.

This preamble has a dual purpose, aside from the instruction it contains. It tends to reassure the innocent suspect and at the same time serves as a mild build up to enhance fear of detection in the guilty, for we know that if there is no fear of detection there will be little if any reaction and a definite diagnosis will be difficult to make.²⁷⁷

Thus the instrument not only served to translate the body's responses into a script which could then be interpreted by the examiner. By attributing the status of a 'lie detector' to the instrument, the instrument also assumed a *performative function*. By virtue of its performativity, the instrument assumed an uncertain ontological status. On the one hand, it was described as 'just' an instrument: an *appendage to the expert*. On the other hand, it was depicted as a machine which took on agentic qualities in being able to detect the lie *on its own*. Thus we can extend the analysis of the triad of the examiner, the subject and the instrument that I introduced in chapter 3. It seems that the instrument became part of a power structure that was implemented in the construction of psychological knowledge of the subject's lie. Having been made intelligible on the basis of an 'epistemology of fear' – which was elaborated from the psychological distinction between emotion and cognition – the examiner enlisted the instrument in modulating the responses of the subject's body. Thus the role of the instrument in the translation mechanism, which defined the production of the 'truthful' body, was not only to make the internal processes of the body visible by means of the mechanical interaction of the subject's body and the instrument. In addition, it was constructed in such a way that it took an active role in *producing* the responses of fear which appeared on the subject's script and which – in turn – were taken to point towards the subject's lie. In following the arguments made by sociologists of science and technology that there is no-clear cut distinction between an 'authoritative' account of science or expertise and its popular representation, the history of lie detection thus provides an example of how the media representation of a 'scientific' artefact fed back into and came to increasingly mediate lie detection practices.

Why was it so important to lie detection experts to argue that there was no such thing as the lie detector given that they themselves attributed this status to the instrument in the examination? As Bunn suggests in his analysis, one of the paradoxes of the lie detector discourse was the fact that if the machine could detect lies of itself, no expert would be needed at all. Thus, while the media attention served lie detection specialists – especially Keeler – in the promotion of the technique, it equally threatened their status resulting in their continual emphasis of their expertise.²⁷⁸ In his articles, Keeler pointed to the fact that

[i]n the hands of a highly trained operator, the polygraph offers very reliable and extremely critical data for the separation of truth from falsehood. But, as in the case of the physician's diagnostic aids, the

²⁷⁷ Lee, 1953, p. 104.

²⁷⁸ Bunn, 1997a, p. 144-145.

interpretation of the data is the important portion of the process. The careful training of the polygraph operator therefore is as important as the exact training of the physician in the field of medicine.²⁷⁹

This stressing of expertise constituted a form of boundary work which served to insulate lie detection from untrained individuals – ‘certain so-called experts’ who might pretend that they actually did have a ‘lie detector.’²⁸⁰ This was especially so once Keeler had the polygraph patented and manufactured as an instrument specifically designed for the detection of deception. His commercialisation of the polygraph was soon emulated by other instrument manufacturers. For example, Captain C.D. Lee of the Berkeley Police Department had a competing instrument, the ‘Berkeley Psychograph,’ manufactured from the late 1930s.²⁸¹ Other instrument manufacturers, most notably the major instrument manufacturers LaFayette and Stoelting, were to follow with various models of the instruments designed for the detection of the lie. By the end of the 1930s, at least 15 police departments had purchased a polygraph or instruments marketed by other instrument developers and trained their own ‘polygraph operators.’²⁸²

While the manufacturing of the instruments allowed for the spread of lie detection methods, it also meant that there was less control in terms of who might acquire them. In conjunction with the media portrayal of the ‘lie detector,’ this endangered the status of lie detection as specialised expertise. In order to protect lie detection as a form of ‘scientific expertise,’ Keeler drew up an agreement with the manufacturer that each sale of a polygraph would be subject to his approval. It was part of the sales policy that instruments would be sold to individuals, usually from police departments, only when they agreed to obtain training in the use of the polygraph.²⁸³

However, as I will elaborate in the next chapter, when it came to defining *what kind* of training was necessary in constituting lie detection as scientific expertise, a conflict soon developed between Keeler and Larson, who had developed the final set-up of the lie detection examination and had initiated the use of lie detection at police departments. While he had brought lie detection to the police department, he was still linked to research and application of the detection of deception within an analysis of the criminal’s personality. In this, he was rooted within the academic background from which lie detection had emerged. Consequently,

²⁷⁹ Keeler, 1940, p. 164.

²⁸⁰ Keeler, 1934, p. 153.

²⁸¹ LKC, Box 29, Folder 780: ‘Brochure of Berkeley Psychograph,’ 1938.

²⁸² Cf. LKC, Box 35, Folder 851 for a list of owners of the polygraph.

²⁸³ Keeler wrote in a letter: ‘Individuals that we are instructing in the use of the Polygraph pay thirty dollars a week for approximately two or three weeks in order to learn the “ropes” and have what experience we can give them in that short time. We are trying to protect the field by not selling instruments except to those who are qualified in their operation, and we have therefore turned down a number of individuals because they were unwilling to go through a course of training. I believe that is the only way that we can protect the field for ourselves and others who are earnestly endeavoring to use the technique in their police work’ (LKP, Carton 2, Folder 3 L.K. Technique Policy Legal Status: Letter by Leonarde Keeler to W.A. Wiltberger, Director of Public Safety, St. Petersburg, FL, n.d.).

as regards the expertise in the application of lie detection, he stressed academic (and, especially, clinical) training. By contrast, as we saw, Keeler's commercialisation of the instrument facilitated a new conception of expertise in lie detection which matched the way in which 'scientific' expertise was being constructed within police departments – as technical skill using specialised equipment. Having lauded Keeler's efforts at developing a standardized instrument, Larson subsequently criticised Keeler's commercialisation of the polygraph and reproached him for having turned lie detection into a 'racket.'²⁸⁴ In trying to put lie detection back on a scientific footing he devised an alternative approach. As I will try to show in the next chapter, Larson's attempts at instituting his own approach were in vain for they corresponded to an older model of expertise that was incommensurable with the lie as the only and specific target of lie detection as practiced in criminal investigation.

4.5 Conclusion

In this chapter I examined the further development of lie detection in the 1920s and 1930s by placing a special focus on the role of instruments in its history: in this period the emergence of the lie detector in the media coincided with the creation of the polygraph as integrated instrument specifically designed for its application in lie detection.

In my analysis I drew specifically on Bunn's history of the lie detector. He conceptualizes the emergence of the lie detector as a horizontal shift from the soul machine to the lie detector. This shift is taken to express a move from the criminal type to the detection of the lie. While I agreed with his broader analysis, I argued that the history of lie *detection* cannot be reduced to the history of the lie *detector*. Instead I first argued that the consideration of the development of lie detection as a separate discipline requires an analysis of the role of the lie detector in mediating lie detection practices. Secondly, I argued that the shift from the analysis of the criminal to the detection of the lie needs to be understood also in terms of the move of the detection of deception from an academic setting to criminal investigation. In this move, lie detection became part of the police reform movement, which sought to turn the police into a profession oriented towards the use of scientific methods of criminal detection. Lie detection thus came to correspond to the more immediate epistemological aim which characterised criminal investigation: the simple *apprehension* of the criminal rather than an *understanding* of his individual nature. This shift was made possible through the development and commercialisation of the polygraph as an integrated instrument to be used in the application of lie detection. Thus I contextualised the methodological and technological changes which underlie Bunn's broader shift through my analysis of how the detection of the lie became

²⁸⁴ LKP, Carton 2, Folder 15 L.K. Business Associates: Letter by John Larson to George W. Haney, 27/6/1939.

possible in psychological discourse in Chapter 3 and an analysis of the development of the polygraph in this chapter.

I therefore reframed and extended Bunn's analysis by arguing that the polygraph and the lie detector have to be considered as separate entities. In media discourse, the lie detector was constructed as a machine which could detect lies by itself. While lie detection specialists benefited from and actively enlisted media attention, the lie detector threatened their expertise. In countering the representation of the lie detector, they argued that there was in fact no such thing as a lie detector and that only the trained expert could 'diagnose' the lie. Yet when it came to lie detection *practices*, lie detection experts also presented the instrument as a machine. In being enrolled in modulating the body's responses, the instrument thus assumed a performative function oscillating between instrument and machine. It was crucial for lie detection experts to stress their expertise because the representation of the lie detector as a machine which could detect lies by itself seemed to make the expert unnecessary. But as we will see in the next chapter, when it came to the nature of the expertise required in the 'diagnosis' of the lie, a heated debate developed. This debate continues to mark the construction of lie detection as contested knowledge today. It is on the site of this debate that the notion of the 'machine' will reappear as a rhetorical resource: employed by Larson in denigrating the expertise of the emergent class of polygraph operators. In undermining their authority as experts, he will argue that they do not in fact represent experts but simply draw on the performative function of the instrument. That is to say, they use the instrument *as if* it were a lie detector: intimidating subjects in order to elicit confessions.

Chapter 5 Lie Detection as Science

As I stated in the methodology chapter, my analysis of lie detection as a technique of knowledge production and intervention proceeds along four strands. Having provided an analysis of how the lie was turned into an object of knowledge in chapter 3 and analysed the role of the instrument in lie detection practices in chapter 4, this is concerned with the third and fourth strands. It begins with a consideration of the status of lie detection as scientific evidence in the courts. Building on this discussion, I move on to provide an analysis of lie detection practice as form of expertise.

Although lie detection was presented as a scientific technique of interrogation by its practitioners, it nevertheless remained excluded as scientific evidence from the courts. Different explanations for the continued judicial rejection of lie detection evidence have been advanced by historians of science. Their arguments centre on the *power* rather than the *questionability* of lie detection methods. According to this line of argumentation, judges wanted to protect the ‘credulous’ jury from expertise by which it might be too easily swayed and which it was incompetent to judge. Moreover, as lie detection addressed the central question of criminal guilt, it threatened to undermine the jury system as such. Ken Alder provides an extension of this argument in explaining the rejection of lie detection examinations from criminal court proceedings. He furnishes a detailed analysis which contrasts the ‘knowledge strategies’ employed by two of the principal figures in the development of lie detection, Larson and Keeler, who we encountered in the preceding two chapters. Conceptualising the former’s practices as *knowledge*-oriented and the latter’s more successful practices as *power*-oriented, Alder concludes, that the rejection of lie detection evidence resulted from the particular kind of lie detection which became institutionalised, and which had turned lie detection into a coercive technique which was akin to judicial torture.

On the basis of a re-consideration and extension of the historical narrative on which Alder’s portrayal of the different knowledge strategies of Larson and Keeler is based, I problematise Alder’s differentiation of lie detection practices according to the distinction between a *knowledge*-oriented versus a *power*-oriented technique. Rather, I argue that an historical analysis of the development of polygraphy needs to consider both Larson’s and Keeler’s lie detection practices on an equal footing. In my analysis I suggest that their practices might be considered according to different notions of expertise in part already referred to in chapter 4. On this basis I provide a sociological explanation for why Larson’s influence declined and Keeler’s turned out to be the more successful. Building on my reconsideration of Alder’s analysis, I aim to provide an alternative evaluation of the lie detection examination as technique of knowledge production and intervention in chapter 6, in which the different threads that have been running through

this thesis – the lie as an object of knowledge, the role of the instrument in lie detection practices, the status of lie detection as expertise, and the status of lie detection within the criminal justice system and beyond – will be drawn together and expanded upon.

5.1 *The Frye Decision*

In the following two sections we will review the court case which provided the precedent for the continued exclusion of lie detection evidence from the criminal courts. Not only did it lead to the exclusion of lie detection evidence from the courts, but as we will see, it also implemented a new standard for the admissibility of scientific evidence in US court cases in general. This new standard, the so-called Frye rule, was to regulate the admission of scientific evidence for a large part of the 20th century.

In 1922, William Moulton Marston – who as we saw in chapter 3, had developed the systolic blood pressure test in measuring deception – sought to have results of a lie detection examination admitted as scientific evidence in court for the first time.²⁸⁵ The criminal case to be presented was the following: on November 27, 1920 one Dr. Robert W. Brown was shot in his office. On August 16, 1921 James A. Frye was arrested in connection with a robbery and routinely questioned about the murder, to which he confessed on August 22.²⁸⁶ Two eyewitnesses had been present at the murder scene and so the evidence against Frye including his confession seemed to make for certain conviction. But Frye retracted his confession and presented an alibi for his defence instead. However, no witnesses were available to testify on Frye's behalf to substantiate the alibi.²⁸⁷ Frye's attorney, Mattingly, turned to Marston hoping 'to convince their client that his lies were known to everybody and that he'd better tell the truth.'²⁸⁸ The results of the lie detection examination were unexpected: 'No one could have been more surprised than myself,' states Marston, 'to find that Frye's final story of innocence was entirely truthful! His confession to the Brown murder was a lie from start to finish.'²⁸⁹

²⁸⁵ My account of the trial is based on Starrs (1982) and Golan (1997). Starrs examined the remaining trial records which are held by the National Archives in File 3968, retired files, and in Pardon File RG 204, Box 1583, Pardon Case Files 1853-1946, Record 56, pp. 384-412, National Record Center, Suitland, Md. I was not able to consult these files as part of my archival research. I have also taken into account Marston's 1938 account of his involvement in the Frye case (Marston, 1938). However, this account is rather idiosyncratic and there are incongruences between Marston's story and the facts established by Starrs.

²⁸⁶ Starrs, 1982, p. 688.

²⁸⁷ Golan, 1997, p. 360-361.

²⁸⁸ Marston, 1938, p. 71.

²⁸⁹ *Ibid*, p. 71. There are differing accounts as to why Frye allegedly made a false confession. According to Marston 'he *had* made this false confession because a certain negro friend whom we may call J.W. had assured Jim that he would fix it so he got half the reward for his own conviction and a full pardon soon after' (Marston, 1938, p. 71). According to the case files, Frye claimed in his application for executive clemency in 1936, that the detective who interrogated him had promised him that if Frye pleaded guilty for the murder, the robbery charge would be dropped. Once the detective had collected the reward the murder charge would also be dropped as Frye had a convincing alibi (Starrs, 1982, p. 689).

Having no means to put up a strong defence, Mattingly ventured to have the results of the examination admitted as scientific evidence to support Frye's case, but without avail. The presiding trial judge, Chief Justice McCoy, ruled that the results of the examination would not be admissible in court as the records might well show whether Frye had lied on the date he was examined but could not be taken to support the truth or falsehood of his statements *in court*. If the records were to be admissible at all, they would have needed to have been made while Frye was testifying. Following this, Mattingly tried to have Marston qualified as an expert witness so that he would take the stand and provide expert testimony on the examination records. However, Justice McCoy argued that he would not admit lie detection examinations unless 'there is an infallible instrument for ascertaining whether a person is speaking the truth or not.'²⁹⁰ To this, Mattingly replied: 'We have proof to offer on this point, that it is a scientifically proven fact that certain results will be accomplished under certain conditions. It seems to me that the very least Your Honor can do is to permit us to attempt to qualify the expert. I think we are entitled to it as a matter of law.'²⁹¹ Again, Justice McCoy declined. Frye was convicted of second degree murder – and Marston claims that had the jury not known about the lie detection examination (it is not clear how they may have been informed of its existence) he would have ended up at the gallows.²⁹²

In 1923, the case was appealed in *Frye v United States*, which was not only to affirm the exclusion of lie detection examinations as evidence but also to establish the precedent on the basis of which the admissibility of novel scientific evidence in general was to be tested in American courts for most of the 20th century. The oft-cited passage of the concise opinion reads:

'Just when a scientific principle or discovery crosses the line between the experimental and the demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while the courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.'²⁹³

Traditionally, no restrictions had been placed on the admissibility of scientific evidence. Rather, it was up to the jury to decide on the weight and credibility of the scientific evidence presented. Expert testimony was admitted in court if an expert could show that he was 'qualified.' The increasing use of scientific evidence by adversarial parties in court, however, resulted in 'the paradoxical situation in which the lay jurors were supposed to resolve disputes about which they knew nothing other than what partisan experts selected and paid by the litigants had told them. And, as the authority of science grew during the 19th century, so did

²⁹⁰ Cited in Starrs, 1982, p. 691.

²⁹¹ Ibid, p. 692.

²⁹² Marston, 1938, p. 72.

²⁹³ *Frye v. United States* 54 App.D.C 46, 293 F. 1013.

the court's mistrust in the ability of the credulous jury to resist the lure of the scientific expert witness.²⁹⁴

According to Golan, the solution to the problem of sustaining a jury-based system,²⁹⁵ in which the jury passed judgment on the basis of the evidence presented by adversarial parties, was for the court to give up its neutral position and act as a gate-keeper with regard to the evidence that was allowed to enter into the jury's deliberations.²⁹⁶ As part of this new position, the court incorporated the changing nature of scientific practice and its potential in regulating the admissibility of scientific evidence. In the 19th century, the scientific expert had been something of an 'individualist' who first developed and then marketed his expertise. His qualification as an expert was based on an evaluation of the 'marketability' of his knowledge.²⁹⁷ Towards the end of the 19th century, however, communities of experts began to develop who shared standards of practice and ethics and presented themselves as professions sanctioning knowledge practices which were perceived not to conform to their stated standards.²⁹⁸ The rule of 'general acceptance' put forward in the Frye opinion reflected this model of scientific practice.²⁹⁹ But what did 'general acceptance in a particular field' entail? While the indeterminacy of the terminology of the opinion was criticised, Golan argues that it was this very indeterminacy which allowed for a wide scope on the part of the courts to regulate the evidence permitted to enter the courts depending on their variable interpretations of the meaning of 'general acceptance.'³⁰⁰ As we will see in the next section, the fact that the court chose to give up its neutral position and start protecting the jury from the 'lure of the scientific expert witness' in the particular case of lie detection evidence rather than any other type of novel evidence was not so much related to its

²⁹⁴ Golan, 1997, p. 367.

²⁹⁵ The jury system developed when the *judicium dei*, i.e. the ordeal and other forms of test to establish the guilt of a person by means of divine judgment, fell into disuse after the Fourth Lateran Council in 1215 forbid the involvement of priests in ordeals and instituted the confession as religious form of penance. Following the council, the English legal system established the jury, while Roman-canon law was adopted in continental Europe (Fisher, 1997/1998). The first criminal trial to have been decided by a jury arguably took place in Westminster in 1220 (ibid, p. 585).

²⁹⁶ Golan, 1997, p. 375-376.

²⁹⁷ Landsman, 1995, p. 150-151.

²⁹⁸ Golan (1997); Landsman (1995). This was arguably an expression of a wider movement of professionalization. Landsman argues that this movement was also connected to progressivism, which sought to apply rational and scientific principles to the 'management' of society (Landsman, 1995, p. 151). Drawing on Charles Pierce, Landsman further argues that progressivism was connected to the emerging philosophy of pragmatism as part of which truth was no longer seen as an individual matter but was conceptualised as the outcome of the (potentially conflictual) interaction of individuals within a community. Landsman suggests that the development of scientific communities and the adoption of a community-based evaluation of scientific knowledge by the courts reflect this changing conception of the social elaboration of truth (ibid, p. 152).

²⁹⁹ Golan, 1997, p. 376-377.

³⁰⁰ Additionally, it provides the possibility of turning the question of admissibility from a *scientific* question into a *socio-historical* one. Rather than having to evaluate the scientific validity of a certain form of evidence requiring detailed technical knowledge, the judge can simply ask: 'As a matter of historical fact, has this forensic technique gained general acceptance within the relevant scientific circle?' (Imwinkelried, 1981, p. 273). Jasanoff and Lynch argue that in answering this question, the courts pass decisions on whether scientific controversies have achieved *closure* (Lynch and Jasanoff, 1998b, p. 679) rather than passing judgment on the nature of knowledge *per se*.

scientific credentials, but to the nature of the evidence and to the threat that it posed to the criminal justice system.

5.2 *The credulous jury and the lie detector as witness, judge, and jury*

Lie detection evidence presented a radical case in terms of the nature of the evidence proposed and the potential consequences of its admission. As Golan seeks to show, it was the radical nature of the evidence, rather than its status as a scientific technique, which not only occasioned its exclusion but also led to the establishment of a new standard for the admissibility of scientific evidence in general.

First, it can be argued that lie detection examinations were not able to overcome the boundary of the courts by virtue of their power, not the uncertainty of their status.³⁰¹ This power may be partly attributed to the machine – the lie detector. As shown by Bunn, the lie detector was widely discussed in the newspapers as a machine which could detect the criminal's guilt by reading his mind, stimulating the popular imagination. As an answer to the most central question that the criminal justice system posed – is the person that has been brought before this court guilty or innocent? – the court needed to make doubly sure that a 'credulous jury'³⁰² would not be blinded by 'scientific evidence' whose accuracy, in the courts' view, it was not competent to judge.

As we saw in our discussion of Bunn, the popular appeal of the lie detector was due to three interlocking forms of rhetoric – the rhetoric of *science*, the rhetoric of *magic*, and the rhetoric of *law and order*. These organised the media discourse on the lie detector. As part of the rhetoric of science, newspaper and magazine articles portrayed the lie detector as a scientific instrument which could detect lies *by itself*. The attribution of near infallibility in detecting what the mind was attempting to hide – in combination with the attribution of agentic qualities – suggested super-human abilities, thus providing the lie detector with an air of magic.³⁰³

As part of the third form of rhetoric – the rhetoric of law and order – the lie detector was portrayed as a solution to the problem of the so-called 'third-degree.' The 'third degree' referred to brutal methods of interrogation practiced by the police in order to elicit confessions or information relating to a crime from suspects. As I already mentioned in

³⁰¹ Alder, 2002, p. 22.

³⁰² In this discussion I am using Golan's term. I have put it in quotation marks in order to indicate that the 'credulous jury,' is a representation of lay people as not fully competent to judge scientific knowledge which was elaborated by the courts at the end of the 19th century. While Golan does not make this explicit in his discussion, it would be intriguing to further investigate how changing representations of the 'layness' of the jury as fit or unfit to judge scientific knowledge developed alongside the increased integration of expert knowledges in the court system. For example, Maranta et al. (2005) trace different conceptions of 'imagined lay persons' and their role in the application of expertise in different areas of society.

³⁰³ Bunn, 1997a, p. 126-155.

preceding chapters, as part of the progressivist movement to professionalise the police along scientific principles, the third degree had become a much discussed issue not only in the media but in the criminal justice system itself. Committees and commissions were formed to investigate its prevalence – e.g. the Senate Select Committee to Investigate the Administration of the Criminal Law by Federal Officials formed in 1910.³⁰⁴ The most comprehensive study of the problem of ‘lawlessness in law enforcement’ was carried out and presented by the so-called Wickersham-Commission (The National Commission on Law Observance and Enforcement) in 1930.³⁰⁵ The third degree was portrayed as one in a series of irrational and violent forms of detecting guilt and innocence, such as the ordeal and torture, which did not serve to bring out the truth but instead obscured it. By contrast, the lie detector was represented as a humane form of interrogation which allowed for the establishment of the truth of the subject’s innocence or guilt by means of reliable scientific methods. Moreover, as a technology which could establish the guilt of any criminal, it could function as witness, judge and jury, thus sidestepping the legal system altogether.³⁰⁶

It was this aspect of lie detection which connected to the second rationale for rejecting lie detection examinations as scientific evidence. In providing an assessment of the defendant’s guilt or innocence, lie detection could undermine the criminal justice process as such. If the truthfulness of a subject’s statement could be established by means of a certain technique, the jury’s task of assessing the credibility of witnesses would be undermined. More to the point, the jury system itself would potentially be redundant.³⁰⁷ Indeed the jury’s competence to adequately assess evidence had been under attack from scientists since the 1880s.³⁰⁸ The ‘progressive’ ideal that science (rather than a group of jurors) furnished the means to institute true justice was reflected in Keeler’s statement:

‘Some day I can picture a medical-legal committee with no judges, no lawyers in the particular, but instead some scientific experts who will examine suspects and render a decision as to their guilt and opinions of their personality. Such well-trained men can better judge the reactions and social possibilities of a man than a haphazard group of business men and lawyers. We are already progressing toward such an ideal but it will be many years before it is realized.’³⁰⁹

In implementing the ‘general acceptance rule,’ the Frye opinion had stated that ‘We think the systolic blood pressure deception test has not yet gained such standing and scientific

³⁰⁴ Larson, 1925, p. 234-235.

³⁰⁵ The report consisted of a literature review, an examination of legal statutes, newspaper coverage, legal cases and appeals involving the third degree, and the carrying out of a questionnaire among relevant officials, public defenders and legal aid societies and bar associations (National Commission on Law Observance and Enforcement, 1931).

³⁰⁶ Bunn, 1997a, p. 156.

³⁰⁷ Golan, 1997, p. 366-367; Alder, 2002, p. 22.

³⁰⁸ Golan, 1997, p. 375-376.

³⁰⁹ LKP, Carton 1, Folder 16 Research Assorted: Leonarde Keeler, ‘Notes on Interview between A.E. Wiggam and Leonarde Keeler,’ p. 2, 1931.

recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony from the discovery, development and experiments thus far made.³¹⁰ Golan points to the fact that the court did not provide any guidance as to how the ‘particular field’ in which detection of deception tests belonged was to be defined. Moreover, the court did not furnish any references as to the physiological and psychological authorities on which it had based its decision. Rather, Marston was a well-recognized authority in his field, providing impressive accuracy rates in his research. Furthermore, at that point, the field itself was small – in addition to Marston, Larson, Burt, and Troland and a few others with an interest in the field could be counted. Golan takes a survey that was sent to 88 members of the American Psychological Association in 1926 by C.T. McCormick to be representative of views of expert psychologists on lie detection at the time. 38 members replied, out of which 18 psychologists agreed with the statement that the polygraph examination was advanced enough to be considered as a test of the credibility of the testimony of a witness. 13 psychologists disagreed, while 7 were undecided.³¹¹ If one takes a closer look at their comments, two of those who were undecided and one of those who thought lie detection evidence was not ready for court usage, were of the opinion that test results should not be introduced without the testimony of experts. This suggests that, with qualifications, the number of psychologists who were in favour of court usage might be increased to 21.³¹² Thus there seemed little doubt, to put it in the Frye Court’s terms, as to the ‘thing from which the deduction is made’ in principle – only two psychologists voiced a general doubt as to the utility of the method overall. Rather, opinions seemed to be dominated, first, by the conviction that only psychologically trained experts would be able to provide adequate interpretation of the records, and second, by the feeling that further research might be done in a very promising area. As we will see, the question of just what ‘psychological training’ entailed was to become one of the central areas of contention in the institutionalisation of polygraphy. Additionally, Golan interprets the emphasis on trained experts, the comments that lie detection evidence should not be considered as sole evidence, and remarks as to the questionable suitability of the jury (and even judges) to assess such evidence as yet another indicator that what was at issue in the disputation of lie detection evidence was not the principles on which it was based, but rather concerns about the ‘credulous jury.’³¹³

Lie detection experts generally seemed to share the views voiced by psychologists as to research and expertise in McCormick’s survey. In 1923, Larson stated that ‘[t]he present

³¹⁰ *Frye v United States* 54 App. D.C. 46, 293 F. 1013

³¹¹ Cf. McCormick (1927).

³¹² *Ibid*, p. 495-498.

³¹³ Golan, 1997, p. 380.

attitude of the court suggests that it is too premature to attempt to secure court cognizance. Before such an attempt is made there is a necessity for much experimental work with thousands of actual cases of deception, which have been successfully dealt with. It will only be by the correlation and standardization of thousands of cases by experts using uniform technique that the time will be ripe for court presentation.³¹⁴ Keeler, was ‘alarmed and rather unhappy’ when another lie detection specialist, Orlando F. Scott, managed to have results of an examination admitted in a lower court – one of the rare exceptions to the general exclusion of lie detection evidence.³¹⁵ In a letter to Scott he wrote:

‘Frankly, I am exceedingly troubled over the possibility of the courts moving too swiftly in admitting such testimony. I have studied the method minutely for twelve years, and feel that I know the many pitfalls that may be and are encountered. The test is not infallible, and in the hands of the inexperienced, extremely unreliable. Hence, if we push this type of evidence into our own courts of law, every “Tom, Dick and Harry” will build some sort of contraption that will be labeled “lie-detector,” then pass as qualified experts, and do an immeasurable amount of harm in the field.’³¹⁶

As a solution to the problem of unqualified experts Keeler set up a model of the conscientious polygraph operator and called for the licensing of operators:

‘Yes, anyone can purchase medical instruments, but fortunately the state forbids him using them – even on dogs! And anyone can purchase or build a polygraph, or any other medico-legal apparatus and paraphernalia, *but no one can prevent him from shouting aloud that he is an expert or prevent him from practicing on the unsuspecting public.* Competent men of integrity must be carefully trained to conduct various types of medico-legal examinations, and each should be backgrounded in the particular branch of the profession he is to practice. The legal psychologist must have a background of psychology, physiology, and the more basic sciences upon which they are founded before he starts his apprenticeship in the various legal-psychology practices. Some day, it is hoped, the state will license (*but keep free from politics*) medico-legal technicians today, but in the meantime it rests with the honor and integrity of each member to keep the profession purged of incompetency and dishonesty.’³¹⁷

This professed self-restriction of lie detection specialists served the legitimisation of lie detection as valid scientific practice. By announcing that more careful research into lie detection was needed and the competency of polygraph operators to be assured, both Keeler and Larson asserted the scientific authority of lie detection, albeit in quite different ways. As we will see in my discussion of Larson’s and Keeler’s models of expertise below, their differing ways of legitimising lie detection can be seen as an expression of their distinct approaches to lie detection which came to form the basis of a conflict that developed between them. While Larson stressed the scientific validation of lie detection practices, Keeler stressed the training

³¹⁴ Larson, 1923, p. 426

³¹⁵ Keeler, however, was confident regarding his own expertise with regard to the introduction of lie detection evidence into court. In 1935, he testified in the Wisconsin court case *State v. Loniello and Grignano* – arguably the first court case in which lie detection evidence was introduced (Inbau, 1935). The evidence could only be introduced on the basis of a stipulation by the defence and the prosecution in which both agreed to the use of the examination results in Keeler’s testimony regardless of their outcome (Inbau, 1935). In the exceptional cases in which lie detection evidence has been introduced as evidence into court proceedings it has been on the basis of a stipulation by the prosecution and the defence.

³¹⁶ LKP, Carton 2, Folder Miscellany: Letter by Leonarde Keeler to Dr. Orlando F. Scott, 20/5/1935.

³¹⁷ Keeler, 1934, p. 158-159.

and individual conscientiousness of members of the growing profession. The competent polygraph operator was not only marked by his expertise but by his 'honor' and his 'integrity' in using it responsibly. In calling for the licensing of polygraph operators, an external means by which professions legitimate themselves as such and set themselves off from the 'lay person' (every 'Tom, Dick and Harry'), Keeler drew on a professional model of community-based scientific practice which had been set out in the Frye ruling. This demonstrated his optimism regarding the inclusion of lie detection evidence in court, which was less concerned with its further validation but rather centred on its professional application.

By contrast, Larson was increasingly pessimistic regarding the inclusion of lie detection evidence itself.³¹⁸ Yet, in an indirect way, his self-restriction also served to legitimise lie detection as a valid scientific endeavour outside of the court in the face of the court's rejection. For, in the meantime, there might be another benefit which could be derived from lie detection examinations. Larson stressed their benefit in criminal investigations not only in terms of the value of the records that could be amassed for purposes of scientific validation, but also in terms of their practical utility. He stated that while it was too early to have lie detection examinations admitted in court, 'for the purposes of practical police investigation the present deception test, or allied ones, are useful for not only may the necessary scientific data concerning the validity of such a test be secured, but the public may be benefited by the solving of cases and the elimination of innocent persons.'³¹⁹ The results of these examinations would not concern the 'legality of the case, except indirectly where confessions result from the test.'³²⁰ In establishing 'objective norms' for lie detection examinations, he suggested that in every criminal case an examination could be carried out so as to 'include every possible type of experimental situation and every possible difference in human response,' which could be labelled as to its 'truth' or 'falsehood' once the case had been 'cleared' – either by confession and/or other evidence.³²¹

As I outlined when discussing the analyses of Golan, Bunn and Alder above, there were two factors which contributed to the exclusion of lie detection evidence in the Frye case and the implementation of a new standard of admissibility. First, lie detection evidence was excluded because of the *power* that the lie detector exuded in reading the criminal's mind from which the courts wanted to protect the credulous jury. Secondly, and maybe more significantly, lie detection evidence threatened to undermine the criminal justice process as such by *usurping the*

³¹⁸ Nine years after Larson's initial statement regarding the use of lie detection evidence in criminal proceedings, Larson and Haney were still of the view that 'the cardio-respiratory technique affords valuable but not infallible criteria for practical use in deception tests, and is certainly not adequate for court usage' (Larson and Haney, 1932, p. 1051).

³¹⁹ Larson, 1923, p. 426.

³²⁰ Ibid, p. 426.

³²¹ Larson, 1927, p. 668.

jury's function of assessing the credibility of the defendant and providing a direct answer to the question of criminal guilt. Thus one could extend Gieryn's notion of boundary-work, which focuses on the resources scientists use to mark off the authority of science from non-science. The institution of the rule of 'general acceptance' to reject lie detection evidence might likewise be interpreted as a form of boundary-work. In this case, the courts – a non-scientific institution – implemented a community-based conception of science, which allowed it to exclude lie detection evidence by circumventing the expertise of the individual expert. This was undisputable in Marston's case as well as regards the evaluation of the principles of lie detection themselves, which again proffered impressive accuracy rates. Taking up Golan's argument, in putting into practice a community-based conception of science, the very indeterminacy of the diction that scientific evidence had to have achieved 'general acceptance in the field that it belongs,' availed the court with considerable interpretive leeway as to how a 'field' and 'general acceptance' were to be defined. In protecting its own working mechanisms that were threatened by lie detection, the court was thus enabled to legitimate the exclusion of lie detection evidence and to assert authority over the types of knowledge allowed to cross its boundaries.³²² The general acceptance rule thus constituted a resource by which the system of jurisprudence was able to assert its procedures for establishing judicial truth over and against potentially undermining ways of elaborating scientific truth. This argument makes further sense considering that the courts were prepared to accord other forms of scientific evidence – including evidence that was considered to be just as questionable as lie detection methods, such as handwriting, ballistics, or medical evidence³²³ – an ever-increasing role in the adjudication of court cases. In light of the promising future that psychologists and lie detection specialists accorded lie detection evidence, we might wonder to what extent the development of lie detection as a discipline contributed to the continued exclusion of lie detection evidence from the courts. In the next section, I will therefore consider the work of Alder more closely, for his analysis takes the practices of the two central figures in the development of lie detection, Larson and Keeler, as a starting point for the persistent judicial rejection of lie detection evidence. His analysis is not only connected to an evaluation of lie detection in relation to the courts, but opens out to a more general assessment of the status of lie detection as a scientific endeavour.

5.3 *Disinterested science and the discretionary expert*

In his work on the history of lie detection, Alder provides a detailed evaluation of the connection between different lie detection practices in the 1920s and 1930s and their public

³²² Golan, 1997, p. 376-377.

³²³ Golan, 1997, p. 365; Alder, 2002, p. 21.

and judicial reception. He frames his analysis in terms of two different strategies of knowledge production that were employed by two early lie detection specialists – Larson and Keeler. In comparing their approaches to lie detection, Alder develops two heuristics to assess their practices: one was based on a model of ‘open science’ and the other centred on the idea of ‘proprietary knowledge.’³²⁴ He concludes that their approaches lead to a certain perception of lie detection in the courts which occasioned its continued exclusion.

Alder’s ‘open model of science’ achieves the status of objective knowledge through the ‘disinterestedness’ of the scientist. This disinterestedness is engineered through ‘(1) norms that denounce venality and reward priority of discovery, (2) the public dissemination of those discoveries in journals vetted by expert peers, and (3) meritocratic institutions that translate those assessments into a livelihood and the resources to continue research.’³²⁵ This type of knowledge production is further legitimised by the claim that it will yield *useful* knowledge. By contrast, the model of proprietary knowledge is geared towards the generation of ‘rents (or coercive power) from knowledge as it is substantiated in products or services, and this means holding that knowledge as private, so as not to dilute its market value.’³²⁶ This model is supported by mechanisms of negotiating the keeping secret of and the dissemination of knowledge such as patenting which will at the same time ensure its marketability and thus secure continued investment in the production of knowledge.³²⁷ Alder argues that while Larson pursued the strategy of open science and Keeler pursued the strategy of proprietary knowledge, these strategies were interdependent.

In following the strategy of ‘open science’, Larson published his findings on lie detection in academic journals such as the *Journal of Experimental Psychology*, the *Journal of Abnormal and Social Psychology*, and the *Journal of Criminal Law and Criminology*.³²⁸ In the 1920s, he worked on advancing lie detection as a scientific technique by arguing for the standardisation of the method by means of a double-blind analysis of polygraph records and an extensive study of the validity of the technique on the basis of cases that had been cleared up. As he continued his research, Larson became increasingly disenchanted with the scientific promise of the technique. Instead, he sought to develop lie detection as a psychiatric technique creating the so-called ‘clinical team approach’ as part of which a team consisting of a psychiatrist, a medical expert and a lie detection specialist were to form an overall assessment of the

³²⁴ There are three publications by Alder on the history of lie detection (Alder 1998; 2002; 2007). My analysis in this chapter has mainly drawn on the article published in 2002. While he equally discusses Larson’s and Keeler’s knowledge strategies in his recent monograph (Alder, 2007), the arguments of sociological relevance are already contained and most succinctly developed in his earlier publication. By contrast, the remainder of the monograph is marked by a detailed coverage of cases in the history of lie detection and a focus on the personal histories of the two developers.

³²⁵ Alder, 2002, p. 12. Cf. Alder, 2007, p. 76-77.

³²⁶ Alder, 2002, p. 12.

³²⁷ Ibid, p. 12-13.

³²⁸ Cf. Larson (1921; 1922; 1923); Larson and Adler (1928); Larson and Haney (1932).

criminal or patient. He called for restraint in the application of the lie detection examination, arguing that it should not be used as a tool to extract confessions, and became increasingly critical of the lie detection practices carried out by Keeler.³²⁹ Towards the end of his life he referred to lie detection as a 'Frankenstein's monster,' which he had created and that had taken on its own nature in Keeler's and others' hands and which he had fought for over 40 years.³³⁰ At the same time, Larson earlier acknowledged Keeler's efforts to develop a standardised instrument for the detection of deception.

Keeler, on the other hand, followed the strategy of 'proprietary knowledge.' As we saw in chapter 4, he developed the first instrument specifically geared towards lie detection – the polygraph – for which he secured a patent in 1931 and commercialized it as 'Keeler Polygraph.' While Alder points to Keeler's agreement with the manufacturer that each sale was subject to his approval in order to prevent it from being sold to untrained individuals who could endanger the reputation of lie detection, he stresses that Keeler abandoned the restriction on sales once the patent had expired and established a training program for operators instead. As part of this program, individuals were trained in lie detection in (merely) two-week or six-week courses.³³¹ Additionally, Keeler actively exploited the media attention that was accorded to the polygraph. His marketing of the polygraph examination helped foster the popular belief in the efficacy of the 'lie detector.' Moreover, by contrast to Larson, who worked on the improvement of the lie detection examination as a diagnostic technique, Keeler devised the polygraph examination in such a way that it was based on intimidation and deception of the suspect by means of the lie detector and deceptive questioning techniques.

Alder singles out the so-called card test which Keeler used in polygraph examinations. The card test was (and is) carried out at the beginning of the examination. As part of the test, the subject was told to choose a card from a deck of cards. The entire deck of cards was then shown to the subject and the subject instructed to reply 'no' each time the examiner asked the subject whether the relevant card was the one that he had chosen. On the basis of the polygraph record, the examiner then told the subject, which card he had picked. In Alder's interpretation, this test was a means of tricking suspects into producing a lying response which could be compared with other responses during the examination. Moreover, it functioned as a means of persuading subjects of the efficacy of the examination, thereby enhancing the subject's fear of being caught.³³² As the lie detection examination worked on the basis of registering the subject's fear on the polygraph chart, the heightening of the

³²⁹ Alder, 2002, p. 14; 20-21.

³³⁰ Alder, 2007, p. 249.

³³¹ Alder, 2002, p. 14.

³³² Alder, 2002, p. 15; Alder, 2007, p. 82-83.

subject's fear resulted in an increased chance of the subject actually being caught. For this reason, Keeler's organisation of the polygraph examination turned the polygraph examiner into a 'discretionary expert:'

'Indeed, the lie detector exam, at least as Keeler devised it, ultimately operated according to the same logic as the ancient regime's practice of judicial torture: both were held up as the most reliable means of extracting a confession, itself held to be the most reliable information about culpability. The polygraph examiner knows that a confession is the only sort of outcome that will hold up in a court of law. And the examiner is allowed to use deception to get it. The polygraph thereby becomes a method of tricking and intimidating a suspect to testify against himself. This is why the police have ultimately welcomed the technique. Not only did Keeler make the lie detector into an instrument that almost anyone could operate, even a minimally trained police officer, but because of the way he conceived of its *operation*, it actually enhanced the discretionary power of the examiner, who was less interested in the polygraph record *per se* than in using the process to intimidate the subject into confessing – which was (please recall) the only sort of lie detector evidence acceptable in court during the post-Frye era.³³³

In this account of Keeler's polygraph examination, Alder implicitly opposes the generation of knowledge and the power effects which it institutes. Larson's attempt at a 'scientific' conception of lie detection which seeks to conform to physiological and psychological discourse is opposed to Keeler's 'rogue' methods. These methods turn the polygraph examination from a technique of knowledge production, which might be problematic but is nevertheless geared towards scientific approval, into a torturous practice of deception and intimidation which is geared towards extracting confessions and based on commercial profit. Alder concludes that the continued rejection of lie detection evidence results 'not simply from Larson's assertion that lie detection was "unscientific," but from the *success* of Keeler's brand of salesmanship' and suggests that polygraph examinations remained excluded from the courts on the basis of 'the *sort* of lie detector – and examiner – that emerged in the United States.'³³⁴

In the next section, I would like to retrace some of the steps which Alder has taken in the construction of his analysis by exploring the different routes taken by Keeler and Larson. I will also provide an account of the conflict which developed between Larson and Keeler, which led Larson to condemn Keeler's branch of lie detection. This discussion will provide a basis on which (in section 5.5) to begin raising questions regarding Larson's and Keeler's practices and the polygraphy that emerged on the basis of these practices. In addition, we can problematise Alder's assessment of 'the sort of lie detector' – or rather the 'sort of lie detection' – which developed in the United States.

5.4 *Larson and Keeler*

Before moving the discussion on, let me briefly recapitulate on the foregoing chapters. Larson had come to the Berkeley Police Department in 1920 in relation to his work on fingerprint

³³³ Alder, 2002, p. 16.

³³⁴ *Ibid*, p. 22.

identification. Having become interested in lie detection through Marston's work with the discontinuous method, he had his own instrument assembly set up and developed his own questioning technique (see Chapters 3 and 4 above). Using the examination set-up in the solution of actual criminal cases, Larson experimented with the technique between 1921 and 1923.³³⁵ As a high-school student, Keeler had started spending time at the Berkeley Police Department where he was introduced to lie detection methods. When August Vollmer, the head of the department and one of the major figures in the movement for police professionalization, was called to Los Angeles to reform the Los Angeles Police Department in 1924, Keeler accompanied him in order to carry out detection of deception tests there. As we discussed in chapter 4, with the help of the physiologist Hiram Edwards and under the auspices of his psychology professor Walter Miles at Stanford (where he secured an A.B. degree in psychology in 1930) Keeler developed his own instrument for which he secured a patent in 1931. This instrument was subsequently manufactured by Western Electro-Mechanical Company as the 'Keeler Polygraph.'³³⁶

Having left the Berkeley Police Department in 1923, Larson worked as Experimental Psychologist at the Institute for Juvenile Research and in the Illinois Department of Criminology in Chicago for four years.³³⁷ During this time, he also trained as a psychiatrist, which was to become his occupation for the rest of his professional career. While working at the Institute for Juvenile Research, he continued research into lie detection methods, applying them as a criminologico-psychiatric technique. As a 'substitute for the orthodox psychoanalytical method,' 235 children with 'behavior difficulties' were examined at the home detention branch of the Juvenile Court out of which 113 had been referred because of 'problems revolving about deception,'³³⁸ and were tested as to other possible 'complexes.' Larson held that one of the problems in psychiatric examinations involving delinquencies was

³³⁵ JLP, Carton 1, Folder 3 Lying and Its Detection: Outline and Draft 1932: John Larson, 'Psychophysiological Laboratory in Police Departments, Clinics, Prisons and Mental Institutions with special reference to standardization, detection of complexes or resistances and removal of them (physiological reaction, effects of drugs, changes in oxygen tension and use of apparatus combining hypnosis and sound stimuli),' p. 9, 1958.

³³⁶ In 1939, Keeler ended the contract with Western Electro-Mechanical Company. He was dissatisfied with the quality of instruments, a lot of which, according to him, suffered from mechanical defects (LKP, Carton 2, Folder L.K. Business Matters: Letter to W.J. Foster, Western Electro-Mechanical Company, by Leonarde Keeler, 26/4/1939). He entered into a new agreement with the manufacturer Associated Research Inc. in Chicago, The company produced two models of the Keeler Polygraph. Model 301 was based on Keeler's original instrument, while a galvanometer was added to the new Model 302 (cf. LKC, Box 49, Folder 1059, Box Vol. 3, and Binder 5 for instruction manuals). Keeler's dissatisfaction with the quality of instruments produced did, however, not disappear (cf. LKP, Carton 2, Folder L.K. Business Matters: Letter to James Inman, Associated Research Inc., by Leonarde Keeler, 15/4/1941).

³³⁷ JLP, Carton 1, Folder 3 Lying and Its Detection: Outline and Draft 1932: John Larson, 'Psychophysiological Laboratory in Police Departments, Clinics, Prisons and Mental Institutions with special reference to standardization, detection of complexes or resistances and removal of them (physiological reaction, effects of drugs, changes in oxygen tension and use of apparatus combining hypnosis and sound stimuli),' p. 9, 1958.

³³⁸ Larson and Haney, 1932, p. 1054-1055.

the establishment of the true state of the individual so that a proper treatment could be devised. The identification of the mental state of the individual could involve detecting lies about delinquencies, the detection of malingering of individuals feigning mental illness, and the identification of complexes pointing towards mental conditions such as psycho-neuroses. The use of the examination could even allow the establishment of the gradation of mental abnormality through the distinction between the self-deception apparent in the complexes of psychoneurotics and the hallucinations of psychotics.³³⁹ Arguing that 'actual experience' had a 'quality of reality' which 'sets a standard for matching belief,' Larson maintained that in cases of psychoneurosis an individual ('because of fear or desire') would build up a belief whose lack of the 'quality of reality' he would be aware of, 'however dimly at times.' This awareness would translate into physiological reactions in the examination. By contrast, psychotic individuals suffering from genuine hallucinations would regard their beliefs, however objectively false, as 'real experiences,' thus producing no changes in their records.³⁴⁰

Additionally, Larson carried out a study among 500 inmates at Joliet Penitentiary, an Illinois prison, who had denied their guilt. Again, he stressed the utility of the lie detection examination in the diagnostic work of the psychiatrist. The prison psychiatrist was confronted with the problem of 'involuntary patients' who had not approached the psychiatrist for help, coupled with 'deliberate evasions which are ingrained in the habitual criminal.'³⁴¹ The criminal who was 'perfected in deception' would appear to be honestly seeking the psychiatrist's rapport only for his own gain, e.g. securing parole. Since the psychiatrist was 'handicapped by a lack of time' but the 'sorting of truthful statements from evasions and falsifications has a direct bearing on the effectiveness of the psychiatric approach,' the lie detection examination provided a quick and objective method of assessing the truthfulness of the subject and to 'differentiate between malingering and true mental disorders, whether psychosis or psycho-neuroses.'³⁴² Furthermore, in assessing a prisoner's progress, he could be examined as to whether he was honestly striving for betterment, or whether he was 'merely biding his time, assuming an appearance of willingness and cooperation as a cover for anti-social sentiments and evasion of responsibility.'³⁴³

While Larson continued testing prison inmates, he extended the use of lie detection in the assessment of 'complexes' beyond the testing of children to other mental patients. Additionally,

³³⁹ Larson and Adler, 1928, p. 364.

³⁴⁰ Ibid, p. 364.

³⁴¹ JLP, Carton 1, Folder 16: Draft of John A. Larson and Herman M. Adler (1925) 'A Study of Deception in the Penitentiary,' p. 6, 1925. This was that was later published in the *Institution Quarterly* of the Illinois Department of Public Welfare, Illinois. 117 prisoners who claimed to be innocent were interviewed. 16 refused to take the test. 2 records indicated innocence, whereas the guilt in other cases seemed to be confirmed on the basis of the records.

³⁴² JLP, Carton 1, Folder 16: Draft of John A. Larson and Herman M. Adler (1925) 'A Study of Deception in the Penitentiary,' p. 6, 1925.

³⁴³ Ibid, p. 29.

he developed a system for the classification of records for lie detection examinations.³⁴⁴ In Larson's application, the lie detection examination assumed a different scope than in criminal investigation. As I pointed towards in chapter 4, while in criminal investigation the establishment of guilt became the singular aim of the lie detection examination, in Larson's application it assumed a dual status in criminal as well as psychiatric assessment as partly still set within an academic discourse which was geared towards the analysis of human types rather than exclusively focused on the lie.

In the meantime, Keeler had also come to Chicago to work for the Institute for Juvenile Research, and in 1930 was employed by the newly founded Scientific Crime Detection Laboratory (SCDL), the first crime detection laboratory in the US. He continued working there until 1938, when the financially strained Laboratory was sold to the Chicago Police Department and before opening his own business.³⁴⁵ While working at the Institute for Juvenile Research, Keeler tested inmates who denied their guilt at Joliet Penitentiary as well.³⁴⁶ His work at the Scientific Crime Detection Laboratory mainly involved the use of lie detection methods in criminal investigations (and later in personnel screening), and although the position was intended as a research position, most of his time was taken up by criminal case work which constituted an important source of income for the struggling laboratory. In a much more limited fashion than Larson, Keeler experimented with the possibility of using polygraph records in the diagnosis of mental illnesses. In 1930 he examined 100 mental patients at the U.S. Veterans Hospital in Palo Alto on the polygraph, drafting a research paper with his collaborator Gertrude Baker³⁴⁷ and subsequently reporting on his findings at a

³⁴⁴ JLP, Carton 1, Folder 3 Lying and Its Detection: Outline and Draft 1932: John Larson, 'Psychophysiological Laboratory in Police Departments, Clinics, Prisons and Mental Institutions with special reference to standardization, detection of complexes or resistances and removal of them (physiological reaction, effects of drugs, changes in oxygen tension and use of apparatus combining hypnosis and sound stimuli),' p. 11, 1958.

³⁴⁵ As elaborated in Chapter 4, the funding of the laboratory was a constant concern resulting in its sale to the Chicago Police Department in 1938. After its sale, Keeler was not retained by the SCDL. Rather he was offered a one-year contract by Northwestern University. Keeler had been one of the central members of the laboratory, acting as its unofficial director for some time. This throws up the question to which extent politics were involved in his non-retention. Instead, Fred Inbau who had also worked on methods of lie detection at the laboratory became its new director before taking up a position as law professor at Northwestern University. As there was no assurance on the part of the University that the contract would be renewed, Keeler stated that while he wanted to devote himself to full-time research he was worried that he would lose his case contacts and asked for a half-time professorship (LGP, Box 18, Folder 6: Letter to Leon Green by Leonarde Keeler, 8/8/1938). The Dean of the Law School, although originally wanting Keeler to work full-time recommended that his wish of half-time employment be fulfilled (LGP, Box 18, Folder 6: Letter to Franklin Bliss Snyder by Leon Green, 18/8/1938). Subsequently, Keeler did not continue his association with the university but rather focused on expanding his private business.

³⁴⁶ Keeler, 1932b, p. 743.

³⁴⁷ LKC, Box 45, Folder 1012: Leonarde Keeler and Gertrude Baker, 'Application of the Aneroid Polygraph to Abnormal Psychology,' 1930. Cf. also LKP, Carton 1, Folder Material Pertaining to Training Courses: Leonarde Keeler, F.T Flood, and C.G.Martin, 'Respirations in the Psychotic Compared with Those of Normal Individuals,' n.d. This four-page typewritten paper elaborates on the differences and similarities between normal and 'psychotic' individuals.

meeting of the Chicago Medical Association, probably in 1931.³⁴⁸ Additionally, Keeler obtained permission to secure records from 150 mental patients during a visit to the Mayo Clinic in Rochester, MN in 1934.³⁴⁹ Ultimately, however, his focus lay in the application of lie detection in criminal cases.³⁵⁰

Although Keeler and Larson were in regular contact, the former often giving advice to the latter, Larson became increasingly critical of Keeler's conduct of lie detection examinations. In a letter to Vollmer dated April 24, 1931, Larson asked Vollmer 'to use whatever influence you have on Leonarde.'³⁵¹ Larson stated that 'unfortunately Leonarde hadn't gone over too well with the scientists because they look on him as a clever technical operator only, but one who has not had sufficient controlled academic training.'³⁵² Larson was worried about how Keeler presented the lie detection method in public demonstrations – in order to show its working principles Keeler used the card test explained above, which Larson considered an inadequate method of demonstrating the working principles of lie detection, representing a method outside of 'the realm of scientific experimentation.'³⁵³ To prevent lie detection research falling into disrepute, Larson asked Vollmer to talk to Keeler and 'hold him down to getting formal training, preferably his M.D. because if he goes out for his Ph.D. he probably will not receive enough of the fundamental sciences [...].'³⁵⁴ Not only Keeler's lack of formal training, but his research practices too, did not go down well with Larson. He argued that Keeler did not credit people who had collaborated with him in his publications or in his talks, and that getting a patent on an instrument contradicted common practice in physiologists' circles.³⁵⁵

Meanwhile, Keeler had developed new avenues for the application of lie detection examinations. In 1929, he wrote to Vollmer that his 'foolish mind has been tossing about among the fleeting clouds again.'³⁵⁶ He had found that large department stores lost considerable amounts of money each year due to employee thefts. He surmised that if polygraph operators were employed to examine employees, 'lifters' could be eliminated and 'the fear of the Lord' be put in the remaining employees.³⁵⁷ As a result of the 'weeding process and the psychological effect on all employees probably the enormous losses would be reduced some seventy-five per

³⁴⁸ Larson refers to the meeting and Keeler's results in one of his articles (Larson and Haney, 1932, p. 1071).

³⁴⁹ AVP, Box 17, Folder 5 Keeler, Leonarde: Letter to August Vollmer by Leonarde Keeler, 19/3/1934.

³⁵⁰ In his exchange with his mentor August Vollmer, Keeler continuously re-iterated his plan of getting further medical training as well as writing a research monograph on his case work – the book never materialised (AVP, Box 17, Folder 5 Keeler, Leonarde: Letter to August Vollmer by Leonarde Keeler, 19/3/1934).

³⁵¹ BPDR, Box 10, Folder Larson, John 1927-1932: Letter to August Vollmer by John Larson, 28/4/1931.

³⁵² Ibid.

³⁵³ Ibid.

³⁵⁴ Ibid.

³⁵⁵ BPDR, Box 10, Folder Larson, John A. 1927-1932: Letter to August Vollmer by John Larson, 2/7/1931.

³⁵⁶ CKP, Box 7, Folder Keeler Leonarde, 1913-1933: Letter to August Vollmer by Leonarde Keeler, 17/12/1929.

³⁵⁷ Ibid.

cent or more.³⁵⁸ While the department stores would have to pay polygraph operators for their services, this would only account for a small proportion of the funds saved through the prevention of employee thefts. Keeler's enterprising spirit made for even bigger plans: If the business proved to be a success, branch offices would be opened in all major U.S. cities. Once the business had grown to allow for further expansion a research laboratory and a criminological school could be founded to 'be used solely for the study of various sciences as directly related to crime.'³⁵⁹ The laboratory and the school would be funded by the commercial enterprise.

The use of lie detection examinations in personnel screening proved successful – the first customer was to be a bank. By 1933, the polygraphers of the SCDL had examined 919 employees in 37 banks. The use of the polygraph in banks was considered so successful that in December 1932, a major bank insurance company, Lloyd's, decided to lower their premium for banks that agreed to have regular polygraph screenings.³⁶⁰ The use of lie detection examinations in personnel screening was to initiate a new function for the lie detection examination, which I will discuss in the next chapter: the polygraph was no longer to be used only in criminal investigations but became a tool in the disciplining of employees. It became a 'moral technology.'

After Keeler had started the sale of his polygraph and commercialised lie detection examinations by extending them to personnel screenings at the SCDL in the early 1930s, Larson turned away from Keeler. In a letter to Vollmer dated June 2, 1951, Larson claimed credit for being the first to have developed the detection of deception technique. He argued that no significant advances had been made by operators such as Keeler who focused on developing and marketing their own machines. Moreover, he stated that he had finally broken with Keeler in Illinois 'because I could not agree with his commercialization and he did not go ahead, as agreed, for further basic training after receiving his A.B.'³⁶¹ The lack of formal training – not only as far as Keeler was concerned but also among the growing community of police polygraph operators – became a central pillar of Larson's criticism of Keeler's lie detection practices.³⁶² As Alder states, when Keeler set up his own business in 1939, which he registered as Keeler, Inc. in 1940,³⁶³ and as, his patent had expired, he commercialised the training of polygraph operators by offering two- to six-week training

³⁵⁸ Ibid.

³⁵⁹ Ibid.

³⁶⁰ LGP, Box 17, Folder 2: Calvin Goddard 'Report of the Director. Scientific Crime Detection Laboratory' 1932. Cf. also LGP, Box 18, Folder 4: Letter by Calvin Goddard to William Dyche, 11/1/1933.

³⁶¹ AVP, Box 18, Folder Larson, John 1930-1951: Letter to August Vollmer by John Larson, 2/6/1951.

³⁶² The account of Larson's criticisms is based on a series of different early drafts to be found in the John Larson Papers, which were intended as a basis for a revised edition of his monograph *Lying and Its Detection* originally published in 1932 (cf. especially JLP Carton 1, Folders 3, 4, and 5).

³⁶³ Matte, 1996, p. 25.

courses. Again, most of the trainees were police officers. To Larson this was unacceptable – in his view since 1930 ‘the country became overrun with unskilled operators and commercial salesmen who obligated the purchase of the “machine” to expand several hundred dollars to take the course. The number of operators of these “lie boxes” has increased to several hundreds. The army and several universities have been giving courses without requiring preliminary clinical training.’³⁶⁴ In a letter to George Haney, with whom he had collaborated earlier but who was working for Keeler, Larson stated ‘I am working with medical groups to stop what, as far as I am concerned, is a racket.’³⁶⁵

In March, 1938, a ‘Medico-Legal Symposium’ on polygraphy was organized in Detroit, at which Larson set out to ‘combat the non-scientific trends’ in polygraphy.³⁶⁶ In his speech, Larson argued that

‘Most of the lay operators naturally are unfamiliar with the basic principles involved and are widely exploiting “machines.” They write chiefly for popular magazines or the newspapers and most of the articles are unscientific and uncritical, concentrating chiefly upon attempts to have “lie detector” records forced into judicial procedure without having any idea of the actual validity of the methods.’³⁶⁷

In summarizing his speech, Larson presented 14 points on lie detection (the *Police Journal* drew an analogy to Woodrow Wilson’s 14 points when publishing them) as part of which he stressed that lie detection was a useful tool in preliminary investigations but should not be admitted as evidence or taken as sole basis for evaluating a suspect’s guilt. He stated that a study on the validity of lie detection methods was in process, and called for what he would later refer to as the ‘clinical team approach’:

‘All deception tests should be a part of an analysis of the crime setting integrated with each individual personality analysis. Neither medical nor criminological training alone is a requisite but a combined staff consisting of the investigators, the examiner ideally with legal psychological training, and a psychologist and licensed physician or a forensic psychiatrist. These last three should be present throughout every examination.’³⁶⁸

Another Medico-Legal Symposium was held in Gary, Indiana in 1951 at which the ‘International Society for Police Psychiatry and Criminology’ was formed. The aims of the association were to promote the clinical team approach in criminology and to develop standards of ethics and training among the members of the association. An additional

³⁶⁴ JLP, Carton 1, Folder 3 Lying and Its Detection: Outline and Draft 1932: John Larson ‘Psychophysiological Laboratory in Police Departments, Clinics, Prisons and Mental Institutions with special reference to standardization, detection of complexes or resistances and removal of them (physiological reaction, effects of drugs, changes in oxygen tension and use of apparatus combining hypnosis and sound stimuli)’, 1958.

³⁶⁵ LKP, Carton 2, Folder 15 L.K. Business Associates: Letter by John Larson to George W. Haney, 27/6/1939.

³⁶⁶ JLP, Carton 4, Folder 22 Biography: John Larson [typewritten paper on his biography probably to form part of the draft of a new edition of his *Lying and Its Detection*], n.d.

³⁶⁷ JLP Carton 1, Folder 25 ‘The Lie Detector: Its History and Development’: John Larson ‘The Lie Detector: Its History and Development,’ 1938. This is a typewritten draft of the speech given by Larson at the Detroit symposium which was subsequently published as ‘The Lie Detector: Its History and Development’ in the *Journal of the Michigan State Medical Society* in October 1938. I could only secure a typed copy.

³⁶⁸ Larson, 1938, p. 11-12.

symposium was held in 1953 at Logansport, Indiana.³⁶⁹ By contrast to the practices carried out by ‘non-clinical’ lay operators, Larson argued that virtually from the beginning, he had used a team approach which allowed for the comparison of interpretations.³⁷⁰ In 1953, Larson sent an announcement through the APA mail pouch offering an ‘Orientation Training Course in the Detection of Deception’ in which he intended to provide a ‘course to a clinical team-investigator, physician and psychologist.’³⁷¹

The following announcement was published in a newsletter and distributed to every member of the American Psychiatric Association describing a non profit educational and research study.

DOCTOR JOHN LARSON ANNOUNCES COURSES IN SCIENTIFIC BASIS OF LIE DETECTION

A course of instruction designed to return lie detection to a scientific basis is announced by John A. Larson, M.D. superintendent, Logansport (Ind.) State Hospital, who pioneered routine usage of a test for deception.

Dr. Larson will use, in part, material previously published in scientific journals. [...] It is his belief that diagnosis of lying is a psychiatric function and his desire is to reestablish the polygraph as a scientific tool in the detection of deception and in psychiatric diagnosis.

Dr. Larson points out that “instead of the crude bluffing practiced by many operators without proper training, the ideal approach is through a team including a psychiatrist, psychologist, social worker and sociologist investigating cooperatively and reaching a conclusion following staff conferences.”

Dr. Larson will present training for such teams. Full information concerning the lectures and laboratory work, the faculty and arrangements may be obtained from him at Indiana State Hospital Logansport, Indiana.³⁷²

When only three interested individuals replied, the course was cancelled. In 1955, Larson sent out a questionnaire to polygraph operators in which he asked operators to provide statistics on their polygraph records – again he only received few replies.³⁷³ Larson’s efforts at ‘returning lie detection to a scientific basis’ using the clinical team approach seemed to have been in vain.

Once Keeler had established the first training institution for polygraph operators, others followed suit. John Reid, who had worked for Keeler and been employed by the Chicago Police Scientific Crime Detection Laboratory (as the successor organisation of the SCDL was called when it was sold to the Chicago Police Department in 1938) and trained as a polygraphist at the Keeler Polygraph Institute, set up his own consultancy (John E. Reid and

³⁶⁹ JLP, Carton 1, Folder 29 “Present Limitations and Possibilities of Deception Tests or So-Called Lie Detectors”: John Larson Present ‘Limitations and Possibilities of Deception Tests or So-Called Lie Detectors,’ 1951. Cf. also JLP, Carton 4, Folder 25 John A. Larson Clippings About 1947-1961.

³⁷⁰ Cf. JLP, Carton 1, Folder 4 Lying and Its Detection Draft 1932: John Larson [typewritten outline of the new draft of his earlier monograph *Lying and Its Detection*], n.d. In this draft Larson argues that the police officers that he worked with at the Berkeley Police Department functioned as lay control persons when interpreting the records and that he worked with collaborators who had Master’s degrees in psychology when he had moved to Illinois. It is questionable whether this constituted the ‘clinical team approach’ that he later advocated. Rather, it might be taken as a rationalisation for his later promotion of this approach.

³⁷¹ JLP, Carton 1, Folder 3 Lying and Its Detection: Outline and Draft 1932: John Larson ‘Psychophysiological Laboratory in Police Departments, Clinics, Prisons and Mental Institutions with special reference to standardization, detection of complexes or resistances and removal of them (physiological reaction, effects of drugs, changes in oxygen tension and use of apparatus combining hypnosis and sound stimuli),’ p.3, 1958. For a copy of the course outline cf. JLP, Carton 2, Folder 2 Detroit Police Training School 1961.

³⁷² For a copy of the questionnaire cf. JLP, Carton 2, Folder 3 Detroit Training School n.d.

³⁷³ JLP, Carton 1, Folder 3 Lying and Its Detection: Outline and Draft 1932: John Larson ‘Psychophysiological Laboratory in Police Departments, Clinics, Prisons and Mental Institutions with special reference to standardization, detection of complexes or resistances and removal of them (physiological reaction, effects of drugs, changes in oxygen tension and use of apparatus combining hypnosis and sound stimuli),’ p. 3, 1958.

Associates) together with a training institution called Reid College. Cleve Backster, who had been employed by the newly formed CIA in 1948 and had previously worked as an interrogation instructor for the US Counterintelligence Corps, received training in polygraphy at the Keeler Polygraph Institute in 1948. Backster was representative of the increased involvement of government agencies in polygraphy. Not only was the application of polygraphy extended into matters of national security. Additionally, government agencies started setting up their own polygraph branches and training institutions, which became major stakeholders in maintaining polygraphy. In 1959, Backster formed the National Training Center of Lie Detection in New York City with Richard Arther, an associate of Reid's. However, their different approaches to lie detection soon resulted in a conflict which led Backster to establish a competing school, the Backster School of Lie Detection, in 1962.³⁷⁴ If we recall the discussion in chapters 3 and 4, the early figures in the detection of deception (such as C.G. Jung, Wertheimer and Klein, Hugo Münsterberg, and Troland and Burt) had all been psychologists working within academic institutions. Larson and (to some extent) Marston were transitional figures. While they were working within the frame of the academically trained psychologist (in Marston's case) and the academically trained physiologist and psychiatrist (in Larson's case), they, and most notably Larson, became increasingly embroiled in the development of lie detection and the establishment of its field of application. By contrast, as the discipline developed into a separate profession, most polygraph operators, as well as leading figures in the development of polygraphy, mainly had a background in interrogation but not necessarily a background in academic psychology. These were police officers, other law enforcement officials or private operators offering their services in criminal investigation and personnel screening. Thus, as polygraphy instituted itself as a separate discipline, it became increasingly disconnected from the institutional and disciplinary background within which it had developed and formed its own professional basis – as we saw above with the disapproval of Larson.

In addition to training institutions, professional associations started to form. The aim of such associations was to advance lie detection techniques, implement standards of ethics and qualifications, and to represent lie detection practitioners. One of the first associations was the 'International Society for the Detection of Deception' formed by Leonarde Keeler and other lie detection specialists in 1947.³⁷⁵ The association was renamed into 'Academy for Scientific Interrogation' in the early 1950s. In 1952, the academy formed a 'Certification

³⁷⁴ Matte, 1996, p. 41-43.

³⁷⁵ AVP, Carton 6, Folder 3 Miscellaneous: International Society for Detection of Deception Bulletin, Vol. 1, No. 1, August 1948. The idea of a professional association was developed by Keeler, Reid, Haney, Trovillo and others while employed to screen German Prisoners of War by the US Government in 1945 (LKP, Carton 2, Folder 27 Miscellaneous correspondence and biography: V. Stevens [Keeler's secretary] 'History,' n.d.).

Committee,' which was to implement qualification standards in the field by testing and certifying lie detection specialists with a view towards building the profession and marginalising untrained operators.³⁷⁶ In 1966, the American Polygraph Association, the largest professional association in polygraphy was founded, which in 1988 had certified 30 polygraph schools spread across US American states and had about 3000 members.³⁷⁷ Today, there are polygraph associations in all US States and 28 state licensing boards.³⁷⁸ However, the certification of professionals through an external body such as the state and specific legislature, which lends a profession further authority, was never fully implemented in the case of polygraph examiners. For this reason, uncertified polygraph examiners can still operate in a range of states.

As regards the further development of polygraphy as a 'scientific' technique, two different strategies were followed which, respectively, drew on an *experimental* and a *psychological* logic. In 1947, Reid introduced the so-called comparative response question – now called 'control question technique' – into lie detection. In trying to control for the possibility that the innocent might appear as guilty because of his fear of the examination rather than because of his lies, known 'true' answers and potentially mendacious ones were additionally to be compared with known (or what polygraph examiners conceived of as highly probable) 'lying' responses. Thus an individual might be asked whether he had ever stolen anything or whether he had ever lied, on the assumption that even the 'honest' citizen would have committed a minor transgression in their lives. The assumption was that the innocent would fear that a straightforward answer would reflect badly on him, while the guilty would be more concerned about the actual crime. Thus, lying responses could be compared and the innocent and the guilty told apart. Over time, different versions of possible 'control questions' were developed in the attempt to mirror the experimental control situation of the psychological experiment.³⁷⁹ A second movement aimed at rendering the interpretation of polygraph records 'objective' by disciplining the polygraphic observer: the qualitative interpretation of the graph's curves was to be replaced with 'a single prediction number.'³⁸⁰ For while '[t]he idea of mere numbers determining whether a person is guilty or not can seem too cold and too simplified, [...] numbers are the inevitable basis of science. Therefore, if polygraphy was to progress, it had 'sooner or later change from the art of polygraph reading to the scientific estimation of the probability of guilt.'³⁸¹ On this basis, the physiological responses were to be correlated and a numerical estimation of deceptiveness obtained. As part of this movement, from the 1960s,

³⁷⁶ Steel, 1958, p. 43-44.

³⁷⁷ Levey, 1988, p. 75.

³⁷⁸ American Polygraph Association. "<http://www.polygraph.org/statelicensing.cfm>" (20/2/2007).

³⁷⁹ Reid, 1947, p. 544.

³⁸⁰ Hathaway and Hanscom, 1958, p. 112.

³⁸¹ Ibid, p. 112.

Backster developed a 'numerical' approach which sought to exclude the 'subjective' assessment of the polygraphist by making the evaluation of the polygraph chart the *only* basis for lie detection. Backster devised a special technique – the 'Backster Zone Comparison Technique' – on the basis of which physiological responses were compared and quantified across the chart rendering an 'objective' analysis of the examination subject's truthfulness by means of an overall numerical score. By supplying rules as to how different types of questions were to be scored in relation to each other, Backster sought to provide a standardised technique to be applied across examiners, which could, in turn, serve for the validation of lie detection.³⁸²

Developing a technique by which the operators would be collectively socialised into 'seeing' and 'counting' in the same way, and thus to supply the same results regardless of the individual examiner, constituted a further attempt to make the polygraph examination conform to a psychological logic of testing – in this case the notion of *reliability*. If polygraph examiners could show that they arrived at the same results independently of the individual examiner, and furthermore that their analysis was rendered in quantitative terms, then the knowledge that they produced could be counted as 'objective.'

Backster's efforts continued along a 'global' or 'clinical' approach for a while: his earlier associate Arther, following Reid's model, continued a version of polygraphy which stressed an overall assessment of the behaviour of the examination subject. In this format, the role of the polygraphist resembled that of a skilled individual interpreter who took on the role of a hermeneutician in interpreting the script by drawing on the subject's overall behaviour. However, as polygraphy developed the movement towards quantified approaches became increasingly stronger.³⁸³ The development of the 'control' question, as well as the development of an increasingly quantified approach to polygraph examinations, testifies to the ongoing effort to construct the scientific authority of polygraph examinations on the basis of psychological practices.

³⁸² Matte, 1996, p. 42-43; Abrams, 1989, p. 5; Lykken, 1981, p. 32.

³⁸³ From the 1980s, statistical models as opposed to a simple quantitative reading of polygraph charts were introduced as part of the movement of polygraphy back into academia. Even software algorithms which provide an estimate of the deceptiveness of the record have been developed (cf. Olsen *et al.*, 1997). This denotes a shift in the conceptualisation of the polygraph examination. As I argued in Chapter 4, early lie detection specialists constructed the scientificity of lie detection on the basis of the expertise of the individual examiner as a skilled *diagnostician of the lie* over and against the notion of the lie *detector*. In current developments, by contrast, polygraphy is moving towards legitimating its authority less on the basis of the ability of the examiner to diagnose the lie, but rather on the basis of the *ability of the instrument to compute it*. In this respect, polygraphy, intriguingly, seems to approximate a representation of polygraphy that – analogously to the lie detector discourse – seeks to construct its scientificity on the ability of the 'machine' to detect the lie independently of the examiner. This is in order to deflect the charge of 'subjectivity,' which is enlisted as one of the main arguments of the proponents of an alternative technique to detecting guilt – the so-called 'guilty knowledge test.' The contestation of polygraphy and the development of alternative methods will be covered in Chapter 7.

Thus lie detection experts were indeed able to establish polygraphy as a profession. From the late 1930s, specialised training institutions were opened and professional associations founded which certified members and aimed for the standardisation of polygraph practice based on standards that were being developed internally within the discipline. Polygraphists either operated as private investigators offering their services to commercial and law enforcement institutions, or were based at police departments or government agencies such as the Department of Defence or the Department of Energy. Their practices continued largely independently of academic involvement up until the 1970s.

5.5 *Two Models of Expertise*

At this point in the discussion we could draw two conclusions. Going back to Golan's analysis, which showed how the admissibility of scientific evidence became subject to regulation and emulated a community-based model of scientific practice, we might note that even though polygraphy underwent a process of professionalization it nevertheless remained excluded from the criminal courts. This conclusion would appear to support his argument that the exclusion of lie detection evidence from the courts was due to the nature of the evidence that it represented and the dangers that its acceptance posed to the organisation of the court system. By providing a direct assessment of the question of the individual's guilt or innocence, the evidence of the lie detection expert thereby threatened to replace the status of the jury as the only institution able to pass judgment on the guilt of the accused. The very least that lie detection could do was to sway the opinion of a jury that was overly 'credulous.' In implementing the rule of 'general acceptance' the court thus engaged in boundary-work in order to protect its own functioning.

However, having examined Alder's account of the development of lie detection methods, we could also conclude that the continued protection of the 'credulous jury' by the criminal courts was due to *the way* in which polygraphy was professionalised. Rather than developing polygraphy within the realm of controlled scientific (clinical) practice as Larson wished, polygraphy was turned by Keeler's practices into an enterprise characterised by 'consummate anti-professionals.' Professional associations may have developed, such as the American Polygraph Association, which implemented standards of qualifications and accredited training institutions. But these standards are not mandatory for polygraph operators, rendering 80% 'incompetent.'³⁸⁴ As a profession, polygraphy thus became marked by operators 'who have deliberately shied away from even the most basic self-regulating norms and standards'³⁸⁵ and

³⁸⁴ Alder, 2002, p. 22.

³⁸⁵ Ibid, p. 22.

who pose as ‘discretionary experts’ intimidating subjects in order to extract confessions.³⁸⁶ Alder seems justified in pointing to the lack of regulation of polygraph examiners, which has continually created concern in different arenas: the public, the scientific, the legal and the polygraphic arena itself. However, we must not overlook the 20% of polygraph examiners who did abide by professional standards and who sought to further the scientific status of polygraphy. As we saw above, the same issues which had preoccupied Larson, most notably the question of training and the standardization of polygraph practice, continued to shape the development of polygraphy as a discipline. By devising means of standardising techniques, polygraphists attempted to emulate psychological standards. Having developed largely outside the institutionalised academic realm until the 1970s, an academic interest in the physiological detection of deception emerged among a group of psychophysicologists who integrated developments in lie detection by hailing the ‘ingenious methods’ which had been developed by field workers in polygraphy.³⁸⁷ While polygraphy was (and is) keenly debated by another group of psychophysicologists who disputed its scientific basis, its consideration by what would commonly count as ‘scientists’ complicates Alder’s picture of the polygrapher as a ‘consummate antiprofessional.’

I agree with Alder’s interpretation that the inability of polygraphists to establish themselves as a profession that regulates all its members on the basis of integrated internal as well as external (e.g. state) systems of certification and training contributed to the continued exclusion of lie detection evidence from the criminal courts. However, rather than framing this in terms of a normative reading of the polygraph operator as ‘consummate antiprofessional,’ I would like to qualify this interpretation. As we saw in my discussion of Golan, the professional model of science only developed towards the end of the 19th century and has since become the main organisational model by which scientific practice attains and legitimates its authority. The fact that polygraphy has not implemented this model as successfully as other disciplines – such as fingerprinting – provides another explanation for how the courts, which implemented this very model in the Frye decision, were provided with a further rationale to keep lie detection outside of their boundaries. If framed in this way, however, the underlying assumptions of Alder’s

³⁸⁶ Gross (2001) provides an interesting extension of this interpretation. In his article, he compares handwriting evidence, which remains a contested form of expertise in the courts but is nevertheless routinely admitted, with the continued rejection of polygraph evidence. He agrees with Golan’s interpretation that lie detection threatened to undermine the main competence of the jury, while handwriting expertise could be counted among other contested forms of evidence which did not interfere in the court’s judging processes. He sees the rejection of polygraph evidence as one of the potential causes of the development of polygraphy along the lines examined by Alder, and poses the hypothetical question whether polygraphy would have developed in a different fashion had it not remained excluded. While this question might be interesting in terms of ‘fictional history,’ I will take a different turn in investigating the knowledge/power mechanism of lie detection at the entry of the criminal justice system. For a history of how handwriting expertise as judicial evidence, cf. Mnookin (2001).

³⁸⁷ Podelsney and Raskin, 1978, p. 344.

explanation must be changed: rather than taking the professional model as guarantor of valid scientific knowledge at face value, it is transformed into a socio-historical interpretation of how polygraphy lent itself to continual contestation and was less successful in legitimating its scientific authority on the basis of how its practices were socially negotiated.

On the basis of these qualified agreements with Alder's evaluation of the status of lie detection as scientific evidence, I would like to further problematise Alder's normative account of the development and scientific status of polygraphy as a profession. Alder's evaluation is facilitated by his construction of the history of lie detection in terms of the opposition of two of its main developers, Larson and Keeler. As I outlined above, Alder frames their opposition in terms of two heuristics: He identifies Larson's practices as corresponding to an 'open model of science,' whereas Keeler's practices are connected to the model of 'proprietary knowledge.' The open model of science is linked to the construction of science as 'disinterested': a practice marked by norms which credits discoveries and sanctions personal gain, whose results can be checked publicly by publication in peer-reviewed journals, and which is set in meritocratic institutions. By contrast, the heuristic of proprietary knowledge is associated with the production of financial gain based on the protection of that knowledge and (as Alder states in Keeler's case) further gains in coercive power.

However, Alder's use of these heuristics is problematic in so far as they are based on a hierarchical conception of knowledge. Intriguingly, Alder's 'open model of science' corresponds closely to a Mertonian view of science. In this model, science is conceived of in terms of the *norms* which guide scientists in generating 'objective knowledge': scientific *knowledge* is not subject to sociological investigation. Rather, the validity of scientific knowledge is presupposed. Thus it is a sociology of *scientists* rather than of science.³⁸⁸ Additionally, those norms that are alleged to guide science are conceived of in terms of a liberal model of democratic process (and progress) – characterised by openness, disinterestedness and peer criticism, and geared towards the benefit of the many rather than the one or the few. It is a model of science which is devoid of power relations, or rather, it makes it possible to explain the maintenance of types of knowledge that are not considered

³⁸⁸ There are slight divergences between Alder's model of open science and Merton's norms of science – for example, the former includes the setting of scientific practice in meritocratic institutions, which the latter does not refer to. Yet Merton's four social norms of science which function alongside technical and methodological rules to constitute a scientific social system are virtually identical with Alder's model. They comprise: *communism*, meaning the mutual sharing of findings; *universalism*, denoting the evaluation of knowledge by means of 'pre-established impersonal criteria'; *disinterestedness*, i.e. the advancement of science for other than purely personal reasons; and *organised scepticism*, referring to making judgments only when sufficient evidence warrant them (Gieryn, 1995, p. 398-399). In connection to the more fundamental problem that this model does not allow for a sociological investigation of scientific knowledge itself, sociologists have additionally criticised Merton in that he 'tends to assume that the social system of science works as a system, that deviance is idiosyncratic, and that the social structure of science is [...] fundamentally stable' (Restivo, 1995, p. 99).

valid as resulting from (illicit) structures of domination. By considering Larson's version of lie detection in this way, Alder accords Larson's practices a scientific as well as normative authority by virtue of the fact that they correspond more closely to the norms of what seem to him to be established scientific (in this case, psychological) practices. Rather than functioning as heuristic, the 'open model of science' in conjunction with Alder's description of Larson's apparent efforts at a scientifically valid lie detection examination in effect becomes a *measure* against which Keeler's practices are evaluated. In this connection, the 'model of proprietary knowledge' then becomes the negative, illicit power-oriented counterpart of Larson's version of lie detection. Keeler is depicted as a profit-oriented individual who designed the lie detection examination in such a way that it became a means of persuasion and intimidation for the simple purpose of extracting confessions rather than a controlled technique geared towards the scientific evaluation of polygraph charts. The quick commercial training of operators in conjunction with the sale of the polygraph testifies to Keeler's greed rather than his aim to establish lie detection as a scientific technique. As a result of this normative description, Larson's approach is held to have been oriented towards the impartial and fair development of the lie detection examination, which is decoupled from the effects of power that his version of the lie detection examination might institute, while Keeler's method, which forms the basis of later developments in polygraphy, is seen as a ruthless and purely power-oriented, coercive technique.

If, however, we consider Larson's practices by an equal measure as Keeler's, the picture changes. This is not to dispute that Larson and Keeler followed different strategies in establishing their version of lie detection. Rather, it is to argue that if one is to consider the development of knowledge practices, it is problematic to introduce criteria of evaluation. As I stated in my methodology chapter, it becomes necessary to investigate both the seemingly more or less acceptable or valid knowledge practice and how it seeks to legitimate itself. As the more recent sociology of science and technology has shown, processes of knowledge construction and legitimisation are *always* 'interested.' Instead of opposing Larson's and Keeler's versions of lie detection, then, we might take them as two different models of lie detection. First, instead of taking Larson's criticisms of Keeler's and other polygraphers' practices at face value as Alder seems to have done, one may consider them on the basis of my extended account of the conflict that developed between them. As a consequence, they become a resource in Larson's attempts at legitimating his own version of lie detection rather than a disinterested and seemingly more valid approach to lie detection pushed aside by rogue and profiteering polygraph operators.

Secondly, in expanding on my analysis of the reformulation of lie detection in its move from the academic to the criminal realm, we can see how Larson's and Keeler's models corresponded

to different conceptions of elaborating knowledge and constructing expertise. This, in turn, provides an explanation for Larson's failure to implement the clinical team approach. As I noted above, Larson represented a transitional figure in the development of lie detection. On the one hand, as we saw in chapter 3, Larson developed the format of the lie detection examination on the basis of which the simple lie emerged in the detection of guilt. He was also the first to introduce lie detection to one of its main institutions of application: criminal investigation in police departments. On the other hand, Larson's use of the lie detection examination was mediated by his rootedness within an earlier model of the assessment of the criminal. As Bunn's analysis of the development of the lie detector in chapter 4 showed, the early development of methods of lie detection by academic psychologists such as Jung and Münsterberg was set within the construction and analysis of the criminal as a certain pathological human type. Larson's use of the lie detection examination once he had left the police department in the assessment of delinquent children at the Institute of Juvenile Research, mental patients and prisoners at the penitentiary is reminiscent of this framework. Additionally, the training that he received – securing a Ph.D. in physiology before his move to the Berkeley Police Department and training as a psychiatrist in the period following his appointment as police officer – more closely corresponded to the background of the early figures in the detection of deception. In Larson's conception, the lie detection examination not only functioned as a means of constituting the guilt of the criminal, but also formed the basis of his psychiatric examination. As we saw in my description of Larson's early application of the lie detection examination, it could serve to establish the guilty subject's lie, the psychoneurotic's self-deception, and the psychotic's insanity. Thus the lie detection examination was directed at the assessment of *abnormality* in its different gradations from the criminal to the mentally ill coupled with a moral assessment. The lie constituted the starting point on a continuum which moved from criminality to mental illness, where at one end the lying criminal was mentally *sane* but morally *deficient*, and on the other end the psychotic was mentally *insane* but morally *inept* (for he had no sense of reality). On the basis of this assessment of these types, an individualised treatment was to be directed at them. Equally, the 'clinical team approach,' which Larson later developed for criminal investigation was geared towards the establishment of the subject's guilt in conjunction with an analysis of his personality – the type of human being that the apprehended individual represented. Accordingly, his notion of 'scientific expertise' was constructed around academic and especially clinical training which would enable the lie detection specialist not only to provide a diagnosis of the subject's lie but also to render a deeper analysis of the individual. The broader clinical training of the expert was necessary in enabling him to detect all those different grades of abnormality which defined the suspect as a particular type. In the clinical team approach, the clinically trained examiner was further to be

supported by other academically trained experts – the psychologist, the sociologists, the psychiatrist or the physician – in providing an assessment of the individual and elaborating measures for his treatment.

By contrast, in the lie detection examination as it came to be used by Keeler and those polygraph operators that were to follow him, the subject's lie did not reach beyond the simple assessment of guilt or innocence. Rather, in criminal investigation as practiced by police officers and polygraph operators, the establishment of guilt became the singular aim of the lie detection examination. It operated on the basis of a simple binary classification, where the lie equalled *guilt* and truthfulness equalled *innocence*. This also meant that in this model the lie detection examination was no longer geared towards an understanding of the individual as a certain type of human being to be intervened upon. The lie detection examination thereby assumed less depth in terms of the knowledge of the individual offender that it sought to gain. This was in line with scientific techniques of criminal investigation more generally – rather than trying to establish a 'deeper' reality of the crime or the criminal, as Valier argues, they were defined by an epistemology which was geared towards a more superficial and immediate establishment of a link between the *criminal* and his *deed*.³⁸⁹ For example, a similar development occurred in the history of fingerprint identification, where in its early period, the analysis of fingerprints was not only used as a means of identification, but 'dactyloscopers' sought to develop classifications of mental abnormalities and thus to establish different human types on the basis of analysing fingerprints.³⁹⁰ Yet as fingerprint identification became rooted in criminal investigation, fingerprints assumed their power as infallible evidence precisely because they could be taken as a unique but superficial link to identify a particular individual and took on no meaning in and of themselves.³⁹¹ The lie detection examination, of course, made a much more ambitious claim in venturing that it could read the subject's mind. However, as regards the status of the individual within the examination, a similar movement occurred as with fingerprint identification – a movement away from the classification of human types and their individualised treatment on the basis of this classification, to the simple establishment of the guilt of any individual. The more immediate epistemology which defined criminal investigation was translated into how 'scientific' expertise' was constructed at police departments and institutions involved in criminal investigation.

As I discussed in the last chapter, as scientific methods of criminal investigation were implemented at law enforcement institutions and spreading crime laboratories, new

³⁸⁹ Valier, 1998, p. 93.

³⁹⁰ Cole, 1999, p. 163.

³⁹¹ Cole (2001).

functions emerged in the application of various ‘scientific’ techniques. Its practitioners were not necessarily academically trained scientists but rather law enforcement officers who received specialised training or learned techniques through an apprenticeship.³⁹² Thus, the form taken by their ‘scientific expertise’ resembled much more the one of a technician versed in a specialised technique. In a similar vein, in Keeler’s model of lie detection and how it became institutionalised in the further development of polygraphy, the polygraph examiner was not an academically trained expert – he was also a police officer or individual with a background in interrogation. His training equally came to represent that of a specialised technician. In training courses, future polygraph operators who had bought a Keeler polygraph could receive lectures on the history of lie detection, its method, the instrument and on basic assumptions about the emotional concomitants of deception, observe cases and practice the technique.³⁹³ As can be gleaned from my quote on Keeler’s notion of the expert as marked by honor and integrity in section 5.2 above, Keeler even likened the training of the ‘legal psychologist’ to an apprenticeship.³⁹⁴ In following the logic of an apprenticeship, his training was to be complemented by the experience which the polygraph operator gained in conducting polygraph examinations. Newly trained operators were advised to ‘use the technique experimentally for a period of eight months or one year before venturing forth into actual case work.’³⁹⁵ The specialised training had been made possible through the production of the instrument, the polygraph, which furnished polygraph examiners with a standard set of equipment, the working mechanisms of which operators did not have to know and which thus represented a ‘black box’ simply to be used

³⁹² In this regard other areas of what now comes under the general heading of ‘forensic science,’ such as fingerprinting, document examination, or firearms identification, have followed the same route of professional development as described with regard to polygraphy above. Experts in these areas are trained in specialised training courses and a focus is placed on the gaining of experience by means of apprenticeship with a supervisor or trainer. The development of these functions was closely connected to and set within the institution of governmental crime laboratories on the national, state and municipal level from the 1920s onwards (Dillon, 1977). Additionally, just as in polygraphy, specialised training institutions and courses were set up in close connection with governmental institutions as well as professional associations developed, such as the Association of Firearms and Toolmarks Examiners (AFTE), the Association of Forensic Document Examiners (AFDE), and the International Association of Identification (IAI). As part of the professionalisation movement more graded training and certification measures have developed in these ‘disciplines.’ For histories of fingerprint examination cf. Cole (1999; 2001). For an historical overview of fingerprint examination, document examination and firearms identification within the movement towards ‘scientific’ criminal investigation in the US, cf. Dillon (1977). Over time some general academic programmes in ‘forensic science’ have been instituted. The first institution to offer ‘criminological’ training was the University of Berkeley, which instituted a criminology programme on the basis of Vollmer’s initiative in 1931 (ibid, p. 200). However, the main focus in these programmes is the application of certain techniques borrowed from various sciences and translated into criminal investigation, i.e. the vocational training of future evidence examiners. For a recent academic programme in ‘forensic science,’ cf. University of Oklahoma, “Forensic Sciences.” <http://www.healthsciences.okstate.edu/forensic/index.cfm> (29/03/2007).

³⁹³ LKP, Carton 1, Folder 17 Material Pertaining to Training Courses: Leonarde Keeler, ‘Schedule for Training Course,’ 1946.

³⁹⁴ Keeler, 1934, p. 158-159.

³⁹⁵ LKP, Carton 2 Folder 3 L.K. Technique Policy Legal Status: Letter by Leonarde Keeler to E.T. Adams, Detroit Michigan, 26/11/1934.

by them. Thus as polygraphy developed into a separate discipline it matched the immediate epistemology which marked criminal investigation and the way in which knowledge practices were organised in the construction of 'scientific' expertise. By understanding Keeler's model of lie detection in terms of the epistemological context to which it corresponded, it becomes more difficult to formulate a critique of lie detection practices on the basis of quick and commercial training measures as Alder does. This should become clearer if we return to our comparison with the fingerprint examiner. He was a similar figure to the polygraph operator in terms of the construction of his 'expertise.' He was not an academically trained scientist but rather a police officer or private individual trained as a fingerprint examiner through apprenticeship or even through professionally organised and commercially run correspondence schools.³⁹⁶ And yet to this day, the fingerprint examiner is taken as providing expertise which is hardly dubitable.³⁹⁷

This model of 'scientific' expertise was precisely Larson's point of attack when justifying his 'clinical team approach.' In legitimating his approach he engaged in boundary-work which took three directions. Firstly, Larson sought to enlist his academic background as physiologist and psychiatrist in establishing his 'scientific' authority in lie detection over and against the technical notion of expertise implemented in polygraphy. In this, he took recourse to academic credentials, arguing that Keeler did not receive enough formal training and stating that scientists viewed him only as a clever technician. He thereby portrayed Keeler as not sufficiently qualified by contrast to Larson himself, who held a Ph.D. in physiology and was a trained psychiatrist. This criticism was extended to other polygraph operators in terms of their lack of clinical training and the swift training measures implemented by Keeler and (subsequently) other institutions.

Secondly, Larson's boundary-work centred on the general conduct of polygraphers. He argued that the patenting and commercialisation of the polygraph constituted a breach of the code of scientific practice. Generating a long list of different 'graphs,' Larson pointed out that the names of physiological instruments referred to the diagnostic technique involved or carried the company name rather than the name of the principal developer of the instrument. In this case, the naming of instruments not only pointed to a failure to conform to established rules of academic practice, which served to demonstrate that in contravening its norms, Keeler and other polygraphers were not to be counted as members of the scientific

³⁹⁶ Cole, 1999, p. 159.

³⁹⁷ Cf. Cole (1998) for a discussion of how fingerprint examiners managed to construct and maintain the infallibility of fingerprint evidence. In more recent papers, Cole (2004; 2006) discusses current debates by fingerprint examiners to reshape their technique on the basis of probabilistic measures, moving away from the portrayal of fingerprint examination as technique to framing it as science. This results from the courts' changed conception of scientific evidence centring on broader probabilistic understandings of science. This is illustrated by the emergence of DNA-evidence as new form of infallible evidence. Ironically this renders evidence that is constructed as 'certain' increasingly dubious.

community. Additionally, it was geared to render their practices in terms of a lack of integrity. By giving their own names to instruments, polygraph operators demonstrated their economic self-interest and desire for publicity rather than an honest scientific motivation. This aspect of Larson's boundary-work thus sought to undermine their scientific expertise in terms of a moral evaluation of their conduct.

Thirdly, Larson's boundary-work centred on the use and role of instruments designed for lie detection, which again entailed a normative evaluation of polygraph operators' practices. On the level of instrumentation he undermined the quality of Keeler's polygraph. While, in 1927, he had still hailed Keeler for developing an instrument which provided more accurate readings, he subsequently argued that Keeler's instrument not only had mechanical faults, but that the measuring principles established by Larson himself had not changed and thus no improvements were to be gained by novel instrumentation.³⁹⁸ In Larson's opinion, '[i]n this test just as in the electroencephalograph, electro-cardiograms and hundreds of other graphic tests, the procedure is not determined by the modification of a given apparatus but by the mode of conducting the test.'³⁹⁹ In this he suggested that the polygraph operators' design and use of integrated technical equipment did not augment their role as experts but rather translated into a more general lack of expertise not only regarding the status of the measurements but with respect to their overall application of the technique. This connected to his enlistment of the notion of the 'machine' as a rhetorical device in pointing towards polygraph operators' lack of competence. By arguing that they were using 'machines' or even 'lie boxes,' he consciously alluded to the 'lie detector' as it was portrayed in the media. As we saw in chapter 4, lie detection specialists argued that there was no such thing as a 'lie detector,' but rather that lie detection was dependent on the interpretation of the trained expert. By suggesting that polygraph operators used the instrument 'as if' it were a lie detector, Larson portrayed them as charlatans lacking the expertise required in rendering a valid diagnosis of the lie. In depicting this alleged practice as a 'psychological third degree'⁴⁰⁰ in the elicitation of confessions from subjects, he again combined the undermining of polygraphy as expertise with a moral evaluation by likening it to the violent and corrupt methods of the old police force.

Lastly, his call for 'technique controls' further served to offset his own model as more scientific from Keeler's model. Yet this in itself might be equally seen as a rhetorical strategy to undermine polygraphy, since as we saw in my narrative of the development of the

³⁹⁸ JLP, Carton 1, Folder 5 Lying and Its Detection Reprint 1963: John Larson [2 typewritten pages which formed part of a new draft of his earlier monograph *Lying and Its Detection*], n.d. and Larson, 1932, p. 268.

³⁹⁹ Ibid.

⁴⁰⁰ JLP, Carton 1, Folder 29 "Present Limitations and Possibilities of Deception Tests or So-Called Lie Detectors": John Larson Present 'Limitations and Possibilities of Deception Tests or So-Called Lie Detectors,' p. 14, 1951.

discipline, polygraph operators ventured to implement the very same measures. Equally, Larson's apparent caution and call for the validation of lie detection on the basis of preliminary investigations can be seen as forming part of his boundary-work by which he sought to construct the scientificity of his own model of expertise through marking it off from polygraphy. His charge that polygraph examiners merely used the technique with the aim of extracting confessions, which provide the basis for judicial prosecution is relativised when we take into account his statement that when used in preliminary investigations, lie detection methods might serve the practical end of the securing of confessions, which could in turn be taken as means to verify the technique.

Thus in Larson's apparently more scientific approach to lie detection, the aim of eliciting a confession cannot be disentangled from the construction of its scientific validity. In the verification of the accuracy of the measurement of the lie, it has to draw on judicial truth – the cleared case – the production of which it mediates through the eliciting of confessions. This is a conundrum which not only defines Larson's endeavours at verification but have defined polygraphy's attempts to legitimate itself as a scientific technique in its further development. If reconceptualised in terms of the notion of boundary-work, Larson's criticisms of polygraph operators then become rhetorical resources in setting his version of lie detection off from Keeler's which are based on a different organisation of knowledge practices corresponding to divergent epistemological aims.

On the one hand, by reframing Alder's hierarchical analysis of Larson's and Keeler's versions of lie detection along the lines of two competing *yet equal* models of lie detection, it becomes possible to provide an answer as to why Larson's efforts at instituting his 'clinical team approach' were not successful. Larson's model of the lie detection examination, which was to include an analysis of the offender's personality, was at once reminiscent of the earlier academic model of the detection of deception which had been set within an analysis of the nature of the offender and which sought to combine the detection of the lie with an analysis of the criminal's personality. In this, it did not match the more immediate aim of the swift apprehension of the offender as they were set out in criminal investigation. In a corresponding fashion the notion of the expert as a clinically trained operator or academic did not fit with the way in which expert knowledge was constructed within police departments and other institutions involved in criminal investigation: here, the expert represented a technician trained in the application of a specialised technique. By contrast, Keeler's version of lie detection, which centred on the training of operators on the basis of specialised training courses and apprenticeship, not only matched the model of scientific expertise in criminal investigation but also corresponded to its aims by centring on the apprehension of the offender by means of the simple detection of his lie.

On the other hand, my consideration of Larson's boundary-work – as part of which he sought to undermine Keeler's model of expertise and offset his approach as geared towards scientific validation – throws up a conundrum in the construction of its scientific validity. This conundrum points to an essential feature of lie detection as an applied knowledge production technique ranging across different models of expertise: the intricacy that defines the status of lie detection as a knowledge production technique is that its aims are intimately linked to the construction and legitimisation of its scientific status. The lie detection examination cannot verify itself independently, it depends upon the subject's confession. As a result, it becomes not only difficult but impossible to distinguish between a 'legitimate' application of the epistemology of fear by the trained psychologist (which modulates the responses of the body in capturing the lie) and the 'illegitimate' power-oriented enlistment of the machine by the polygraph examiner that might serve in the subject's intimidation. Rather, on the level of the nature of the knowledge that lie detection represents it seems that they are intimately linked making it necessary to delve deeper into the fundamental structure that characterises lie detection and how knowledge and power become entwined in it. My argument is that the history of polygraphy cannot be framed in terms of a normative evaluation on the basis of a distinction between Larson's and Keeler's knowledge practices along the lines of a knowledge-oriented versus a power-oriented technique by taking recourse to seemingly more accepted psychological standards versus the coercive use of the technique. This argument then brings us to the question of how we might go about developing an alternative yet critical understanding of lie detection as a technique of knowledge production and intervention.

5.6 Conclusion

In this chapter, I have sought to provide an historical examination of lie detection as scientific evidence by means of an analysis of the Frye-case. This case formed the basis for the continued exclusion of lie detection examinations as scientific evidence as well as the precedent for the testing of the admissibility of all scientific evidence in the US throughout the 20th century. In this analysis I drew on the explanation that has been provided by Tal Golan. By extending his interpretation of the Frye case, we established that lie detection was excluded from the courts not on the basis of the questionability of its *methods* but rather on the basis of its *power*. In providing a direct answer to the most central question that the criminal justice system posed – namely whether the defendant was guilty or not - the courts feared that the 'credulous' jury might be too easily swayed by lie detection evidence. More significantly, by establishing the credibility of the subject as to his guilt, lie detection evidence

threatened to undermine the structure of the criminal court process as such by potentially usurping the function of the jury. In seeking to protect the structure of its functioning, the court engaged in boundary-work by drawing on a professional model of scientific expertise which had developed towards the end of the 19th century. By implementing the rule of 'general acceptance' in the Frye case, the court availed itself of the possibility of regulating the evidence allowed to enter the court on the basis of its own interpretation of how general acceptance was to be defined. This enabled the courts to exclude lie detection evidence, which otherwise provided impressive accuracy rates and Marston's indisputable scientific credentials.

Secondly, I examined Alder's account of the development of lie detection in which he provides an alternative explanation for the continued exclusion of lie detection evidence. I took his analysis as a means of opening out the discussion to a broader consideration of the development of polygraphy. His analysis was framed in terms of two heuristics – the 'open model of science' and the 'model of proprietary knowledge' – on the basis of which he opposed Larson's and Keeler's 'knowledge strategies.' According to Alder, Larson employed the open model of science in seeking to develop lie detection along accepted psychological practices and oriented towards the scientific validation of the technique. By contrast, Keeler employed the model of proprietary knowledge, seeking to wrest financial profits from the commercialisation of his instrument and polygraph training. In this model the lie detection examination became carried out by a 'discretionary expert,' whose practice was oriented towards the coercive extraction of a confession by means of tricking and intimidating the subject. In addition, by portraying polygraphy as it emerged from Keeler's model as being marked by 'consummate antiprofessionals,' Alder concluded that lie detection remained excluded from the courts as a result of the *kind* of lie detection that developed in the US. While I agreed in a qualified manner with Alder's analysis of the continued exclusion of polygraph evidence, I problematised the normative analysis which underlies his evaluation of the development of polygraphy as a profession. I showed that the way in which he framed Larson's practices as following an open model of science corresponded to a Mertonian model of science which is organised around the study of the *norms* of science while taking for granted the *objectivity* of scientific practices. This resulted in the portrayal of Larson's model of lie detection as scientifically and normatively valid. It thus became a measure rather than functioning as a heuristic against which Keeler's practices were evaluated as an illicit, coercive, and profiteering technique.

By contrast, I argued that rather than distinguishing between Larson and Keeler by means of a normative construction of knowledge practices, both Larson's and Keeler's approach needed to be considered on an equal footing. I showed that they could be conceived of in

terms of two different models of expertise. The former built on an academic conception of the detection of deception which was set within an earlier approach to lie detection. This was still connected to an analysis of the criminal's personality. In correspondence to the 'deeper' aims in the construction of knowledge of the offender, Larson constructed expertise in terms of academic and clinical training. This, however, did not fit the way in which expertise was elaborated within police departments and other institutions connected to criminal investigation. By contrast, Keeler's model of lie detection matched the more immediate epistemological aims of criminal investigation by being centred on the simple detection of the subject's lie. In this sense, the organisation of knowledge practices came to correspond to the way in which scientific expertise was constructed at law enforcement agencies: the polygraph operator resembled a technician versed in the specialised application of the technique.

In the next chapter I will provide an alternative interpretation of how we might go about evaluating polygraphy as a technique of knowledge production and intervention. As I demonstrated in this chapter, it becomes problematic to construct an historical critique of lie detection on the basis of knowledge-orientation versus a power-orientation: that is to say, on the basis of a more or less *legitimate* model of lie detection. In the next chapter, I would like to suggest that it is important to examine the nature of the knowledge that lie detection represents. In this respect, it becomes a matter of outlining the space in which psychological knowledge and interrogation techniques became interwoven and the power mechanism that defines lie detection as a technique whose aim and only verification is the confession. My analysis will apply Foucault's notion of the 'grotesque' and his analysis of the function of psychiatric knowledge in the criminal justice system which he sets out in *Abnormal* to an analysis of the ensemble of the lie detector/instrument and the expert/interrogator in the triad of the examiner, subject and the instrument.

Chapter 6 Lie Detection as Grotesque Knowledge

In the last chapter, I provided an analysis of the continued exclusion of lie detection as scientific evidence. Based on an elaboration of the arguments advanced by Golan and Alder, I concluded that lie detection evidence was excluded on the basis of its potential power rather than its uncertain status as a scientific technique. The Frye ruling provided the criminal courts with a means to protect the ‘credulous jury’ and, more significantly, the jury-based system as such. Additionally, I agreed with Alder, albeit with qualifications, that the inability of polygraphy to institutionalise a unified system of licensing and certification, which provides a profession with legitimacy through occupational closure, served as an additional rationale for the exclusion of polygraphy from the court system. However, in addition to my qualification of Alder’s argument regarding the professionalization of polygraphy, I problematised his normative evaluation of the development of the discipline, which was based on framing it in terms of the opposition of Larson’s knowledge-oriented versus Keeler’s power-oriented technique. I argued that such a distinction was based on a hierarchical conception of knowledge. By contrast, I provided an analysis of Larson’s and Keeler’s versions of lie detection in terms of two models of expertise, whereby the former’s model of lie detection was still set within a ‘deeper’ analysis of the personality of the criminal and the latter was organised in terms of the more immediate aim of detecting the subject’s guilt on the basis of his lie. Following this analysis, I suggested that instead of evaluating the development of polygraphy on the basis of a more or less legitimate conception of the lie detection examination grounded in a normative conception of science, we might take an alternative route in investigating the power/knowledge mechanism that comes to define the lie detection examination on a more fundamental level.

In pursuing such a line in this chapter, I will draw on Foucault’s notion of ‘grotesque knowledge,’ which he develops in his lecture series *Abnormal*. In his analysis the category of the grotesque comes to denote a power mechanism whereby an individual – in his case, the legal psychiatrist – exerts an absolute power while disqualifying himself in the process of yielding this very power. I apply his notion of the grotesque to the lie detection examination, demonstrating how the ensemble of the expert/interrogator and the lie detector/instrument can be conceptualised as grotesque in the triad of the subject, the examiner and the instrument. This analysis, in turn, will allow us to develop an understanding of the function of the lie detection examination as a technique of knowledge production and intervention constituting a hybrid of an inquisitorial technique and a psychological examination. Additionally, drawing on the analyses of Alder and Hanson, I will provide an analysis of the role that it comes to play as a ‘moral technology’ beyond the criminal justice system in the further institutionalisation of

polygraphy. Being utilised in personnel screenings, it comes to operate as a tool for the inclusion or exclusion of employees on the basis of an assessment of their 'trustworthiness.' In a more noteworthy fashion, it becomes a disciplinary tool in controlling employees' behaviour.

6.1 *Grotesque Knowledge*

In his 1974-1975 lecture series on the 'abnormal' at the College de France, Foucault provides a relatively brief discussion of the category of the 'grotesque' in relation to power in characterising psychiatric discourse in the criminal justice system. The modern criminal justice system is marked by the fact that some evidence presented in court carries a more serious weight by virtue of the person who presents it – the expert. The statements that an expert makes in court carry 'specific effects of truth and power.'⁴⁰¹ Western thought assumes an essential link between the establishment of truth and justice so that 'where the court and the expert encounter each other, where judicial institutions and medical knowledge, or scientific knowledge in general, intersect, statements are formulated having the status of true discourses with considerable judicial effects.'⁴⁰² However, in Foucault's view, these statements – and here he seems to refer specifically to medico-legal discourse - are at the same time marked by the fact that they neither correspond to the rules which govern the construction of scientific discourse, nor do they match the rules of legal discourse. Rather, these statements are characterised by the fact that they are 'grotesque' or 'Ubu-escape.'

In identifying psychiatric discourse as 'grotesque,' Foucault seeks to argue that 'by virtue of their status, a discourse or an individual can have effects of power that their intrinsic qualities should disqualify them from having.'⁴⁰³ Psychiatric-penal discourse is a 'puerile' discourse, a childish discourse operating with a terminology such as 'psychological immaturity,' 'a purely structured personality,' 'a poor grasp of reality,' 'profound affective imbalance,' 'serious emotional disturbance,'⁴⁰⁴ etc. in the assessment of the accused. This discourse is childish not only in the epistemological sense but also as far as its content is concerned. In providing an assessment of the potential guilt of the subject 'you are given biographical elements that do not in any way explain the action in question but are kinds of miniature warning signs, little scenes of childhood, little childish scenes that are presented as already analogous to the crime. It is a kind of scaled-down criminality for children characterized by the language used by parents or by the morality of children's books.'⁴⁰⁵ The use of this terminology works as a 'switch-point' as 'the whole field of notions of perversity, converted into their puerile vocabulary, enables medical

⁴⁰¹ Foucault, 2003, p. 11.

⁴⁰² Ibid, p. 11.

⁴⁰³ Ibid, p. 11.

⁴⁰⁴ Ibid, p. 15.

⁴⁰⁵ Ibid, p. 33.

notions to function in the field of judicial power and, conversely, juridical notions to function in medicine's sphere of competence.⁴⁰⁶ This switch-point functions better the less epistemological weight the terminology on the basis of which it operates carries.

The inclusion of psychiatric discourse in the criminal justice system occasions the construction of a 'psychologico-ethical doubling of the offense' as part of which it becomes no longer simply a question of applying a legal judgment to the question of guilt of a particular individual for a certain action, but rather of creating a 'delinquent,' a character defined by his irregular form of conduct which contravenes psychological and moral rules.⁴⁰⁷ In judging this 'delinquent,' the doctor or psychiatrist assumes the function of a judge and, conversely, the judge the function of a doctor who in assigning a punishment in fact prescribes a treatment. Punishment is then no longer directed at the offence as such, but at the delinquent's conduct and character which underlies and causes the offence – in this view the question of responsibility is superposed as 'the subject is responsible for everything and nothing.'⁴⁰⁸ As a result, the nature of punishment changes as 'we have gone from what could be called the target of punishment, the point of application of a mechanism of power, that is to say, of legal punishment, to a realm of objects of a knowledge, a technique of transformation, a whole set of rational and concerted coercions.'⁴⁰⁹

The medico-legal assessment of the individual on the basis of the notion of 'perversion' and terms that are related to it, which allows for the linking of medical and judicial judgment, makes possible the continuous institution and alignment of penal and medical institutions. These institutions provide a graded response in terms of social control across society – rather than just being punished in legal terms the individual becomes subject to different techniques of 'normalisation.' The target of their operation is the 'dangerous' individual, i.e. 'the individual who is not exactly ill and who is not, strictly speaking, criminal.'⁴¹⁰ This combination of perversion and danger in psychiatric discourse characterises what is grotesque about it. On the one hand, it is a discourse that is marked by 'a discourse of fear whose function is to detect danger and to counter it.' On the other hand, as we already saw above, it is a discourse of childish moralisation. In invoking this discourse, the psychiatric expert turns into Ubu:

'If we accept that Ubu is the exercise of power through the explicit disqualification of the person who wields it, [...] then we can see how the psychiatric expert can only be Ubu himself. He can exercise the

⁴⁰⁶ Ibid, p. 33.

⁴⁰⁷ Ibid, p. 17-18.

⁴⁰⁸ Ibid, p. 21.

⁴⁰⁹ Ibid, p. 18.

⁴¹⁰ Ibid, p. 34. Foucault's analysis of course continues in the direction of the 'power of normalisation' (Foucault, 2003, p. 42) that is instituted through medico-legal discourse. As the focus of this discussion is on an elaboration of the category of the grotesque I shall not extend my summary of Foucault's analysis of the modern penal system at this point. Neither will I introduce a comparative perspective which would analyse the differences between the structure of European continental law and Anglo-American case law in Foucauldian terms. My analysis draws on Foucault on the level of the connection of mechanisms of power and knowledge in this context.

terrible power he is asked to take on – which in the end is to determine, or to play a large part in determining, an individual's punishment – only through a childish discourse that disqualifies him as scientist at the very moment he is appealed to as a scientist, and through a discourse of fear, which makes him ridiculous as soon as he speaks in court about someone accused of a crime who is in the dock and consequently deprived of any power. The scientist, who is sheltered, protected, and even regarded as sacred by the entire institution and sword of justice, speaks the language of children and the language of fear.⁴¹¹

In the following analysis, I would like to present an analogous argument about the function of lie detection as switch-point in regulating statements of criminal guilt and elaborate on the grotesque, as Foucault identifies it above, this mechanism which is based 'on the maximization of effects of power on the basis of the disqualification of the one who produces them.'⁴¹² There is, of course, one significant difference between the psychiatric expert and the polygraphist. While the psychiatric expert is licensed to make statements of truth in court, the polygraphist, as we established in the last chapter, is not. Nevertheless, I think that Foucault's argument can be extended to gain an understanding of the truth effects that the lie detection examination implements at the entrance of the criminal justice system.

There is another difference between the psychiatrist's statements in court and the statement of the polygraphist. Larson's 'clinical team approach' still shares certain affinities with the way in which Foucault portrays psychiatric knowledge. In this version of the lie detection examination, the establishment of guilt is to be combined with an assessment of the suspect's personality. This involves the construction of the character, which stands behind the offence. As we have seen, as polygraphy develops, the 'contravention of psychological and ethical rules' on which the lie detection examiner bases his analysis is contained within the simple statement of the subject's lie. As a result, in the case of the polygraph examination the elaboration of guilt is no longer directed at determining the nature of the individual that hides behind the offence and fixing this nature on a scale of abnormality. Rather, the lie detection examination pursues the more immediate aim of identifying the author of a particular crime through the binary classification of truthfulness and deception.

Does the police officer carrying around a polygraph, playing card-tricks on suspects and declaring the subject's guilt not correspond to this notion of the 'grotesque'? And is not the team of experts who venture to provide an assessment of the individual's lies on the basis of a quickened heart beat or shortened breath in conjunction with an analysis of the suspect's personality equally 'grotesque'? Finally, what about the current day psycho-physiologist endeavouring to improve the scientific validity of the polygraph examination in the same manner as Larson did – is he 'grotesque'?

Foucault argues that one central characteristic of medico-legal knowledge as switch-point between medical and judicial discourses is the *epistemological weakness* of its structure. I have

⁴¹¹ Foucault, 2003, p. 36.

⁴¹² Ibid, p. 12.

devoted a considerable amount of space to describing the translation mechanism which constitutes the lie detection examination. Additionally, I argued in the methodology chapter that in analysing polygraphy one needed to take a symmetrical view of knowledge, that is, we must suspend the distinction between true and false knowledge. This is of special significance in the context of this discussion, because traditional accounts of knowledge have construed what is perceived as valid knowledge to exist independently of its context of production. By contrast, false knowledge has often been portrayed as being the result of power relations. In comparing what Foucault calls the epistemological weakness of psychiatric terminology and the translation mechanism which characterises lie detection, I do not wish to make an argument for the unscientific nature of the polygraph examination. Foucault's statement certainly points to a normative evaluation of the status of psychiatry, and could superficially be read in terms of a distinction between knowledge which is independently valid and knowledge that is infused with the social relations that determine its production. However, this would mean ignoring the power mechanisms with which all knowledge is so intimately related in Foucault's analyses.

Foucault does not analyse scientific discourses with respect to their validity, which would require the presupposition of a framework for the evaluation of knowledge, but rather seeks to analyse knowledge in terms of its discernible 'truth effects.' In doing so he focuses on the relations, both social and material, which have to be put in place in order to make these effects possible. In drawing an analogy between the 'epistemological weakness' of psychiatric knowledge and lie detection, I would rather like to point to the indeterminacy in the translations, which make lie detection techniques work and which constitute it as a technique of knowledge production and intervention.

6.2 *Lie Detection as 'Switch-Point' Between Psychological Knowledge and Criminal Interrogation*

As should become clear in the following paragraphs, the lie detection examination constitutes a switch-point between (physio)-psychological knowledge and the establishment of criminal guilt. In chapter 3, we saw that psychological knowledge of the lie became possible on the basis of a distinction between emotion and cognition drawn in early psychology. Here, the emotions are conceived of as uncontrollable bodily expressions in opposition to the subject's thought and speech. Thus, the subject's lie is betrayed by an emotional body, which cannot lie. In the lie detection examination, capturing the lie on the basis of the emotional body is established through posing a link between the lie and guilt through the 'fear of detection.' This fear of detection is translated onto a chart on the basis of the interaction of the body and the instrument that can be read by the examiner. As a

result, the lie emerges as a sign on graph paper – signifying the truth of the subject’s guilt. This transformation of the lie into a sign centres on the management of fear, the fear that the lie will be detected. The lie has a specific function in the translation mechanism between truth and guilt: in lie detection examinations, the suspect has no choice but to lie in order to hide his guilt. In this it applies a particular pressure to the individual in comprising the threat that the lie will be known. For the lie is connected to the possibility of hiding one’s thoughts, it is the most personal form of resistance – knowing the lie, this most elusive of human actions, transforming it into a sign on graph paper signifies the absolute power of reading the subject’s mind. The lie thus forms an integral part of a circular mechanism: first creating a fear that the lie will be known, and then measuring this fear. The circular mechanism in the generation of fear and its measurement is elaborated in how psychological knowledge is translated into criminal interrogation in the polygraph triad by means of how the ensemble of the expert/interrogator and the instrument/lie detector intervene upon the human subject/suspect.

The instrument is enlisted in modulating the body’s responses in oscillating between the ‘lie detector’ and a scientific instrument – the polygraph. The popular discourse on the ‘lie detector’, as we saw in our discussion of Bunn in chapter 4, cuts out the socio-technical relations between the instrument, the examiner and the subject, and instead represents the instrument as a ‘black box’ which can detect lies by itself. In this representation, the scientific instrument is accorded ‘superhuman’ abilities in being able to transform the subject’s thoughts into a legible script. As we saw in chapter 4, this is achieved by means of a ‘preamble’ at the beginning of the examination, which is meant to ‘introduce’ the subject to the examination yet carries the function of enrolling the instrument in managing the fear of the subject:

“If you are telling the truth, you have nothing to worry about – this instrument will indicate you are telling the truth, and I’ll report that fact to the officers who requested me to make this test. However, *if you are not telling the truth, the machine will show it*, and I’ll tell you so, and then I’ll ask you to let me hear the truth.⁴¹³

By announcing that ‘if you are not telling the truth the machine will show it,’ the examiner implies that the instrument could detect lies independently of the examiner’s interpretation or intervention. He also implies that the instrument directly records the subject’s thoughts, not his bodily responses. As a result, it assumes an ambiguous status. On the one hand, it appears to be an automated scientific instrument. On the other hand, the personification of the machine bears the resonance of a utopia/dystopia – as in media representations a technology with superhuman powers.

The dual nature of the instrument as lie detector *and* polygraph is complemented by the dual role of the polygraph operator as scientific expert *and* representative of social control who is in

⁴¹³ Inbau, 1942, p. 9 [my emphasis].

a position to present a 'diagnosis' of deception and the conclusion of guilt or innocence to the suspect. His role as scientific expert is mediated in a quasi-experimental setting, which mirrors the role of the psychological expert in the clinical experiment as it emerges in psychology at the end of the 19th century. As I elaborated in chapter 3, by contrast to early psychological experiments in which the roles of the experimental subject and the experimenter were symmetrical and exchangeable, from the end of the 19th century the psychologist took on the role of an expert who, by virtue of his authority in relation to the subject, attains a license to intervene upon the subject on the basis of his knowledge. In the lie detection examination, the lie detection specialist models criminal interrogation along the lines of the controlled interventions of the psychological expert by means of the setting of 'stimuli': these 'stimuli' take on the form of 'relevant' or 'critical' questions and as 'comparators' irrelevant questions. Additionally, his expert status is reinforced through manipulation of the instrument and interpretation of the polygraph chart. In this, the polygraph examiner becomes a hybrid of a psychological expert and a police interrogator – the scientific (and normative) authority which he exerts as psychological expert is combined with his normative authority as police officer, as enforcer of the law. This hierarchical position of the scientific expert and the law enforcement official vis-à-vis the subject is a central part of the power structure which serves to mediate the responses of the subject's body.

Finally, in taking up from my analysis of the constitution of the truthful body in chapter 3, the setting in the lie detection examination itself serves in the management of fear. It appropriates the setting of the psychological experiment in elaborating a space which is devoid of any influences and which comes to match the modern interrogation room. This is a space in which the subject becomes an object of knowledge while equally being made subject to an air of intimidation. Additionally, the positioning of the elements of the polygraph in this space serves to enhance the authority of the examiner and the instrument through being placed in such a way that the subject cannot see them. By facing away from them, the impersonal character of their scientific authority is materialized. Thus, it is this ensemble of the scientific expert/interrogator and the instrument/lie detector in a setting in which the experimental set-up of the psychologist comes to match the one of the interrogation, which sustains the circular mechanism of the evocation of fear and its measurement.

The lie detection examination is not merely a function of the examiner's skill at persuading and intimidating the subject. The lie detection examination is not, as Alder states in the context of his analysis of the polygraph examination, 'an example of opening a technological black box and finding it empty.'⁴¹⁴ Rather, the *performative* function of the lie detector is intertwined with the *measuring* function of the polygraph as a scientific instrument in the management of the subject's

⁴¹⁴ Alder, 2002, p. 16.

fear by the expert/interrogator. This fundamental mechanism of lie detection, in bringing to bear on the subject an absolute power through the declaration that what he hides will be known, is the same in Larson's and in Keeler's set-up of the examination. Both depend on the performative and the measuring function of the polygraph triad, albeit to different degrees. We therefore need to qualify the 'grotesque' nature of the lie detection examination. It is not the expert/interrogator who appears as 'Ubu.' Rather, it is the organisation of the ensemble of the expert/interrogator and the lie/detector instrument in the polygraph triad which is 'ubuesque.'

The lie does not only serve the function of instituting an absolute power but also serves to *mask* it. The lie stitches together psychological knowledge and an inquisitorial technique, which seeks to extract knowledge from the suspect by turning his body against himself. The polygraph operator does not state: from these records I can conclude that your heart-beat increases when I ask you this question. The polygraph operator does not even say: from these records I conclude that you are afraid when I ask you this question. Nor does he state: You are afraid, but nevertheless you are innocent. Rather, he might state: these records show that you have lied. Or: these records show that you are truthful. The lie detection examination manages to turn a physiological measurement, an expression of fear, into a moral evaluation: You are not to be believed (for you are afraid) and therefore you need to explain yourself.

Upon first consideration, we find a more cautious approach in Larson's assessment of the lie detection examination, which Alder points to as an example of Larson's aim at a *controlled* rather than *intimidating* procedure. When reporting on the results of lie detection tests that were carried out on children at the home detention branch of the Institute of Juvenile Research, it was stated that

'in no way were these juveniles intimidated by the examiner nor were the results of the polygraph examination misrepresented to them. [...] When specific disturbances are noted in responses to critical questions, the subject is asked to explain the possible reasons for these disturbances. In no instance is he told that he has lied or that his story is incorrect.'⁴¹⁵

Although this seems like a benign mechanism, it follows the same logic as I outlined above. Indeed if anything, it is more cunning in its inquisitiveness, for it couches a moral evaluation in the language of the psychological expert. It suggests to the subject that the expert knows on the basis of a scientific procedure that something is wrong with him, and takes the body's response as a means by which to question the subject, to divulge what is going on in his mind, and to tell the expert of his thoughts. We must only consider the sentence, which follows the quote above '[y]et in 33 per cent of the cases examined, admissions of deception directly followed this procedure,' in order to acknowledge that just like the polygraph examiner, the expert psychiatrist or clinical investigator seeks to initiate what is ultimately a *confessional ritual*.

⁴¹⁵ Lyon, 1936, p. 496.

Do we ultimately *know* whether the subject lied? This question seems to go against the inquisitorial logic of the lie detection examination for it is in its *verification* – the confession – that we also find its *aim* (and its downfall, for it always harbours the danger of the false confession). The management of fear in the polygraph examination, which is geared towards making the lie appear on the subject's body, simultaneously depends on the performative as well as the measuring aspects of the examination in bringing to bear a pressure on the subject that his lie will be known. In this, neither its performative nor its measuring aspects can be disentangled. They form part of the same power mechanism in the stitching together of psychological knowledge and the elaboration of criminal guilt. The transformation of the suspect's fear into the knowledge of his lie is geared towards enticing him into an avowal of his own guilt. It is this entanglement of the performative and measuring aspects of the lie detection examination in connection with the confession as its aim and confirmation that make it not only impossible to judge the allegedly sincere efforts of the psychologist versus the brute intimidation by the polygraph operator. Rather the attempt at such a judgment fails to account for the special status that lie detection assumes as an applied psychological technique.

It is one of the particularities of this knowledge production technique that its confirmation could not be construed independently of the confirmatory statement of the object of study – the suspect – him- or herself. Yet it is also what defines its character as switch-point between psychological knowledge and the elaboration of guilt. In the current psychological literature, this conundrum in which lie detection is caught as an applied psychological technique is referred to as the problem of 'ground truth.'⁴¹⁶ In legitimating its method, it can only revert to the construction of accuracy on the basis of truth that is of a different order: judicial truth – confessions and other evidence – which serve in the constitution of an individual's guilt. Yet at the same time, it is this truth which the lie detection examination has itself brought forth and upon which its own legitimisation depends. Thus at the very moment at which the validity of the examiner's analysis is confirmed through the subject's confession, lie detection itself turns into a grotesque form of knowledge. In eliciting a confession, the qualification of the expert/interrogator and the lie detector/polygraph becomes questionable – whether he is an academic working as part of a team to assess the personality of the criminal, a polygraph operator having received short-term training, or a current-day psycho-physiologist working on the scientific validation of polygraphy.

Thus I hope to have demonstrated that rather than problematising lie detection on the level of a normative evaluation of the development of its knowledge practices as Alder did in the last chapter, we might gain a more fruitful understanding by analysing the deeper mechanism that comes to define it as switch-point between psychological knowledge and

⁴¹⁶ Cf. Ben-Shakhar and Furedy (1990).

criminal interrogation on the basis of Foucault's notion of grotesque knowledge. In extending this analysis, I now turn to a discussion of its function as technique of knowledge production and intervention at the entrance of the criminal justice system.

6.3 *Lie Detection as Confessional Technique*

While lie detection evidence was rejected as scientific evidence in the courts, it nevertheless came to play a crucial role at the entrance of the criminal justice system. This is because the main outcome of the lie detection examination – the confession – was *not* generally excluded from the criminal courts. The confession still occupied a central (if problematic) space as form of judicial proof. In the American legal system, rules abounded from the early 1900s which specified the circumstances under which a confession might be judged to have been 'voluntarily' made, and thus to be trustworthy. However, the definition of 'voluntariness' proved to be problematic – how was one to evaluate what is essentially a particular state of mind, and how to judge whether that mind was capable of withstanding not only physical pressure but mental duress? Is not the interrogation situation itself, as Justice Jackson stated in his dissenting opinion in the landmark case *Ashcraft v Tennessee* (1944), 'inherently coercive'?⁴¹⁷

As I suggested above, as a 'scientific' technique of interrogation based on psychological knowledge, lie detection could be seen as a humane way of eliciting confessions which masked the coercive nature of interrogation by establishing the truth of the subject's guilt on the basis of the diagnosis of the lie. Additionally, the lie detection examination provided an economic solution for the modern criminal justice system, which had massively expanded since the 19th century.⁴¹⁸ Polygraph operators argued that the securing of confessions and the weeding out of innocent individuals would result in the saving of costs during the process of criminal investigation and at criminal trials:

⁴¹⁷ Cited in Brooks, 2000, p. 30. Jackson by no means suggested that criminal interrogation as such was a questionable enterprise – quite to the contrary, his statement was rather cynical. He had dissented from a decision which ruled the prolonged questioning of suspects as 'inherently coercive' and that more humane measures of interrogation should be implemented (Brooks, 2000, p. 30).

⁴¹⁸ This was due to the growth of substantive criminal law which came to include a great range of newly defined illegalities especially concerned with the protection of private property accompanying urbanisation and the rise of capitalism. In the US this coincided with the abolition of the common-law crime and the introduction of criminal codes (Friedman, 1973, p. 508-517). Criminal law experienced another expansion as a result of moral hygiene movements seeking to do away with 'social ills.' Here, the temperance movement was especially successful leading up to National Prohibition from 1920 until 1933 as part of which the sale and production of alcohol was criminalised. The temperance project ultimately failed. However, it arguably brought with it the spread of organised crime in conjunction with a clogging up of criminal justice system (Friedman, 1973, p. 568; Walker, 1998, p. 158-159). Additionally, the growth of criminal law was accompanied by the increased routinisation and professionalisation of the criminal justice system including the rise of public prosecutors to initiate cases, the creation and professionalisation of law enforcement agencies elaborated on in chapter 4 and the expansion and functional differentiation of the penal system to manage a delinquent population (Walker, 1998, p. 49-167).

'A single confession in a felony case by saving the time and expense of a superior court trial, may save several times the cost of an instrument. Statistics based on the thousands of cases examined in Berkeley and elsewhere provide that from sixty to seventy-five percent of those in which guilt is indicated are cleared by confession. In 1935 a state police department estimated that the test had saved the taxpayers in cost of trials approximately \$ 25,000.'⁴¹⁹

As the quotation suggests, the lie detection examination could potentially support the regulation of punishment outside of the criminal courts. Alder states that only 10% of criminal cases are settled in criminal trials while, in 90% of cases, punishment is negotiated through confessions or plea bargains⁴²⁰ outside of court. Thus the polygraph examination, according to him, 'plays a crucial sorting role in American justice even though it has been banned from the courtroom.'⁴²¹ We might note in this regard that the institution of the lie detection examination at the entrance of the criminal justice system was equally made possible by Larson's practice of using lie detection examinations in preliminary investigations and submitting 'indirect' evidence, i.e. confessions, to legal proceedings, as well as Keeler's expansion of polygraphy.

The lie detection examination then comes to match the demands of a system of criminal justice which, on the one hand, in meeting its own expansion since the 19th century continually tries to combat its outgrowths by efficient measures of processing criminal cases. On the other hand, it equally meets the desire of this very system to speak judicial truth in a scientific language. This is a language which cannot, however, free itself of the old forms of judicial proof as expressed in the confession, for the very reason that it provides a swift solution to criminal cases. In so doing, the lie detection examination represents a hybrid between an older inquisitorial logic and the modern attempt of constructing the guilt of the criminal on the basis of the psychological examination. It follows the older coercive aim of wresting a confession from the subject by means of bringing a power mechanism to bear on the subject's body. In this, it harks back to its dark predecessor, the system of torture, which equally intervenes on the body. Yet it is also reframed. Torture depends upon what Silverman calls an 'epistemology of pain' which, in overcoming the subject's will, must break the

⁴¹⁹ LKC, Box 29, Folder 780: 'The Berkeley Psychograph [Brochure],' 1938.

⁴²⁰ Plea bargaining is a process whereby the prosecution and the defence negotiate the settlement of a criminal case on the basis of a guilty plea by the criminal defendant in exchange for the reduction of charges. It had developed in the middle of the 19th century and its use increased dramatically from 1900 onwards. By far the largest share of convictions in Anglo-American justice is currently secured through plea-bargaining. In negotiating a guilty plea, the defendant effectively waives his constitutional right to a trial by jury. The negotiation of guilt outside of court was enabled by the development of the police as agency of apprehension and criminal investigation and the institution of full-time prosecutors, who unlike their European counterparts enjoyed greater discretion and fewer checks on their authority (Friedman, 1979; Langbein, 1979; Haller, 1979; Mather, 1979). Historians argue that plea-bargaining came to provide (and still provides) an economical solution to increasing caseloads brought forth through the radical growth in punishable crimes in the 19th century and the increasing complexity of the conduct of the criminal trial itself (Alschuler, 1979, p. 242). Thus it can be seen to match a system which is less concerned with the establishment of guilt as with the insertion of the offender into a regime of control coupled with the criminal justice system's drive for efficiency.

⁴²¹ Alder, 2007, p. 127-128.

corporeal shell to reach a truth that is hidden inside the body.⁴²² By contrast, as I argued above, the lie detection examination applies a more benign mechanism in elaborating an ‘epistemology of fear,’ as part of which the modulation of the body’s responses becomes the basis of the physio-psychological and moral evaluation of his lie aimed at enticing the subject into a confession.⁴²³ Thus the polygraph examination represents something of an anachronism, combining an inquisitorial logic with the knowledge practices of the human sciences. In drawing out this discomfiting form of proof, always being haunted by the potential of a false confession, it still renders it in similar terms to the ‘psychologico-ethical’ double of the offence’ as it is described by Foucault: it constitutes the subject not only as guilty but also as immoral on the basis of the ‘abnormality’ of his bodily responses.

While seemingly outmoded in the age of DNA-analysis, it may be that it is this very nature of the lie detection examination as hybrid of an inquisitorial and a psychological technique which constitutes its fundamentally modern character. This character, however, is specific to the US: in serving the rapid regulation of criminal cases in a quasi-judicial space that has been constituted outside the criminal courts, it matches the aims of a system which is no longer so much interested in the old system of assigning a legal punishment for a particular offence, but is rather geared towards the management of a ‘delinquent’ population. Yet not only has the lie detection examination served in instituting a mechanism which is efficient in the regulation and constitution of the guilty subject on the basis of a moral and physiological evaluation at the entry of the criminal justice system. As I pointed out in the last chapter, it also moves beyond the criminal justice system as a moral tool for identifying minor transgressions but more significantly for disciplining subjects in personnel screening. Here again, lie detection comes to fit the drive for efficient mechanisms of controlling and optimising human subjects’ behaviour that defines the capitalist nation state. Thus it serves as one of the tools and methods that are part of what Foucault calls ‘the political technology of the body’, a technology that comes to define disciplinary society in constructing ‘productive bodies’ that are, equally, ‘subjected bodies.’

6.4 *Moral Technology*

While lie detection assumed a central role in criminal investigations, it also spread beyond the confines of the interrogation room of the police department and the criminal laboratory. As I

⁴²² Silverman (2001)

⁴²³ In this context, Gibson (2001) provides an analysis of the role of the conception of the inside and the outside of the body in wresting subjective truth from it. She argues that while torture depends on a distinction between inside and outside, whereby the truth is hidden within the body, polygraphy abolishes this distinction in turning the body into a site of ‘borderless information processing’ (Gibson, 2001, p. 70). As my analysis in chapter 3 of the significance of the distinction between the internal and the external movements of the body shows, I do not think that this ‘semiotic’ reading of the polygraph examination is fully valid, for it neglects the material processes which are crucial in the construction of the ‘epistemology of fear.’

outlined in my discussion of the Larson-Keeler conflict, Keeler developed the idea that the polygraph might be used in the investigation of thefts in banks and department stores who were complaining about major financial losses each year due to the stealing of money or merchandise in 1929. In this development, the function of lie detection in establishing guilt in criminal investigations was extended to commercial enterprises and, in the 1940s, to government institutions. However, lie detection was not only used to identify a culprit in particular cases, but instead was used in regular screenings of employees. While it operated as a tool of criminal and moral exclusion in this context, it also assumed an *inclusive disciplinary function*. Additionally, lie detection assumed a new role in commercial and (again, from the 1940s) in government institutions whereby it came to be used in the screening of potential employees. Applicants who 'failed' lie detection examinations were constituted as untrustworthy on the basis of past transgressions and their morally dubious nature.

In 1941, Henry Scarborough, who represented the insurance firm Lloyd's of London in Chicago, estimated that \$250,000,000 were embezzled in banks in the United States each year. The American Bankers' Association was of the view that 75% of these embezzlements stemmed from 'employees' dishonesty.⁴²⁴ Keeler had first examined employees in a bank at the request of the State Attorney of Illinois in 1929.⁴²⁵ This represents the common procedure by which the lie detection service of the SCDL would be called on in criminal investigation until the 1930s. Lie detection services would be solicited by members of the criminal justice system – state attorneys, police departments, and attorneys for the defence – in the solution of particular criminal cases. However, when Scarborough first enlisted the services of Keeler to investigate the source of losses of a Chicago bank, a change occurred in the use of lie detection examinations. First, lie detection examinations were now ordered by commercial organisations. Second, they were not only carried out in particular cases, but became regularised in the general screening of employees. Scarborough brought in more business for Keeler and by 1933 he had examined employees in thirty-seven banks. The first movement is significant insofar as it denotes the spread of the functional mechanism of the lie detection examination as a hybrid between an inquisitorial technique and a psychological examination in criminal investigations beyond the criminal justice system and its agencies as it becomes 'privatised,' at once making its reach more pervasive.

With respect to the second movement, as the number of examinations carried out in banks and department stores increased, Keeler concluded from those examinations he had carried out that there was an average rate of about 15% of employees of banks who could be

⁴²⁴ McEvoy, 1941, p. 69.

⁴²⁵ LKP, Carton 2, Folder 3 L.K. Technique Policy Legal Status: letter by Leonarde Keeler to Prof. Newman F. Baker, 21/7/1933.

classified as 'petty thieves', that is to say, who had stolen small amounts of money from the bank at one point or another.⁴²⁶ At first, these thieves were made redundant, but soon Keeler found that instead of firing employees who had only stolen small amounts and confessed to their wrongdoings, they should instead be retained by their employers, because

'We have found in all but three individuals, to whom we have given another chance, strict reliability and honesty after they had made complete confessions.'⁴²⁷

A newspaper article even increased the figure of petty thieves, stating that as much as 76% of employees had been found to steal money or merchandise. But when these employees were kept with the warning that in 6 months time, they would have to go through a lie detection examination again, the number of employees who committed thefts was reduced to 3%. In the article's terms, the lie detector was 'an eye-opener.'⁴²⁸ Furnishing the machine with moral powers, another article stated that the lie detector was a 'mechanical conscience,' working like a 'moral vaccination, a shot of integrity in the arm.'⁴²⁹

Thus polygraphy was transformed from a technique for detecting guilt and innocence into a tool for reforming normal people, who had given in to temptation and committed minor offences. This tool of reform operated through control:

'Although many of these petty defaulters cannot be considered dangerous thieves, each one is a potential embezzler, and from our experience in examining the personnel of these many banks, it seems that the tests function as a deterrent, helping to correct the errors of individuals who might otherwise become a menace to the bank and endanger their own well-being.'⁴³⁰

Employees who confessed to having stolen money but were given a 'clear record' on their subsequent examination would thus be retained, while those who had not been reformed were dismissed. In this way, lie detection was used as a disciplinary technique which would correct the failings of people who were not strictly to be considered criminal but rather represented an average. Similarly to a technique of normalisation, lie detection not only provided a way of incriminating the guilty individual in the court system, but also of correcting the petty thief who represented no real menace to society but needed to be controlled in order to protect the economic interests of large organisations.⁴³¹

⁴²⁶ Ibid.

⁴²⁷ Ibid.

⁴²⁸ McEvoy, 1941, p. 70.

⁴²⁹ Johnston, 1944, p. 9.

⁴³⁰ LKP, Carton 2, Folder 3 L.K. Technique Policy Legal Status: Letter by Leonarde Keeler to Newman F. Baker, 21/07/1933.

⁴³¹ Not only could the financial interests of capitalist organisations potentially be protected. Rather, in 1932, a plan was developed with the Emergency Relief Commission in Chicago that the city's finances might be guarded against abusers of relief funds (LGP, Box 17, Folder 2: 'Report of the Director Scientific Crime Detection Laboratory,' 1932). This plan remained unrealised, but it points to the almost universal applications imagined for polygraphy as a moral technology.

The use of polygraph examinations in private businesses expanded massively in the 1940s and 1950s, including the spread of private polygraph businesses. By 1954, the International Society for the Detection of Deception included 150 members.⁴³² Clients of these firms included big department stores, manufacturers, insurance companies, fur companies, jewellery supply houses and as in Keeler's first business use, banks. Most cases concerned embezzlements.⁴³³

In governmental organisations, polygraph examinations were mainly used in what were considered security-sensitive areas. The first big governmental operation was initiated in 1947, after Keeler's business and another polygraph firm Russell Chatham Inc., were called in by the Atomic Energy Commission to carry out a preliminary project on the prevention of the theft of fissionable materials from a nuclear facility in Oak Ridge, Tennessee. On the basis of this project, Russell Chatham Inc. was contracted to carry out polygraph screenings covering a range of 18 000 employees.⁴³⁴ According to Alder, such projects were geared less towards the resolution of cases of fraud, but rather sought 'to enforce a new form of employee behaviour.'⁴³⁵ In polygraph examinations, employees were asked as to whether they had been involved with subversive individuals (in post-war America, this would have meant communists), whether they had filled out security questionnaires truthfully, whether they had talked about their work, had any plans to commit sabotage or to commit security violations.⁴³⁶ By 1954, it was reported that polygraph examinations had become a regular occurrence at the Operations Research Office, the Central Intelligence Agency, and the National Security Agency.⁴³⁷

In conjunction with regular screenings of the workforce, polygraph examinations came to be used at the entry-point of commercial and governmental institutions. Organisations could rely on lie detection as a way of providing a fast and reliable method of selecting applicants that could be trusted:

'Among other uses, it makes the personnel interview more efficient. An industrialist may want to hire tool makers in a hurry. The applicants qualify for skill, but may be saboteurs. The Polygraph will give the employer an immediate, accurate check on the applicant's past record. A Fifth Columnist need not open his mouth. His reflexes will convict him.'⁴³⁸

One of the first governmental uses that lie detection examinations were put to in screening potential employees for their trustworthiness was the examination by Keeler in 1945 of German Prisoners of War being trained as potential policemen in Rhode Island in post-war

⁴³² Segrave, 2003, p. 57.

⁴³³ Ibid, p.58.

⁴³⁴ Ibid, p. 52.

⁴³⁵ Alder, 2002, p. 18.

⁴³⁶ Segrave, 2003, p. 52-53.

⁴³⁷ Ibid, p. 55.

⁴³⁸ McEvoy, 1941, p. 70.

Germany for potential Nazi tendencies.⁴³⁹ It had also been used at the US State Department in ‘miscellaneous morals’ cases, mostly involving the charge of homosexuality.⁴⁴⁰ In examinations, potential employees were asked as to possible drug addictions, whether they were communists or homosexuals, and vague questions as to whether they had ever done anything that they were ashamed of.⁴⁴¹ In employment screenings, lie detection examinations thus operated as tool of moral exclusion whereby the ‘integrity’ of an individual was elaborated upon the basis of a set of moral questions. Here, the eligibility of an applicant was determined not on the strength of his or her qualifications, but on the basis of an assessment of their individual character, which if they ‘failed’ the lie detection examination was constructed as ‘untrustworthy’ according to categories which were conceived of as morally dangerous – such as homosexuality and communism (considered one of the major threats to the national moral order in cold-war America) – or according to alleged transgressions in the applicant’s past which were a sign of his questionable character in the present.

Having presented an overview of how polygraph examinations came to be used in personnel screenings in commercial and governmental organisations, I will now turn to two analyses which have been provided regarding their function especially with regard to the regular screening of employees. Alder discusses the spread of polygraph examinations in employment screening in terms of the regulation of trust necessitated by the expansion of large-scale bureaucratic organisations in the market economy and the national-security state. While in the 19th century, people still engaged in social relations through face-to-face interactions and thus interpreted the trustworthiness of people through the skill of reading their appearances, in large-scale organisations social relations were increasingly anonymous.⁴⁴² Lie detection examinations thus can be seen as one of a number of new techniques designed to regulate social relations in an organisational setting marked by impersonality and efficiency. Drawing on the work of institutional historians, Alder argues that lie detection examinations provided a means of regulating trust in hierarchical organisations, which had been formed to reduce the cost of information in risky market relations. In using lie detection examinations, managers had no longer to depend on ‘sentimental avowals that passed for sincerity in Victorian times’⁴⁴³ and the idea of loyalty to the firm. Rather, the use of lie detection examinations was a technique for ensuring that

⁴³⁹ Alder, 2007, p. 202-204.

⁴⁴⁰ Segrave, 2003, p. 56; Alder, 2007, p. 222-228.

⁴⁴¹ Segrave, 2003, p. 55.

⁴⁴² Alder, 2007, p. 163-164.

⁴⁴³ Alder, 2002, p. 19.

employees knew that the knowledge which was generated in and passed through these organisations was kept as a property of that organisation.⁴⁴⁴

While Alder's discussion regarding the function of the polygraph examination in regulating trust makes sense in terms of an analysis of reorganisation of interpersonal relationships resulting from institutional change in modern capitalism, it does not fully capture how lie detection came to function as a *disciplinary* technique. Thus his discussion might be expanded in conjunction with the broadly Foucauldian perspective taken by F. Allan Hanson. As became clear in the above discussion, lie detection worked as a disciplinary technique for controlling the behaviour of employees. Lie detection could not only be used to 'reform' individuals who had committed minor thefts in commercial organisations. On a broader level, the mere institution of regular polygraph screenings in organisations, which implied that transgressions would be known, worked as a disciplinary technique in directing the behaviour of employees in terms of organisational interests. In the book *Testing, testing*, which discusses the ubiquity of a battery of psychological and psychiatric tests as mechanisms not only to constitute the individual as a person but also to subject that person to surveillance and domination in modern society,⁴⁴⁵ Hanson discusses this disciplining feature of polygraph screenings in terms of Foucault's notion of disciplinary power. He argues that the lie detection examination constitutes the ultimate tool of surveillance as it provides a way of monitoring employees' self-awareness – 'an awareness not only of overt deeds but also of intentions, desires, impulses and other "inner" phenomena [...]'⁴⁴⁶ – and a means of controlling their behaviour and deriving information on it. In this context, he argues that the lie detection examination can be compared to the power mechanism to which the prisoner is subjected in the panopticon. The spatial organisation of the panopticon institutes a certain form of visibility whereby the prisoner can in principle be permanently observed in his cell by the guard in the central watch tower. Conversely, the observer in the watch tower remains hidden from view so that the prisoner can never know whether he is in fact being observed or not. The institution of a permanent visibility makes for an 'automatic functioning of power' – 'the surveillance is permanent in its effects, even if it is discontinuous in its action.'⁴⁴⁷ As a result of the organisation of space which divides along the lines of a permanent visibility and invisibility, 'inmates should be caught up in a power situation of which they are themselves the bearers.'⁴⁴⁸ The regular screening of employees in polygraph examinations may have a similar effect on their behaviour. However, instead of being

⁴⁴⁴ Ibid, p. 19.

⁴⁴⁵ Hanson, 1993, p. 3.

⁴⁴⁶ Ibid, p. 116.

⁴⁴⁷ Foucault, 1975/1991, p. 201.

⁴⁴⁸ Ibid, p. 201.

organised along the lines of visibility, I suggest, the lie detection examination operates according to a logic of *temporal displacement*. That is to say, it seeks to direct the behaviour of individuals through the awareness that their transgressions might be known in the future.

In constituting a power mechanism that is continuous in its effects, lie detection is also marked by its *efficiency*. Hanson compares the use of lie detection examinations with the institution of the \$5 day by the Ford Corporation as part of which employees were rewarded with an increased wage for ‘proper living.’ This, however, necessitated the institution of a ‘Sociology Department’ with up to 100 investigators who would pay visits to employees to check whether they were leading their private lives in an appropriate manner. By contrast, polygraph examinations provided a cheap and fast way of checking on the appropriateness of employee behaviour and controlling it through the threat that any transgressions would be known.⁴⁴⁹ Thus the lie detection examination corresponds to disciplinary power in terms of how it renders the subject party to his continual surveillance. In doing so, it implements the second major characteristic which marks the ‘disciplinary mechanism:’ it operates as ‘a functional mechanism’ which enhances ‘the exercise of power by making it lighter, more rapid, more effective, [...]’.⁴⁵⁰

It seems to be the efficiency of this mechanism which has sustained the use of lie detection examinations in commercial organisations and government institutions. For, while this mechanism has been subjected to continual criticism and contestation, it has maintained itself and even prospered. Although persistent criticism seems to have led to a provisional success of the critics of lie detection in the institution of the Employment Polygraph Protection Act (EPPA) in 1988, which provided that polygraph examinations could only be carried out in criminal investigations and in security-sensitive fields of employment,⁴⁵¹ polygraphy has continued to expand. Intriguingly, this expansion has been accompanied by a cyclical process of government investigations into its use in its various government institutions. Such investigations are framed not only in terms of the contestation of its scientificity, but also in terms of the protection of the rights of the individual and the motivation of the workforce. These investigations in turn result in the temporary curbing or modification of its application

⁴⁴⁹ Hanson, 1993, p. 116-117.

⁴⁵⁰ Foucault, 1975/1991, p. 209.

⁴⁵¹ For the legal provisions of the act, cf. Federation of American Scientists. “Title 29 United States Code Chapter 22 Employee Polygraph Protection Act.” <http://www.fas.org/sgp/othergov/polygraph/eppa.html> (23/2/2007). Further analysis is needed as regards the shifting of regular polygraph screenings more exclusively to governmental including law enforcement and national security institutions. Drawing on his institutional analysis, Alder interprets this shift in terms of the re-organisation of modern firms along more flexible and horizontal lines ‘where “knowledge workers” operate almost like subcontractors’ (Alder, 2007, p. 256). In this new model of management enforced ‘loyalty’ by means of polygraph examinations has become outdated. A further examination would elaborate on the changing operating mechanisms of commercial and governmental institutions with regard to the protection of information and the direction of employees in harbouring it, i.e. it would investigate different conceptions of institutional secrecy.

in agencies. This period is then followed by a swift increase in its use, justified on the basis of internal or external events such as the identification of security leaks or (most recently) terrorist threats, leading on to the next government investigation – and so on.

The first intervention in the spreading government use of the polygraph occurred in 1963, when a congressional subcommittee was formed to ascertain the use of polygraph examinations in government institutions. In 1964, hearings were held by the so-called Moss committee to determine whether and to what extent polygraphy should be used by government agencies. The Moss committee report concluded that: ‘there is no lie detector, neither machine nor human.’⁴⁵² As a result of the report, which criticised the use of polygraph examinations on the ground of their lack of accuracy and the poor training of polygraph operators, the Department of Defense sharply cut down on polygraph examinations.⁴⁵³ Yet this was not to last for long – already in 1983, the next major government investigation was underway, carried out by the Office of Technology Assessment as a result of President Reagan’s order that all government workers in sensitive jobs should be required to take an examination in order to root out security leaks, which had been made apparent.⁴⁵⁴ Finally, in 2003 the National Academy for Science published yet another report on the scientificity of the use of the polygraph in security screening following a classified directive which had been issued by President Clinton requiring the Department of Energy to step up its counter-intelligence programme in order to curtail potential security leaks and which was put into action through requiring all employees including contractor employees with access to classified information to undergo polygraph examinations as well as a mandatory screening at five-year intervals.⁴⁵⁵

Again, the NAS report pointed to the fact that while polygraphy could detect lying at a level above chance, there was little empirical evidence to support the accuracy of polygraph examinations in employment screening.⁴⁵⁶ It concluded that while there may be some utility in using them to increase the chance of detecting security leaks, alternative methods should be given more consideration.⁴⁵⁷ As result of the report, the Department of Energy was required to revise its regulations regarding the use of polygraph examinations in security screenings. The Department of Energy repealed the general screening of applicants as part of their

⁴⁵² Cited in Segrave, 2003, p. 80.

⁴⁵³ Ibid, p. 80.

⁴⁵⁴ Ibid, p. 137. For an overview of the report’s findings cf. Saxe, Dougherty and Cross (1985). For a full version of the report cf. Federation of American Scientists. “Scientific Validity of Polygraph Testing: A Research Review and Evaluation.” <http://www.fas.org/sgp/othergov/polygraph/ota/index.html> (14/02/07).

⁴⁵⁵ Cf. copy of Department of Energy publication on ‘Polygraph Examination Regulation’ in the Federal Register in 1999, published by Federation of American Scientists. “Polygraph Examination Regulation.” <http://www.fas.org/sgp/news/1999/08/fr081899.html> (22/02/2007).

⁴⁵⁶ Committee to Review the Scientific Evidence of the Polygraph, 2003, p. 3.

⁴⁵⁷ Ibid, p. 8.

‘counterintelligence evaluation,’ and instead implemented the screening of employees in certain high-risk positions.⁴⁵⁸ Additionally, it implemented a random screening programme which reduced the numbers of employees tested. While this can be portrayed as the curbing of the use of lie detection, it works within a mechanism of increased ‘deterrence,’ thus keeping within the logic of all-encompassing surveillance. Thus even though the effectiveness of the mechanism has continually been criticized in actually detecting the transgressions of the employee, its logic of continual and efficient surveillance seems to have been too attractive to relinquish it altogether. Rather, in combination with the continual affirmation of its lack of accuracy, which always centres on the same figures between 75% and 85%, comes the attempt at improving its methods, which as one might already predict, will become the basis of the same assessment in the next round of government investigations.

Drawing on Alder’s and Hanson’s analyses, I have provided an examination of how polygraphy spreads beyond the confines of criminal investigation and is turned into a moral technology, which comprises an exclusionary as well as an inclusionary, disciplinary function. In this, it implements the logic of disciplinary power, instituting a mechanism of surveillance over the individual by means of directing his behaviour not through continuous intervention, but by directing it on the basis of potential intervention in the future. In this way, polygraphy not only comes to implement the logic of surveillance that defines disciplinary society, but does so in an efficient manner – that is to say, a manner which achieves a maximum of effects while requiring a minimum of resources, or rather by making the individual the resource of his own surveillance.

6.5 Conclusion

In this chapter, I provided a broader analysis of the lie detection examination as a technique of knowledge production and intervention. I did so by applying Foucault’s notion of grotesque knowledge, which he develops in his analysis of the status of the medico-legal expert.

I have argued that, analogously to his evaluation of the function of medico-legal knowledge as a ‘switch-point’ between psychiatric discourse and jurisprudence, the lie detection examination also works as a ‘switch-point’ between psychological knowledge and the elaboration of guilt. In examining its ‘grotesqueness’, I showed how psychological knowledge and criminal interrogation became entwined in a circular mechanism which centres on modulating the body’s responses in evoking ‘the fear of detection’ and its simultaneous

⁴⁵⁸ For an online version of the regulations published in the Federal Register in 2006, cf. Federation of American Scientists. “Department of Energy 10 CFR Parts 709 and 710 Counterintelligence Evaluation Regulations.” <http://www.fas.org/sgp/news/2006/09/fr092906.html> (22/2/2007).

measurement. In framing the examination in terms of the lie, it seeks to bring an absolute power to bear on the individual through the absolute threat that what is in his mind will be known. In managing the fear of the subject, the instrument takes on a measuring and a performative role in being accorded the status of lie detector as well as scientific instrument. The examiner complements the instrument in constituting a hybrid of the psychological expert and interrogator. The spatial make-up of the examination which combines the characteristics of the experimental set-up and the interrogation room reinforces the construction of the authority of the expert/interrogator and the lie/detector instrument over the individual. In transforming the expression of fear into a 'diagnosis' of the lie, the lie detection examination serves to stitch together psychological knowledge and the elaboration of guilt. The diagnosis of the lie does not only combine psychological knowledge and criminal interrogation, it also serves to mask the inquisitorial aim which defines the lie detection examination in seeking to entice the subject into a confession on the basis of the expert's statement that he has lied. At the very moment at which the subject confesses, however, and thus the ensemble of the expert/interrogator and the lie detector/instrument succeeds in having brought an absolute power to bear on the individual, this ensemble is also disqualified. As a technique of knowledge production, whose very structure is built on the inquisitorial aim of extracting a confession from the subject by means of turning his body against himself, it cannot free itself from this aim in its attempt at scientific verification. For the confirmation of the subject's lie only becomes possible through the subject's avowal of his guilt, which is mediated by the inquisitorial as well as psychological nature of the lie detection examination. Having considered the power/knowledge mechanism which comes to define lie detection, I further discussed its role as technique of knowledge production and intervention at the entrance of the criminal justice system. I argued that it comes to match the needs of a system that, although reluctantly, still depends to a significant measure on the confession as a form of judicial proof, which the lie detection examination renders in more acceptable, i.e. scientific terms. Moreover, it functions as a tool within a system which, on the basis of its massive expansion since the 19th century, came to be organised in terms of the efficient processing of criminal cases not only within but mainly outside the boundary of the courts by means of plea bargains and confessions. In meeting this aim, the lie detection examination constitutes a hybrid of an inquisitorial method and the examination, which defines the central technique by which the human sciences come to intervene upon the human subject. It also entails faint echoes of torture, which turns the subject's body against himself in extracting from him a statement of guilt. However, it transforms the epistemology of pain which marks torture into the more benign mechanism of the epistemology of fear, which seeks to elicit a confession on the basis of the physiological and moral evaluation of the responses of the subject's body. On

this basis, the subject is not only constituted as *guilty* on the basis of his confession, but equally, as *immoral* on the basis of the abnormality of his speech. As an efficient mechanism of extracting confessions for the regulation of criminal cases outside of the court, it is the nature of the lie detection examination as hybrid of an inquisitorial technique and a psychological examination that defines its modern character, at least in the US. For it comes to function as a tool in a system which is no longer organised in terms of assigning a legal punishment on the basis of the judicial process, but caters to its management of a growing population of ‘delinquents.’

While the lie detection examination assumes a central function at the entrance of the criminal justice system as a psychological technique of eliciting confessions, it spreads beyond it by assuming the status of a moral technology in commercial and governmental institutions. In drawing on the analyses of Alder and Hanson, I showed that the lie detection examination moves beyond the criminal justice system being implemented as a moral technology through its use in personnel screening. Here, it becomes implemented as a tool in including or excluding the potential employee on the basis of his ‘trustworthiness.’ However, and more significantly, it also becomes a disciplinary tool in regular personnel screenings in controlling employee behaviour along organisational interests – coming to centre on the control of ‘sensitive’ knowledge not to be shared with others.

In discussing its role as disciplinary tool, I presented Alder’s argument which contextualised the use of lie detection examinations in personnel screenings as an expression of the reorganisation of relationships of ‘trust’ in terms of the imperatives of impersonality and efficiency in large scale organisations. However, I argued that this perspective does not account for the power mechanism which defines lie detection as a disciplinary tool, and sought to extend this perspective through the work of Hanson. In being used as a tool which comes to orient the behaviour of individuals on the basis of the fact that their transgressions might be known in the future, the polygraph examination works according to the logic of disciplinary power. In a similar vein to how visibility is organised in the panopticon, the lie detection examination institutes a system of surveillance through the threat of the future identification of transgressions. It is marked by the fact that it is continuous in its effects but discontinuous in its application. In this, the lie detection examination corresponds to the effectiveness which marks disciplinary power in implementing a structure whereby the individuals themselves become the bearers of the power relationship. It is the apparent efficiency of the lie detection examination in this system which makes it so attractive in the regulation of criminal guilt at the entry of the criminal justice system and the control of employee behaviour in commercial and governmental institutions and which protects it against all efforts at contestation.

What, then, are we finally to make of the lie detection examination as hybrid of an inquisitorial technique and psychological examination as well as a disciplinary tool? In a broader sense, it becomes one of the 'tools' and 'methods' which constitute what Foucault calls a 'political technology of the body.' In modern society, this technology comes to centre on the 'soul' as target and effect of a set of power relations, which constitute the human subject as an object of knowledge and intervention. In *Discipline and Punish*, which is framed as a 'correlative history of the modern soul and the power to judge,' Foucault seeks to show how since the 19th century, power and knowledge have intersected to produce the individual not only as object of knowledge but also as site of intervention by virtue of that very knowledge. It comes to centre on controlling the individual in terms of his soul, which 'is produced permanently around, on, within the body by the functioning of a power that is exercised on those punished – and, in a more general way, on those one supervises, trains and corrects, over madmen, children at home and at school, the colonized, over those who are stuck at a machine and supervised for the rest of their lives.'⁴⁵⁹ In the construction of the 'soul,' the lie detection examination works directly on the body, taking it as basis for the elaboration for what Hacking calls a 'surrogate of the soul,' the construction of the subject's inner life, of his thoughts, in terms of the movements of the body. This process entails the subjection of the body not only in terms of the 'epistemology of fear' which is brought to bear on it, but also in terms of the effects which this subjection that is framed in terms of knowledge is supposed to generate: the confession. But the subjected body that is produced in the lie detection examination is also a correlate of the construction of the productive body – its functioning in commercial and governmental institutions is the result not only of a direct but rather an indirect mechanism, which centres on disciplining the individual in terms of managing his productivity. Here productivity is no longer understood in terms of managing the factory worker's labour force but increasingly in terms of controlling the knowledge that the employee – in recent years, specifically the law enforcement or government employee – harbours in his mind. Thus the lie, formerly the province of theologians and philosophers such as Augustine, Thomas Aquinas, and Immanuel Kant, has turned from being an object of moral contemplation into an object of knowledge and intervention that is enlisted in managing the productive and the subjected body.

⁴⁵⁹ Foucault, 1975/1991, p. 29.

Chapter 7 **The Truth Facilitator and the Neuro-Circuitry of Deception**

In the last chapter I argued that lie detection can be interpreted in terms of Foucault's notion of 'grotesque knowledge:' it represents a type of knowledge which implements an absolute power while disqualifying itself as a technique of knowledge production by virtue of the fact that its verification is dependent upon the subject's confession. On the basis of this analysis, I provided an evaluation of how the polygraph examination has come to operate as a hybrid of an inquisitorial technique and a psychological examination at the entry-point of the criminal justice system. Furthermore, from the 1930s, the polygraph examination assumed an additional function of personnel screening in commercial institutions until 1988 and in governmental institutions until today. In these institutions, lie detection was constituted as a disciplinary technique which directs employees' behaviour on the basis of the threat that their transgressions may be known in the future. In this, it comes to operate according to the logic of disciplinary power which is marked by its effectiveness in making individuals the bearers of the power relations that are exerted on them.

Taking up where this argument left off, in this final substantive chapter of the thesis I will consider the most recent development in the spread of polygraphy. The polygraph examination has assumed a new function in the monitoring of sex offenders and paedophiles on parole or probation. As part of this new function, polygraphy is located within the current reconfiguration of systems of social control that are geared towards the management and containment of groups of individuals on the basis of the assessment of the 'risk' that they pose to society. In order to discuss this development, I draw on Rose's analysis of the operation of networks of exclusion in liberal societies. Rose suggests that the classification and management of 'risky' individuals engenders the emergence of a new type of human being: the *monstrous individual*. I elaborate on how the polygraph examination has come to be used as a 'truth facilitator' in managing the monstrosity of the sex offender and the paedophile. Operating as a technique of pre-emptive supervision, it constantly re-asserts and contains the monstrosity of the sex offender in opposition to the free and autonomous individual.

Having completed the analysis of how the polygraph examination as an applied technique comes to spread and is reframed in operating according to different mechanisms of control, the second part of the chapter concerns itself with the re-emergence of an interest in the detection of deception in the academic realm in the 1970s. Not only did this involve the taking up of polygraphy by psychologists and its contestation. Additionally, new ways of

capturing deception have evolved, following a shift in experimental psychology from the study of the *emotions* to the study of *cognition*. I trace the movement from the ‘epistemology of fear’ to an ‘epistemology of recognition’ which engenders, first, the reframing of bodily responses in terms of the externalization of ‘guilty knowledge,’ and second, results in the movement of the lie from the *body* to the *brain*. Researchers on guilty knowledge suggest that their technique provides a truly scientific means of detecting deception by rendering deception in terms of the ‘probability of guilt’ over and against the subjective and unreliable methods of polygraphy. However, polygraphy continues to be the main applied technique of detecting deception, while the guilty knowledge test remains confined to the laboratory. In drawing a comparison between the latter’s development and the institutionalisation of early polygraphy, I furnish an explanation for this entrapment of the guilty knowledge test. In completing the overview of the movement of deception from the body to the brain, I discuss recent efforts to light up the ‘neuro-circuitry of deception,’ which provides the lie with a definitive location in the brain. In corresponding fully to the new cognitive paradigm in psychology and in turning the detection of deception into a seemingly automated process of the computation of the lie, I consider the question whether it will finally fulfil the promise of the lie detector as a humane and scientific technique.

7.1 *From lie detector to ‘truth facilitator’*

As part of my analysis of the status of the lie detection examination as technique of knowledge production and intervention, I discussed how lie detection spread beyond the criminal justice system and became instituted as a disciplinary technique. More recently, polygraphy has assumed a new and increasingly significant function within the reformulation of the criminal justice system, specifically in conjunction with the notion of risk that is being used in programmes involving the ‘monitoring’ and ‘treatment’ of sex offenders on parole or probation. In the containment of the sex offender, which has become a focus of public criminal policy and criminal law from the late 1980s,⁴⁶⁰ the polygraph examination is turning into an increasingly widespread tool, having been in use by 16% of parole and probation agencies in the US in 1998.⁴⁶¹ Strikingly, this application of the polygraph examination has *not* remained limited to the US. Beginning in 2001, the UK government, which in 1986 had still been opposed to the use of polygraph examinations in criminal investigations contesting its scientific validity,⁴⁶² had funded pilot studies⁴⁶³ into the use of polygraph examinations in sex

⁴⁶⁰ Becker and Murphy, 1998, p 116.

⁴⁶¹ English, *et al.*, 2000, p. 8.

⁴⁶² The government’s position was based on a study carried out by the British Psychological Association (Grubin, *et al.*, 2004).

offender monitoring. By December 2006,⁴⁶⁴ the UK government was considering the implementation of a monitoring scheme instituting compulsory polygraph screening for sex offenders on the basis of a provision included in the government's 2005 *Management of Offenders and Sentencing Bill*.⁴⁶⁵ In the following discussion, I will explore recent shifts towards framing social control in terms of risk and provide an analysis of how the function of the polygraph examination becomes reformulated in sex-offender monitoring. Its transformation into a 'truth facilitator' renders it a tool in the intervention upon 'monstrous individuals,' matching the system's new logic of management and containment rather than the reform of offenders.

Feeley and Simon have argued that in the period since World War II the criminal justice system has become increasingly centred around the notion of risk.⁴⁶⁶ Crime is no longer conceptualized as a problem to be solved through remedies provided by social reform, but rather as a reality to be controlled on the basis of risk assessment. The techniques of knowledge and control, then, no longer focus on the individualization and normalization of the *individual* offender in a disciplinary society, but are rather geared towards classifying *groups* of offenders on the basis of the risk that they pose to society and identifying measures for their management and containment in an increasingly 'post-disciplinary' society.⁴⁶⁷ Control measures are here defined on the basis of conceptions of 'actuarial' justice and derived from statistical models, which feed into measures of regulating deviance.⁴⁶⁸ However, other scholars have suggested that this shift is less straightforward than it seems, that aspects of the old reformist model coexist with the new risk-based one.⁴⁶⁹ Drawing on Foucault's notion of 'governmentality,' Rose suggests that while shifts in conceiving of, and organizing, control are indeed taking place, these should be considered not only in terms of the criminal justice system, but in terms of how modes of governing the conduct of individuals are implemented in liberal societies. On the one hand, these new forms of control centre on 'networks of inclusion' as part of which identities of individuals are constituted through the 'securitisation of identities,' which not only makes the increased tracing of the individual by means of information derived from identity, credit and debit cards and driver's licenses possible, but

⁴⁶³ The pilot studies were carried out by the National Probation Service under the leadership of the forensic psychiatrist Don Grubin and funded by the Home Office and the NHS (Grubin and Marsden, 2006; Grubin, *et al.*, 2004). A further pilot study was carried out by Wilcox and Sosnowski (2005).

⁴⁶⁴ BBC News. "Lie test plan for sex offenders." 1/12/2006.
http://news.bbc.co.uk/1/hi/uk_politics/6197458.stm (9/12/2006).

⁴⁶⁵ House of Lords. "Management of Offenders Sentencing Bill." 12/1/2005.
<http://www.publications.parliament.uk/pa/ld200405/ldbills/016/2005016.pdf> (14/2/2007). Cf. No. 47-50 of Part 5 Miscellaneous Provisions of the Bill. The bill is part of a wider reform of the British penal system which is equally geared towards instituting a risk-assessment based system of social control.

⁴⁶⁶ Feeley and Simon, 1992, 457-458.

⁴⁶⁷ Feeley and Simon (1992); Haggerty and Ericson (1997).

⁴⁶⁸ Feeley and Simon, 1992, p. 452-454.

⁴⁶⁹ Garland (1996).

also serves in the elaboration of individual's subjectivities. They form 'obligatory access points' for individuals in participating in 'networks of civility' which are attached to possible sanctions, rewards, etc. which mediate individuals' choices and thus direct their conduct as 'active citizens' in a free society.⁴⁷⁰ As part of the networks of inclusion, a mode of governing is instituted which is no longer organised around a state-provided system of control, but rather 'responsibilises' individuals to constitute their own security in 'communities of control,' e.g. forming community watch groups, employing private security companies, constructing gated communities etc.⁴⁷¹

The management of the population on the basis of risk by means of the analysis of the distribution of problematic individuals and their placement to ensure an efficient functioning of the population finds its application in networks of exclusion. These forms of risk assessment are, however, rarely formulated in actuarial or numericized terms, but are rather characterized by a 'risk gaze', maintained by an increasingly diversified set of agencies, that is focused on the excluded: the poor, the mental patient, the criminal, etc. As part of the analysis of the 'riskiness' of individuals, such individuals are assessed as to whether they can be included or must be excluded. On the basis of this evaluation, sets of measures are defined which, depending on the kind of risk that individuals pose, are focused on controlling them within the community or result in their detainment if they are considered too risky for society.⁴⁷² Those that are included, again, become subject to the process of 'responsibilisation.' Programmes are designed for them which are based on reframing their problematic nature in ethical and moral terms, centring on their conduct. The control mechanism that they apply is intricate, in that the moral rendering of subjects' problems makes the application of a set of psychological techniques possible which are framed in terms of the 'empowerment' of individuals. They construct the interventions on the subject not in terms of instituting conformity, but rather in terms of enabling them to become 'autonomous' free individuals who participate in the 'empire of choice.'⁴⁷³ The psychologico-ethical elaboration and management of those to be included is matched by a process of exclusion which considers certain classes of people to be beyond the moral bounds of society. This involves the definition of new types of human kinds, people that are 'intractably risky – 'monstrous individuals who either cannot or do not wish to exercise the self-control upon conduct necessary in a culture of freedom.'⁴⁷⁴ They are defined by the fact that their 'very make up as human beings appears somehow faulty or incomplete and

⁴⁷⁰ Rose, 2000, p. 325-327.

⁴⁷¹ Ibid, p. 327-328.

⁴⁷² Ibid, p. 331-333.

⁴⁷³ Ibid, p. 334.

⁴⁷⁴ Ibid, p. 334.

whose very nature thus seems to place them permanently beyond the limits of civility and its demands on subjectivity.⁴⁷⁵

The sex offender, especially the paedophile, are maybe the epitome of this class of 'monstrous' individuals, having become, and continuing to be, the focus of media and legislative attention. This is expressed in the extensive news coverage of heinous sexual crimes which centre on the disappearance, abuse and murder of children. The media fascination with these types of crime and the specific focus of legislative measures to contain them, bear little relationship to the frequency of their occurrence in relation to other crimes. Rather, they are embedded in a 'culture of fear' which is constructed around the threat to children's wellbeing or perceived violence against children.⁴⁷⁶

In the elaboration of the sex offender and the paedophile as monstrous individuals, their nature becomes defined by their perversity, which is 'ingrained, compulsive and lifelong.'⁴⁷⁷ The 'sexual predator' is an individual whose offences are merely an expression of his monstrosity, which is itself framed as a pathology. His definition as an individual who is beyond the ethical bounds of society is accompanied by the construction of his pathology not only in terms of his offending behaviour, but in terms of his moral conduct: he has 'made secrecy and dishonesty a part of their [his] lifestyle.'⁴⁷⁸ Being placed beyond the moral bounds of society, sets of specific measures are applied to him that move him beyond the limits of liberal institutions to which those that exist within the culture of freedom would normally be entitled. He no longer has the right to be subjected to detention only if convicted of a crime in a court of law. Rather, once his first conviction and sentence have marked him as a monster, he needs to be *continually* surveilled, assessed, monitored, and treated, upon his release back into society. As a human being that poses an absolute risk, pre-emptive measures need to be applied, which might include his detention before a crime has been committed in order to protect society from the threat that he poses.⁴⁷⁹

⁴⁷⁵ Ibid, p. 334.

⁴⁷⁶ Farkas and Stichman, 2002, p. 256. Further analysis of the cultural conditions under which the sex offender and the paedophile have become the focus of criminal policy at the intersection of the media, interest groups, psychology and governmental legislatures in liberal societies is needed. As my discussion focuses on how the polygraph examination constructs and intervenes upon the sex offender as monstrous individual, such an analysis is beyond the scope of this thesis. For an insightful analysis of discursive changes as part of which the protection of children became re-constituted around the figure of the sex offender as dangerous individual, having formerly centred on both the homosexual and the psychopath, cf. Pratt (1998).

⁴⁷⁷ English, *et al.*, 2000, p. 21.

⁴⁷⁸ Ibid, p. 12.

⁴⁷⁹ These measures have been implemented in specific sex-offending laws, so-called 'sexually violent predator laws' from the early 1990s which regulate the continual containment and management of sex offenders by providing for indeterminate confinement, sex offender registration and community notification, and chemical castration in addition to regular polygraph examinations. These laws have replaced earlier 'sexual psychopath' laws which were drawn up from the 1930s that were still framed in terms of the rehabilitation of offenders (La Fond, 1998). Legislation providing for mandatory regular polygraph examinations of convicted sex offenders has been implemented in at least six states at the state-level and has become a requirement in local jurisdictions in thirty states (Farkas and Stichmann, 2002, p. 274).

In managing his pathology, a set of agencies is constituted around him: ranging from the parole officer, the treatment provider, to the 'post-conviction' polygraph examiner.⁴⁸⁰ In targeting the nature of his monstrosity – his compulsion to commit further offences and his deceptiveness – the polygraph examination is constructed as the most fitting tool in an equal measure to the use of urinalysis in the treatment of the drug offender.⁴⁸¹ The polygraph examination is used, firstly, to establish the 'whole truth' of the offender's sexual offence history, to identify his complete pathology. On this basis a treatment plan is elaborated, which might include the implementation of a whole set of measures geared towards his containment ranging from close surveillance measures, electronic monitoring, curfews, to home confinement etc.⁴⁸² These measures are designed to ensure that the community in which he is located is protected from the threat that he poses. Secondly, through recurrent polygraph examinations covering past and current behaviour, such measures can be modified, stepped up or lead to the revocation of his parole.⁴⁸³

In requiring the offender's waiver of his confidentiality rights, the use of the polygraph examination as confessional technique in the construction of a full offender history is here radicalized by the elicitation of confessions regarding past crimes resulting in his potential

As regards indeterminate confinement, involuntary civil commitment statutes applied to mentally ill persons have been expanded to include sex offenders and paedophiles (for a discussion of the expansion of these statutes cf. Cornwell, 1998). As part of these statutes individuals can be contained indefinitely if they are seen to pose a threat on the basis of their 'mental abnormality' (a broad term drawn up to include not only those who suffer from a classified mental illness but whose behaviour is seen to be dangerous) (Farkas and Stuchman, 2002, p. 259-260). In the US, all states have been required to implement obligatory registers of sex offenders and mandatory community notification on the basis of federal legislation passed in 1994 and amended in 1996. This was accompanied by the implementation of the well-known 'Megan's Law' in New Jersey, after the assault and murder of the girl Megan Kanka (ibid, p. 263). Other states have equally implemented legislation under this name. Megan's Law served as inspiration for the large-scale campaign for 'Sarah's Law' in the UK launched by *News of the World* in July 2000 after the assault and murder of Sarah Payne (cf. *News of the World*. "for Sarah." <http://www.forsarah.com/html/sarahslaw.html>. 25/03/2007). The registration of offenders and the notification of communities of their existence fit within the logic of the 'responsibilisation' of individuals in communities of control. This measure is intended for people to safeguard against the danger of the 'monstrous' individual. It marks the 'sexual predator' as individual who, although set within a community, cannot adhere to its moral bounds. His mere physical presence therefore is a constant danger and he must remain excluded. Simon (1998) provides an analysis of how sexual predator laws (and their upholding by the US Supreme Court) and 'Megan's law' institute sex offenders as separate classes of 'monstrous' individuals. While Simon's analysis is valuable with regard to how monstrosity is written into the law it fails to account for the central role that is played by psychology in materialising this notion. Rather, he argues that psychology has been in crisis having lost its epistemological centre, i.e. the individual offender to be rehabilitated (ibid, p. 454). As this analysis shows, psychological techniques are crucial in organising systems of management and containment. It is for this reason, that Rose's framework which explicitly integrates psychological techniques represents a more useful approach. For discussions of the history of sex offender laws, an overview of the mental health literature on sex offenders, and approaches to sex offender risk assessment and treatment, cf. the special issue in *Psychology, Public Policy and Law*, Vol. 4, No. 1/2.

⁴⁸⁰ English, *et al.*, 2000, p. 8.

⁴⁸¹ English, 1998, p. 228.

⁴⁸² English, *et al.*, 2000, p. 9.

⁴⁸³ Ahlmeyer, *et al.*, (2000).

re-insertion into criminal detention.⁴⁸⁴ Its use also draws on its function as disciplinary tool. In subjecting the offender to regular examinations, lie detection seeks to direct his behaviour by means of the threat that any transgressions may be known in the future. However, it also transforms this function along the pre-emptive logic of his management by inquiring into patterns of ‘pre-assaultive behaviors and emotions.’⁴⁸⁵ Thus the examination is no longer only geared towards establishing deeds already committed, but deeds imagined or acts considered as transgressions (several of which would be thought of as normal or minor forms of misbehaviour) which may now be regarded as warning signs of the future occurrence of the deed – accessing adult or child Internet pornography, establishing contact with children, but also deviant fantasies, (excessive) masturbation, the visiting of topless bars, or “aimless driving” – and which require immediate intervention so as to prevent its realisation.⁴⁸⁶ This new function of the polygraph examination is expressed by a new designation which it is given by its practitioners: it is no longer portrayed as ‘lie detector,’ but rather as a ‘truth facilitator.’⁴⁸⁷

The lie detector symbolizes a different form of how social control and knowledge come to intersect in intervening upon the individual. The ‘diagnosis’ of the lie in the polygraph examination seeks to establish the subject’s guilt; it is geared towards the teasing out of crimes committed in the past. Furthermore, as a knowledge technique it does not construct the individual as a certain type of being, but rather seeks to simply apprehend him on the basis of his lie. Being set at the entry-point of the criminal justice system, it intervenes upon the suspect by inserting the criminal into the process of punishment on the basis of his confession. In being constituted as guilty on the basis of his confession and immoral on the basis of his lie, the offender remains within the moral order.

By contrast, as a ‘truth facilitator,’ the polygraph examination constructs and intervenes upon a pathological subject, whose pathology combines his compulsion to commit perverse sexual acts with his deceptiveness. By inquiring into the individual’s thoughts and actions, the truth facilitator seeks to monitor the danger of future acts and pre-empt them through the modulation of his treatment. In this sense, the ‘truth facilitator’ encompasses a notion of treatment which does not operate on the basis of a single crimino-psychological judgment of

⁴⁸⁴ Sex offender monitoring programmes are here subject to a tension which is constituted by the underlying assumption that successful monitoring of sex offender pathology can only be achieved through the complete disclosure of all criminal acts and the potential thwarting of confessions because of the danger of prosecution of these undisclosed crimes. This is usually negotiated through the granting of ‘limited’ or ‘conditional immunity’: as long as the offender adheres to the programme and completes it successfully he is protected from further convictions (English, *et al.*, 2000, p.18-21; Hindman and Peters, 2001, p. 12-13). For studies on the effect of polygraph examinations on the disclosure of past offences, cf. Ahlmeyer, *et al.* (2000); Emerick and Dutton (1993); Hindman and Peters (2001); English, *et al.* (2000).

⁴⁸⁵ English, *et al.*, 2000, p. 9.

⁴⁸⁶ English, *et al.*, 2000, p. 35-36; Grubin, *et al.*, 2004, p. 215-216.

⁴⁸⁷ Grubin, *et al.*, 2004, p. 220.

the subject nor on the basis of the identification of his individual character with the aim of his normalisation. Rather it works as a method of continual supervision, which on the basis of recurrent questioning regarding the individual's thoughts and minor acts of transgression, constantly asserts the sex offender's monstrosity as well as contains it. The truth facilitator carries faint echoes of reform by seeking to establish a 'forced level of honesty' upon the offender's deceptive nature that will allow him to comprehend his own deeds.⁴⁸⁸ But this already represents the *limit* of reform: to make the sex offender acknowledge the truth of his own monstrosity and accept the need for his management outside of the bounds of society.

As a result, the polygraph examination now assumes a central role in the networks of exclusion which run through liberal society, and this on the basis of its novel function as 'truth facilitator' not only in the management and containment of the 'monsters' existing outside the margins of society. Indeed, it draws on a similar logic to those 'technologies of freedom' which seek to responsabilise those who are deemed worthy of inclusion, by applying psychological techniques to a moral elaboration of their conduct. However, in a more sinister fashion, the polygraph examination draws on this mechanism by defining and intervening upon the pathology of the sex offender on the basis of his conduct - his deceptiveness, which becomes the basis for the continual elaboration and containment of his monstrosity. Thus it not only *manages* and *contains*, but additionally serves in the continual *construction* and *perpetuation* of the figure of the monstrous individual as a counter-figure to the free and responsible individual, justifying more generally the system's logic of management and containment.

While polygraphy as an applied knowledge production technique has continually spread since its inception by the polygraph in 1931, there has been a renewed academic interest in it since the 1970s. This has not only involved the taking up of polygraphy by psychophysicists and its fierce contestation by others. In addition, following a shift in experimental psychology from the study of the emotions to the study of cognition, this has engendered new ways of capturing deception. In the next three sections I will trace this 'cognitive shift' in the detection of deception. In this description, I will investigate why one of the techniques within this shift, the so-called guilty knowledge test, remains trapped in the laboratory while claiming to have replaced the 'impressionistic' methods of the polygraph examiner with a scientific technique of estimating the probability of guilt. Furthermore, I will explore the question whether the cognitive shift in the detection of deception finally furnishes a scientific and humane detection of the lie or whether it might equally bear the marks of the grotesque.

⁴⁸⁸ English, *et al.*, 2000, p. 95.

7.2 *The detection of guilty knowledge*

In 1981, the psycho-physiologist David Lykken remarked with regard to polygraphy that ‘after 50 years of virtual neglect, there has been recently a wholesome increase of critical discussion of this truth technology and its potential impact upon our society.’⁴⁸⁹ Indeed, Lykken was to become its most outspoken critic within the scientific community. In 1959, Lykken had initiated the first academic murmurings of a critique of lie detection and of its basis in what might be termed an ‘epistemology of fear,’ and proposed an alternative method. His critique and the suggestion of a different technique were to turn into a full-scale debate among psycho-physiologists from the late 1970s. For not only had public and academic criticism of polygraphy increased. In the 1970s, a group of academic psycho-physiologists had taken up polygraphy. Convinced of its scientific potential, they defended the principles of polygraphy and ventured to put lie detection on a scientifically validated footing. In trying to establish authority for their respective techniques, psycho-physiologists at the University of Utah – the so-called Utah-group – lead by David Raskin, who was to become Lykken’s main academic opponent, and Lykken have drawn all measures available to the academic warrior from face-offs in academic journals to the sending out of surveys to members of psychological associations including the Society for Psychophysiological Research, the American Psychological Association, and the American Psychology-Law Society. Each has claimed the survey results to be a legitimization of their technique. Additionally, in this battle over constructing their credibility on the basis of opinions of ‘scientific communities,’ they have in the good manner of quantitative survey deconstruction ventured to undermine each other’s results.⁴⁹⁰

The basis of Lykken’s denigration of polygraphy, and the suggestion of a scientific alternative, centred on the claim to a new technique of establishing suspects’ guilt through the detection of ‘guilty knowledge.’ He and two medical students had carried out experiments using a physiological measurement which Keeler had integrated into the polygraph in the late 1930s – galvanic skin resistance, or electrodermal response, as it was later called. The set-up of the experiment was the same as in those many experiments carried out in early lie detection: it involved a ‘mock crime,’ in which the experimental subjects had to either commit a ‘theft’ or a ‘murder’:

‘For the Murder enactment, S [subject] was taken to the second floor of the building and required to knock on the door of one of the offices. The door was opened by an assistant who, after some preliminary conversation, invited S to play a hand of poker, which was thereupon dealt out, the assistant getting the better hand. Remarking that S now owed him a hundred dollars, the assistant then walked

⁴⁸⁹ Lykken, 1981, p. 37.

⁴⁹⁰ For the debate among polygraph operators and proponents of the ‘guilty knowledge technique’ cf. Kleinmütz and Sucko (1984); Lykken (1974; 1978; 1981; 1998); Podelsney and Raskin (1977; 1978); Raskin and Podelsney (1979); Raskin (1982; 1989); Honts (2004); for the discussion of the surveys cf. Amato and Honts (1994); Ianoco and Lykken (1997); Lykken (1998); Honts (2002).

over to stand looking out the window. Taking a weapon from his pocket, *S* went through the motions of killing the assistant, hid the weapon in a drawer of the desk, and left the office. In the Theft enactment, *S* had to idle near the doorway of a different office until the occupant, a woman, left it to go into the washroom. *S* then hurriedly entered and riffled through the desk calendar until he found a page on which his own name had been entered. He erased the name and then searched through the desk until he found the article (e.g. a watch) which he had been instructed to “steal.” Leaving the office, he hid the stolen property in a locker in the hallway.⁴⁹¹

After committing the ‘crime’ subjects were attached to a galvanometer and a list of questions was read out to them – however, in this first experiment, they were not required to provide verbal responses to them. The questions were multiple-choice questions, e.g.

‘The murderer hid the weapon in one of the drawers of a desk. Which drawer was it?
Was it the one

- (a) on the left
- (b) in front
- (c) on the right?’⁴⁹²

In later set-ups, subjects were instructed to answer ‘no’ to each of the alternatives – thus the subject who had ‘committed the crime’ would have had to lie on the location of the murder weapon. Keeler had devised a similar kind of test in the 1930s, which he called the ‘peak of tension test.’ In a jewellery theft case, a list of different types of jewels including those that had been burgled and a list of different foods including those that had been eaten by the burglar were presented to suspects in lists of questions.⁴⁹³ At the end of his article, Lykken claimed that his new technique – the detection of ‘guilty knowledge’ – ‘while less widely applicable,’ was ‘a more reasonable, objective, and generally defensible technique’ than lie detection, which required ‘unreasonable assumptions of the consistency of physiological response patterns.’⁴⁹⁴ Considering the similarity of Keeler’s and Lykken’s approach – what had changed to bring about this damning critique of lie detection as a practice and the suggestion of a novel technique, the principles of which had already been used earlier?

Lykken’s approach involved a shift in the *object* of knowledge. The ‘epistemology of fear’ introduced by lie detection was to be undermined, but not displaced, by a new epistemology, which has oriented psycho-physiological research opposed to the use of polygraphy in the detection of deception since the 1980s – an ‘epistemology of *recognition*.’ In inaugurating a new research programme, Lykken argued that the basic assumption of a distinct physiological pattern associated with lying was not supported by empirical research. Not only was it difficult to establish specific patterns for involuntary bodily responses such as pain, fear and anger, but additionally, these responses could vary widely across individuals.⁴⁹⁵ Rather, the detection of

⁴⁹¹ Lykken, 1959, p. 385.

⁴⁹² Ibid, p. 386.

⁴⁹³ Keeler, 1938/1939, p. 140.

⁴⁹⁴ Lykken, 1959, p. 388.

⁴⁹⁵ Lykken, 1981, p. 56-57.

guilt might be based on the ‘more reasonable assumption that a guilty person will show some involuntary response (e.g. GSR) [galvanic skin resistance] to stimuli related to remembered details of his crime.’⁴⁹⁶ If ‘factual details’ of a crime could be collected which were only known to the guilty individual and the investigator, then questions could be designed in such a way that these details might be hidden within a number of possible alternatives. Only the guilty individual would recognize the factual detail, thus stimulating a greater physiological response, whereas to the innocent none of the alternatives would have any significance – he would simply respond to the presented stimulus in a normal manner. Of course, this would also entail a reduction of cases. Physiological techniques of detecting deception would only be possible in cases where other individuals were not involved in a crime and, significantly, details of the crime would not have been made public.

The change from an ‘epistemology of fear’ to an ‘epistemology of recognition’ was set within a more general shift in psychology from the study of the emotions to the study of cognition from the 1950s. As part of this shift, electrodermal response, part of a host of measurements that had formerly been translated into emotional processes, was now read in terms of cognitive processes. More specifically, psycho-physiologists framed it in terms of processes of attention and information processing. The guiding concept within this new understanding of the body’s processes is the so-called ‘orienting response,’ a reaction of the body to a surprising or significant ‘stimulus.’⁴⁹⁷ Much in the same manner as the understanding of the ‘fight-or-flight’ mechanism that had formed the basis of polygraphy, it is seen as an ‘autonomic’ response that cannot be controlled by the body. On this basis, criminal details are framed as significant stimuli, and the body’s reactions as indicators of a process of ‘recognition.’ In this context, the term ‘guilty knowledge test’ might be seen to signify the ‘objective’ character in the analysis of cognitive processes set within the new paradigm of psychophysiology, as opposed to the moral imputations of lie detection based on the unreliable and outdated analysis of the emotions.

The overarching attack on polygraphy’s ‘unreasonable’ and unwarranted assumption that there are specific physiological patterns associated to lying, which could be elicited by an expert in the examination situation – and thus that the basis of lie detection is flawed – is part of the boundary-work in which psycho-physiologists engage in constructing their scientific authority over and against polygraphy. This boundary-work is framed around the notion of psychological testing and how, by contravening its norms, polygraphy is unable to produce ‘objective’ knowledge of the lie. It combines the juxtaposition of the ‘subjective’ and ungrounded methods applied in polygraphy and the ‘objective’ testing principles of the guilty knowledge test with a

⁴⁹⁶ Lykken, 1959, p. 385.

⁴⁹⁷ Ben-Shakhar and Furedy, 1990, p. 107; Ben-Shakhar and Elaad, 2003, p. 132.

normative evaluation of the self-interested practices of polygraphy versus the assurance of justice on the basis of the disinterested scientific principles of the guilty knowledge test.

Firstly, the principled critique of the inadequate training of polygraph examiners, which we have encountered in Larson's boundary-work before, is put forth by proponents of the guilty knowledge test. In establishing their own scientific authority, they seek to undermine polygraphy by pointing towards the general lack of individuals with advanced academic degrees in the behavioural sciences or psychophysiology, who would be capable of assessing the scientific validity of their methods or indeed to make judgments about the complex behaviour that deception represents. If anyone, it would only be individuals so qualified that could provide such expertise. And since the academic literature shows that lying cannot be attributed to specific bodily responses, even those academics working on the scientific validation of polygraphy are misguided in their claims.⁴⁹⁸

Secondly, the undermining of polygraphy is framed in terms of a normative assessment of polygraph operators that is based on the psychological charge of subjectivity: the examiner is portrayed as *interested*, and (especially as regards police polygraph operators) as motivated to obtain confessions.⁴⁹⁹ Thus their interpretation of the polygraph chart is guided by their preconceptions of whether the subject appears guilty to them or not. Even if they apply a numerical approach to the scoring of the polygraph charts, assigning numbers is based on a qualitative assessment of the chart. Therefore polygraphy cannot provide fully quantitative statements of deception.⁵⁰⁰ In this context, even the agreement of examiners – so-called inter-rater reliability – gives no assurance of the validity of their assessments. Rather, it merely points to the fact that they may have received the same training.⁵⁰¹ Furthermore, as the questions are framed and presented by each individual examiner, they cannot be seen as standardised, i.e. as one criterion for producing objective psychological knowledge.

Finally, the so-called control question, designed to distinguish between the fear of the innocent and the guilty, does not represent a 'control' in the scientific sense.⁵⁰² As I noted in chapter 5, the control question is framed around a minor transgression, which anyone is assumed to have committed in one's life. While it is assumed that the guilty person will be more worried about the questions which concern the actual crime, the innocent will fear that a minor transgression might implicate him and will thus respond more strongly to the control question. Against this, proponents of the guilty knowledge technique argue that a control in the proper sense is formulated around the presence or absence of a certain behaviour, rather than assumptions

⁴⁹⁸ Bashore and Rapp, 1993, p. 3.

⁴⁹⁹ Lykken, 1981, p. 65-67.

⁵⁰⁰ Ben-Shakhar and Furedy, 1990, p. 11.

⁵⁰¹ Lykken, 1981, p. 123.

⁵⁰² Ben-Shakhar and Furedy, 1990, p. 10-11; Bashore and Rapp, 1993, p. 5.

about which behaviour is more or less likely to occur in different subjects. Especially, the polygraph operator's interestedness coupled with the questionability of the control question amounts to the danger of 'false positives' – of classifying suspects, that are innocent as guilty.⁵⁰³ Thus polygraphy is portrayed as based 'on subjective and impressionistic observation,⁵⁰⁴ rather than objective psychological methods. In all of this, we find inklings of Alder's discretionary expert – the combination of scientific critique with a normative judgment regarding the methods and motivation of polygraph practitioners. As its assumptions are misguided, their practitioners' training insufficient, and their methods unfounded and skewed, polygraphy cannot but be a knowledge practice which is questionable and which smacks of manipulation and coercion.

In constructing their technique as scientific in opposition to polygraphy, proponents of the guilty knowledge test, by contrast, contend that their technique matches the criteria of psychological testing, which are not only based on a scientific notion of 'control,' but additionally, allow for the exclusion of possible mistakes in the detection of guilt by statistical means. As a result, the examiner is removed from the lie detection examination – the detection of deception no longer depends on his subjective estimations but is rather based on objective criteria. As I described it above, the test proceeds by presenting a list of stimulus words or questions to the subject that are based on 'factual details' of the crime established at the crime site. These 'relevant' questions are hidden within a number of possible alternatives. While the relevant detail will cause a greater response in the culprit, the innocent subject for whom the different words make no difference, will respond in a similar manner to each 'stimulus.' As 'relevant' and 'neutral' questions are framed in terms of the presence or absence of bodily recognition, they are presented to correspond to a proper, scientific notion of 'control.' Additionally, it is argued that the test can be matched to the recognised principle of psychometric testing whereby the reliability of a test is increased, the more questions are asked. Thus the higher the number of collected crime details transformed into questions, and the higher the number of alternatives presented, the better 'detection efficiency.' This is in turn combined with a statistical analysis of the responses of the body. In this analysis, a probabilistic so-called 'decision rule' is applied, that is to say, an individual's record is counted as guilty only if a certain percentage of responses to the relevant items have been shown to indicate 'recognition' of the relevant item.⁵⁰⁵ This allows for the calculation of the probability that an innocent person would falsely be classified as guilty.

Here, the guilty knowledge test is portrayed as a test which allows for a failsafe estimation of the guilt of the subject, which independently of an examiner's judgment and simply depending on the

⁵⁰³ Ben-Shakhar and Elaad, 2003, p. 132.

⁵⁰⁴ Bashore and Rapp, 1993, p. 3.

⁵⁰⁵ Ben-Shakhar and Elaad (2003); Ben-Shakhar and Furedy (1990); Lykken (1998).

number of questions and the stringency of the applied decision rule, makes possible the exclusion of faulty conclusions, of ‘false positives,’⁵⁰⁶ by which ‘[a]s is well known, lives of innocent people have been damaged, perhaps, unalterably [...]’.⁵⁰⁷ The problem of ‘false positives’ is here enlisted as a special rhetorical resource in the boundary-work of proponents of the guilty knowledge test. It serves in its legitimation as a valid psychological technique of the detection of deception in the debate over the validity of polygraphy in two ways. First, by arguing that on the basis of its methods false positives can be controlled, it is rendered as a scientific technique that conforms to the main paradigm of how science currently constructs claims to valid knowledge: probability. Second, this argument is connected to a normative claim. It represents it as knowledge technique which takes special care that miscarriages of justice be prevented by contrast to polygraphy, which on the basis of its methods almost negligently accepts this danger.

By reformulating bodily responses as measurements of ‘autonomic responses’ representing the cognitive process of recognition, the guilty knowledge test is wrested from the epistemology of fear which defines the polygraph examination and its questionable methods. Rather, by centring on the process of cognition, it is conceived as a process which (equally to the notion of fear in the polygraph examination) cannot be controlled, but which in opposition to the polygraph examination, is represented as a necessary process beyond subjective inducement or manipulation. In this respect, it is legitimated as an objective technique on the basis of the argument that no normative assumptions are made about the subject’s bodily responses such as guilt feelings, fear, etc. Inferences are only made regarding a subject’s knowledge of details of a crime. This is further assured by the construction of questions which attain their ‘objectivity’ by virtue of the fact that they represent ‘factual details’ that are lodged in the suspect’s mind, rather than variously phrased and possibly suggestive questions about possible past transgressions and the commission of a crime. Thus while centring on the same bodily measurement as the polygraph, on the basis of its practitioners’ boundary-work, the guilty knowledge test is constructed as a clean and scientific procedure based on statistical procedures in which all the problems of polygraphic methods have been contained.

And yet it seems that the guilty knowledge test requires an equally complex translation mechanism as the polygraph examination. The attribution of guilty knowledge centres on the notion of a specific relationship between body and mind which is framed in terms of information processing. It is assumed that, if presented with a certain ‘stimulus’ that surprises or that is ‘significant’ in some way, the body’s autonomic system will necessarily produce a response – an ‘orienting response.’ In the detection of guilty knowledge, this response is framed in terms of recognition of the details of the crime lodged in the subject’s mind that

⁵⁰⁶ Gronau, Ben-Shakhar and Cohen, 2005, p. 147.

⁵⁰⁷ Bashore and Rapp, 1993, p. 4.

can be teased out through the body. This is done by means of the formulation of questions on the basis of the ‘factual details’ of the crime. Interestingly the construction of ‘factual details,’ and their calling forth of necessary responses, had already been problematised with regard to the word-association test in the early 20th century by the one of the main experts in American evidence law, John Wigmore among other critics. He pointed to the ‘fallacy of fixing beforehand as criteria of guilt the reaction-words which the magistrate *supposes* to belong to the crime.’⁵⁰⁸ Additionally, he criticised the assumption ‘that there are any uniform associations with certain so-called “key-words” which are valid for *every* individual’s experience.’⁵⁰⁹ This connects to the more general problematic, battled over so fiercely by proponents and opponents of polygraphy, as regards the specific lie response. In an equal measure as it is ventured in the case of polygraphy that subjects ‘autonomic’ responses vary so widely so as to make it difficult to classify them as stemming from particular emotions, the ‘orienting response’ indicating recognition is constructed as a particular class of physiological response occurring in the same manner in all subjects. While the guilty knowledge test prides itself in having eliminated the examiner from its testing principles, he has re-appeared, albeit in a more inconspicuous fashion. His constructions of what might constitute unique details of the crime mediate the examination. Additionally, his assumptions regarding the necessity and shape of certain bodily responses equally become built into the statistical routines that elaborate the probability of guilt.

While I am not concerned here with an internal critique of measurement principles and physiological responses, the problematisation of the guilty knowledge test is intriguing on a broader level. The guilty knowledge test may be placed in a similar cycle that its predecessors in the detection of deception have experienced – the construction of the scientificity of a particular translation mechanism from body to mind in capturing deception which, nevertheless, is connected to the *indeterminacy* of this very mechanism. This points to the question that I will elaborate on below: whether in the shift from the emotional to the cognitive detection of the lie, we might not equally find the inklings of grotesque knowledge, even if rendered in the fashion of current notions of objectivity and probability.

What is intriguing about the guilty knowledge technique in this respect is that, despite the fact that it renders itself in terms of current standards of the elaboration of scientific methodology, a vast amount of studies having been carried out in the last three decades,⁵¹⁰ it has mostly

⁵⁰⁸ Wigmore, 1909, p. 430 [my emphasis]. Wigmore’s article was a retort to Hugo Münsterberg’s criticism of the lack of application of psychological methods by the legal profession. The article was framed as a law case in which Wigmore set out to prove that legal psychological methods had not advanced sufficiently enough to be integrated in legal proceedings.

⁵⁰⁹ Ibid, p. 430 [my emphasis].

⁵¹⁰ For reviews of studies in the field cf. Ben-Shakhar and Furedy (1990); Ben-Shakhar and Elaad (2003); Elaad (1998); Ansley (1992); Vrij (2000); MacLaren (2000).

remained locked within the confines of the experimental laboratory.⁵¹¹ Lykken continually promotes the use of the technique in criminal investigation. He envisages an investigation process whereby certain investigators are specially trained in the collection of ‘factual details’ at the crime site that can then be passed on to the examiner for constructing questions.⁵¹² However, so far his suggestion has not been taken up by law enforcement agencies. This points towards an interesting feature of how applied knowledge production techniques become implemented or fail to take root. Lykken, as well as other proponents of the guilty knowledge technique, have mostly been based at academic institutions. Their legitimation of the test as scientifically valid procedure has been on the basis of a particular knowledge strategy by which psychologists establish claims of knowledge of the world: experimental testing in the laboratory. The claim that the technique has been tested and validated in the laboratory serves as justification that this knowledge can also be applied in the social world.⁵¹³ By contrast, the success of lie detection to become institutionalised at the entrance of the criminal justice system and beyond may partly be attributed to a quite different knowledge strategy and the placement of its early developers outside of the experimental laboratory in the institutions involved in criminal investigation.

As I showed in chapter 3, there was no strict division between the psychological laboratory and the social world. Towards the beginning of the development of techniques of the detection of deception, academic psychologists used these techniques not only in experiments but also in actual cases. While psychological experiments on the detection of deception continued in psychological laboratories into the 1920s and then waned, lie detection moved more and more into the realm of its application. An important figure in this movement was Larson, who as we saw, moved the detection of deception to one of its main institutional settings, the police department, and used the technique almost exclusively in actual criminal (or mental) cases. Thus, as regards research on lie detection, the social world itself became the laboratory for lie detection methods. This was justified by driving a wedge between the psychological laboratory and its ability to represent the social world – in this case, the criminal world. While early experiments by Marston and Benussi had provided impressive accuracy rates, the replication of their experiments had not lead to equally impressive results.⁵¹⁴ In reporting on two laboratory experiments, Larson conceded that ‘on being statistically studied, [the results] show that the

⁵¹¹ This is supported by the fact that so far only two ‘field studies’ using the guilty knowledge test have been published (Ben-Shakhar and Elaad, 2003, p. 134). Interestingly, Japan represents an exception to this rule, where the guilty knowledge test is widely applied (Gronau, Ben-Shakhar, and Cohen, 2005, p. 147). An historical study of the different networks and modes of the institutionalization of detection of deception practice in Japan in comparison to the United States would be intriguing in this respect.

⁵¹² Lykken, 1981, p. 254.

⁵¹³ Ben-Shakhar and Furedy (1990); Lykken (1998).

⁵¹⁴ Burt (1921); Landis and Gulette (1925); Landis and Wiley (1926).

error of interpretation is so great as to render the test practically useless.⁵¹⁵ However, this did not undermine the detection of deception as a valid technique of identifying the subject's lie. Rather, 'a failure of any type of deception test in cases of lying where the deception may be just for the purpose of determining whether a test works or not, does not invalidate the same test in practical criminal cases in which the subject may experience the deepest possible emotional tension.'⁵¹⁶ On this basis, Larson constructed 'experimental' and 'criminal deception' as two separate entities. This division not only allowed him to undermine experimental results, but also to establish criminal deception as a separate phenomenon in need of a practical solution, which could only be defined in its place of existence: criminal investigation. Thus early specialists in the detection of deception had quite a different strategy of legitimating lie detection as an applied technique to the approach of proponents of the guilty knowledge technique. This approach was also marked by a different institutional placement and role of the lie detection specialist in opposition to the psycho-physiological expert on guilty knowledge.

The efforts at developing lie detection in its setting of application matched the characteristics of its institutional environment. Lie detection fitted in with the wider police reform movement, which sought to professionalize the force as well as to elaborate scientific methods of criminal investigation borrowing from and transforming knowledge practices from a range of disciplines. As I already elaborated upon, this also involved the development of new specialized roles within the police department and in criminal investigation, including among others not only lie detection specialists but fingerprint examiners or ballistics experts. In developing inside and at the interstices of the institution of the police department, lie detection could thereby enlist this wider movement and root itself in an institutional base to the aims and epistemological organization of which its knowledge practices corresponded, and which was open in the development of the integration of new practices. As we saw in chapters 4 and 5, this did not take the route that Larson envisaged for lie detection, but was rather made possible by Keeler's development and commercialization of the instrument. While Larson had moved lie detection to the social world, he was working within, and attempted to draw his scientific authority from, the frame of the academically trained expert with divergent epistemological stakes: in his conception the lie detection examination was connected to a deeper understanding of the criminal suspect's personality. His campaign for the clinical team approach matched this aspiration. Yet the epistemological stakes and organization of scientific criminal investigation as they evolved in the police professionalization movement were more direct, centring on the quick and simple apprehension of the criminal within a burgeoning criminal

⁵¹⁵ Larson and Haney, 1932, p. 1054.

⁵¹⁶ Larson, 1923, p. 448.

justice system. It was in this regard that Keeler's version of lie detection matched the needs and professional roles that were developed in criminal investigation. In a similar vein to the fingerprint examiner, the polygraph operator more closely corresponded to the figure of a specialized technician. Following the model of quick processing of cases, his interest was not in the offender as an individual, but rather in his apprehension.

Lykken's and other's move towards the implementation of the guilty knowledge test constitutes a call of the reorganization of settled investigation structures and the epistemologies that go with it from a separate institutional environment. This would not only necessitate the change of the investigation process by training investigators in the definition of salient details of the crime site, but it would also reduce the scope of examinations by being solely applicable in crimes in which only the culprit would know the details of the crime. The practicality of lie detection examinations, which can be applied in all cases, is thus not easily overcome. In this case, the argument that the scientific validity of the guilty knowledge test – as found in experimental research - surpasses the one of the polygraph examination does not find institutional support in police investigation. In line with the sociology of science and technology, this suggests that the integration and development of knowledge practices does not follow a clear-cut route of progressive scientific development and application. Rather, the taking up and integration of knowledge practices is bound to the specific circumstances of its emergence, and to how well its practitioners can settle in and enlist networks in their institutionalization.

7.3 *"Lighting up" the Lie in the Brain*

While Lykken's 'innovation' has not been able to set a mark in lie detection practices as they are currently carried out in criminal investigation, the move towards an 'epistemology of recognition' is significant insofar as it provides the starting point for moving the detection of deception from the body to the brain within the broader development of cognitive psychology. As I explained above, this has involved a shift in the understanding of measurements formerly understood as denoting emotional processes. Lykken uses one of the measurements which also form part of the polygraph: galvanic skin resistance, or as it is now called, electrodermal response. However, his interpretation of what this measurement indicates has shifted: rather than being understood as an expression of the fight-or-flight mechanism of the body, it is understood as an equally 'autonomic,' i.e. uncontrollable, reaction of the body which is framed in *cognitive* terms. Lykken's guilty-knowledge-technique has become the basis for the elaboration of the detection of deception around another measurement, which seeks to study the brain's responses by means of tracing the electrical changes of the brain – electroencephalography.

The study of electrical changes of the brain was initiated by the neuro-psychiatrist Hans Berger in 1929, who proceeded by connecting electrodes to the scalp of the subject's brain and recording the electrical changes on a graph.⁵¹⁷ As with other physiological measurements, the waves represented on the graph had been the basis of constructing the subject's inner life, ranging from the 'epileptic,' the study of personality, to the study of cognitive processes⁵¹⁸ – as in the case of the detection of deception. While until roughly the 1950s, research centred on analyzing the wave forms in terms of their frequency, as computers became available in the 1960s the most minute electrical fluctuations of the brain – measured in microvolts – could be filtered out using a complex translation system.⁵¹⁹ These minor fluctuations – termed Event-Related Potentials (ERPs) – have become the basis of making inferences about mental processes. The detection of deception is constructed on the basis of one specific ERP, the so-called P300, a positive peak occurring 300 milliseconds after the subject is presented with a surprising or significant 'stimulus.'⁵²⁰ As in Lykken's use of the technique, this peak is interpreted in terms of information processing, which the subject cannot control and thus will be larger when the subject is confronted with details of the crime, which he cannot but recognize. While it builds on and elaborates the guilty-knowledge-technique, it equally sets itself off from it.⁵²¹ It establishes its authority by means of boundary-work that frames it as a one-and-for-all solution to the debate over the interpretation of bodily responses raging between academic psycho-physiologists supporting polygraphy or the guilty knowledge test. By eschewing this question, the EEG is not only dissociated from the questionable methods of polygraphy, but also constructs itself as providing a better alternative to the guilty knowledge test by drawing on more advanced methods of measurement. This measurement is portrayed as superior to Lykken's method in that it does not involve the attribution of cognitive processes, but directly taps into the brain.⁵²² In this context, the question of the processes of the body is no longer at issue, as the ERP allows for the revelation of the 'neurocircuitry of deception.'⁵²³ And yet another technique has been developed, which ventures to finally be able to capture the lie for good: not only representing it as a *sign*, but finally giving it a *name* and *location*. In this, it draws on what is currently considered to be the most advanced measuring technique at the intersection

⁵¹⁷ Cf. Borck (2005) for a history of how Berger constructed the EEG; the phenomenon of brain electrical activity had been found earlier in 1875 by the English surgeon Caton (Rösler, 2005, p. 96).

⁵¹⁸ Hugdahl, 1995, p. 254-255.

⁵¹⁹ Rösler, 2005, p. 101-108. The electrical signal is measured by the electroencephalograph. This signal is then run through a series of amplifiers, which magnify minimal signals. Once they have been passed through the amplifiers the signal is transferred to an A/D board in a computer which converts the analogue signal into its digital correspondent. Then the signal is displayed on a computer screen (Hugdahl, 1995, p. 15).

⁵²⁰ Another ERP, the N400 has been suggested as potential indicator of deception – it is thought to be evoked, when information is presented that is perceived as incorrect. Cf. Boaz, *et al.* (1991).

⁵²¹ The first studies using the ERP in the detection of deception were carried out by Rosenfeld, *et al.* in 1987, and then Farwell and Donchin in 1991 (Rosenfeld, *et al.*, 1987; Farwell and Donchin, 1991).

⁵²² Rosenfeld, *et al.*, 1987, p. 125; Bashore and Rapp, 1993, p. 7.

⁵²³ Kozel, Padgett and George, 2004, p. 852.

of the new cognitive psychology and the neurosciences: functional magnetic resonance imaging or fMRI. Its principles having been developed in physics, in the 1940s and 1950s it was translated into the emerging neurosciences from the 1970s, spreading from the 1980s when the first commercial instruments became available.⁵²⁴ In placing the individual in a strong magnetic field which generates magnetic pulses, the oxygen level in the blood flow in the brain is traced and translated into visual representations denoting brain activity at a particular moment in time in different parts of the brain.⁵²⁵ As a result, the method seeks to ‘provide a “landscape” of the brain by “lighting up” areas of increased neuronal activity.’⁵²⁶ Thus externalising the lie, researchers attempt to map the lie’s different locales on the basis of an experimental set-up in which subjects are e.g. instructed to lie and tell the truth about which card they have picked from a set of cards, intriguingly mirroring the polygrapher’s card test, deny a task they have carried out, money they have hidden, etc. The lie becomes apparent on the basis of:

‘increased activity in anterior cingulate cortex (ACC) superior frontal gyrus (SFG) and left premotor, motor and anterior parietal cortex,’⁵²⁷

among other locales.⁵²⁸ In this, we find a shifting in the understanding of the lie as it is captured on the basis of ‘cognitive’ processes: instead of being framed in terms of recognition, it is now conceptualised in terms of areas of the brain that are thought to be connected to ‘response inhibition.’⁵²⁹

We can see here again the combination of a normative and physiological evaluation which we encountered in chapter 3, and which is reminiscent of the word-association test in which the lie was connected to the subject having to overcome the necessary ‘truthful’ representations lodged in his mind. In a similar vein, truthful responses are conceptualised as natural response of the subject, whereas the lie is conceptualised in terms of a cognitive digression. This technique makes a promise that the ERP cannot fulfil because of the way in which its translation mechanism is framed around the guilty knowledge test. In focusing on the ‘orienting responses’ of the body, capturing deception remains limited to rendering it in terms of the ‘recognition’ of ‘significant’ stimuli. As a result, it remains constrained to cases in which only particular subjects would be ‘in the know’ and thus be able to lie regarding a certain fact.

⁵²⁴ Buxton, 2002, p. ix.

⁵²⁵ The signal of the fMRI is described as BOLD phenomenon (blood oxygenation level dependent contrast). Sequences of radiofrequency pulses are used to create an MR image. They excite and refocus the protons that are aligned in a magnetic field. Each pulse sequence has its own characteristics for generating a particular MR image (Hugdahl, 1995, 324-325).

⁵²⁶ *Ibid*, p. 309.

⁵²⁷ Langleben, *et al.*, 2002, p. 727.

⁵²⁸ Kozel, Padgett and George, 2004, p. 855.

⁵²⁹ Spence, *et al.*, 2001, p. 2849; Langleben, *et al.*, 2002, p. 727; Langleben, *et al.*, 2005, p. 262; additionally, the regions of the brain associated to ‘working memory’ and ‘theory of mind’ are conceptualized as being part of the ‘neurocircuitry of deception.’

By contrast, in capturing the lie in terms of processes understood to point towards ‘response inhibition,’ etc. in particular areas of the brain, the lie ‘itself’ can be made apparent.

These new set-ups for capturing deception on the basis of the processes of the brain in terms of ‘event-related potentials’ or the ‘lighting’ up of areas in the brain are framed in terms of an even greater attempt to control the experimental situation by virtue of the removal of the ‘human element’ from it and the construction of the detection of deception in terms of its computation. In these detection of deception experiments, the examiner seems to have disappeared completely. He no longer asks questions, he is not even present in the room; he no longer even seems to interpret the physiological responses of the brain. The detection of deception appears to become an automated process as part of which the subject is connected to the instrument or placed in the MRI scanner and the ‘stimuli’ in the form of words or pictures of cards are flashed before him on a video screen in precisely calculated time intervals. The subject no longer utters the lie, but ‘executes’ it by the mere press of button, indicating ‘yes’ or ‘no,’ which is connected to a computer.⁵³⁰ The activities of his brain are translated into visual representations on the basis of complex mechanisms whereby the data generated by the instruments is amplified, digitised, averaged and displayed on the computer screen in the case of the ERP and the data transformed from functional into visual data, normalised, corrected for image distortion, and equally displayed on a screen in the case of the MRI. In distinguishing ‘truth’ from ‘lie,’ this data is analysed on the basis of complex statistical computations.⁵³¹ In the same manner as the guilty knowledge test as used by Lykken, these computations involve, at least in the case of the ERP, the application of a decision rule, whereby an individual is only to be counted as deceptive, if more pronounced ERP’s have been evoked in a particular percentage of the stimuli relevant to the ‘crime.’⁵³² As in Lykken’s guilty knowledge test, this is taken as failsafe method of ensuring that the innocent will not be counted as guilty.

On this basis, then, the ‘cognitive turn’ in techniques of detecting deception seems to finally mark a ‘scientific’ road to capturing the lie. No longer founded on the normative attribution of guilt or fear to bodily processes, which do not allow for the distinction of the guilty from the fearful subject and are based on the impressionistic methods of the polygraph examiner, they provide a clean and scientific way of capturing deception as cognitive process on the

⁵³⁰ Allen and Iacono, 1997, p. 236; Farwell and Donchin, 1991, p. 534; Miller and Rosenfeld, 2003, p. 16; Langleben, *et al.*, 2005, p. 263; Kozel, Padgett, and George, 2004, p. 853; Spence, *et al.*, 2001, p. 2849-2850.

⁵³¹ For a description of the transformation of data and methods of analysis using the ERP, cf. Allen and Iacono, 1997, p. 236-238; Farwell and Donchin, 1991, 535-538; Miller and Rosenfeld, 2003, p. 16-24. For the same description using fMRI cf. Langleben, *et al.*, 2005, p. 263-267; Kozel, Padgett, and George, 2004, p. 853; Spence, *et al.*, 2001, p. 2849-2850.

⁵³² This process of analysis is somewhat more complex, as tests which draw on the ERP are elaborated on the basis of the so-called ‘oddball-paradigm.’ This set-up integrates an additional control, presenting a number of stimuli to subjects before the actual test in order to compare different responses to ‘recognised’ stimuli among the innocent and the guilty. The ‘oddball paradigm’ was applied from the very first experiments using ERPs (Rosenfeld, *et al.*, 1987).

basis of first, the bodily responses, formerly used in polygraphy, and more recently, the physiological responses of the brain. In elaborating a procedure which mirrors most closely the model of psychological testing, it is no longer dependent upon the subjective questioning of the polygraph examiner. Rather, the examiner has been removed from the procedure and has instead been replaced by the 'objective' elaboration of stimuli. The qualitative interpretation of the polygraph record has been exchanged by the use of statistical methods in the estimation of guilt. In techniques of detecting deception using measurements of the brain, it seems like we have reached the stage of ultimate scientific control – the experimenter, no longer even present in the experimental set-up has become completely reliant on the translation mechanisms of the machine and the statistical computation of the lie.

7.4 *Lie, my friends'*

Will we finally find the promise of the 'lie detector' fulfilled in the cognitive turn in the detection of deception? These new techniques seem to work as scientific mechanisms – an ensemble of machine and statistical routine – which can detect the lie by themselves. A mechanism, which through its scientificity assures that miscarriages of justice be prevented and provides a humane way of detecting the lie in opposition to the impressionistic polygraph examiner.

And yet we may wonder how these techniques may fare when translated from the laboratory into the social world. For now, cognitive models of the detection of deception using the ERP have only been applied in one criminal case.⁵³³ Yet because the detection of deception using the ERP is equally built on the guilty knowledge technique, which restricts its use to cases where only the suspect and the investigator know about the crime, it is likely to find only limited application. The big promise remains the detection of the lie on the basis of 'lighting' up the 'neurocircuitry' of the brain by means of functional magnetic resonance imaging. Perhaps ironically, this most advanced technique of capturing the lie fails for now, as it is currently only able to construct 'significant' patterns on the group level. But what would happen if, finally, a statistical routine were found which would allow us to identify the individual's lie? Will we *know* whether the subject lied? I would like to suggest that even if the detection of the lie in the individual's brain should become possible, it will still bear the marks of grotesque knowledge once it has been translated into criminal investigation.

The mechanisms of translation which define the detection of deception in the case of methods using brain measurements and statistical analyses for the computation of the lie, are based on the

⁵³³ The researcher Farwell used an ERP-derived system in the *Harrington v. Iowa* case. Farwell is an interesting figure. He might be seen to represent a new version of Keeler in the field of the ERP-related detection of deception. He has patented and is seeking to commercialise his own system and intriguingly refers to his technique as 'brain fingerprinting' (Farwell and Smith, 2001). While his research has been funded by the CIA, federal agencies have shown little interest in its implementation (United States General Accounting Office, 2001).

same attempts at turning deception into an entity that can be captured that have been made since the beginning of the 20th century – whatever the *site* of the lie may have been. The detection of deception draws on a notion of the subject, which having been elaborated in early psychology, still defines its foundation: that the subject is carved up according to voluntary and involuntary processes. Each new paradigm and each new experimental set-up that emerges along psychology's trajectory which identifies and interprets these involuntary mechanisms of the subject as indicating a particular mental process, is framed in terms of pointing towards the subject's lie - whether it is to be made visible on the subject's *body* or within his *brain*. All of these mechanisms are marked by their indeterminacy.

Each of these mechanisms is based on the externalization of deception on the basis of the assumption that through the framing of 'stimuli' in a particular way, blood pressure measurements can be translated into the subject's fear of detection; which *in turn*, indicates the subject's lie, that galvanic skin response and event-related potentials can be translated into an orienting response; which *in turn*, points to the subject's recognition (and in a round-about way to his deception), that the blood-volume changes in the brain can be translated into processes of 'response inhibition'; which *in turn*, and yet again, signifies the subject's lie. Yet the confirmation that the subject's lie has been detected can only be confirmed *by the subject himself*.

This relates to what is ultimately the aim of the endeavours of detecting deception. As an applied technique, these endeavours are in the first instance geared towards the elaboration of the subject's guilt, which is rendered in terms of the 'diagnosis' or the 'computation' of his lie. In this, they seek to implement a translation mechanism, which on the basis of framing a criminal interrogation in terms of psychological 'stimuli' seeks to modulate the body's or the brain's responses in such a way that the subject is ultimately turned against himself.

In the translation mechanism centring on cognitive processes, the ensemble of instrument and the examiner take on an analogous role to the polygraph operator and the polygraph. The instrument is enlisted, in the same manner as in the polygraph examination, being accorded a dual performative and measuring function in modulating the responses of the body. The use of the following preamble in a lie detection experiment using fMRI measurements already points to this status of the instrument in the examination: 'participants were told that they would be able to keep the \$20 [that they were given at the beginning of the examination] if they succeeded in concealing the identity of their card from a "computer" that would administer the GKT and analyze their brain activity during the MRI session.'⁵³⁴ This preamble is framed in such a way so as to 'model' the criminal subject's 'motivation' to deceive on the basis of the monetary reward offered. The portrayal of the instrument as a 'computer' which

⁵³⁴ Langleben, *et al.*, 2002, p. 730.

detects the lie mirrors the polygraph examiner's enlistment of the instrument. This enlistment in the experiment is geared towards finding ways of increasing 'detection efficiency.'

Translated into criminal investigation, this type of preamble is likely to be employed as well. As in the polygraph examination, it cuts out the complex translation mechanism which is required in the translation of bodily responses to the lie. As in the polygraph examination, it entails the threat of an absolute power – the reading of the subject's mind. Has the examiner disappeared in this translation mechanism? Seemingly so. He may no longer to be found in the interrogation room. Equally, he may seem more inconspicuous in the construction and presentation of the 'stimuli' that are framed according to the psychological logic of testing, and may appear more scientific in his presentation of the results of the examination in terms of the probability of guilt. Yet he *is* to be found in the statistical routines that are applied in making the lie apparent: his assumptions regarding the necessary processes of the brain mediate the statistical construction of the conditions under which the brain's responses are to be counted as deceptive. Additionally, his *assumptions* as to how stimuli may be framed so as to strike the subject's body form a central part of the examination. In this, he will *still* take on the dual role of the psychological expert/interrogator who constructs his authority by means of enlisting the instrument and who, although no longer present in the interrogation room, subjects the suspect to a criminal interrogation, which is framed in terms of a psychological procedure in modulating the responses of the brain. As part of this framing, he brings the pressure of the representative of science and social control to bear upon the subject.

While in the experiment, the estimation of the probability of deception can be confirmed by a disinterested experimental subject, what are we to make of the computation of the probability of the lie if it were to count in the elaboration of the guilt of a *particular individual* charged with a crime? Would not the process itself require that the results be presented to the subject and he be asked as to his opinion regarding them? Might this presentation of results to the subject not only be significant for the subject but rather to the researcher as well in seeking to legitimate the applicability of his method not only in the laboratory but also in the social world? And in order to justify itself as an applied technique, might not the validation of the technique in the criminal setting depend on the subject's affirmation of his lie – his *confession*?

We may conclude that the structure of the examination, that is elaborated in terms of the modelling of the interrogation of a 'criminal' in the laboratory, constitutes a stitching together of criminal interrogation and psychological discourse which mirrors the logic of the polygraph examination. The lie functions as a switch-point between the subject's responses and the elaboration of guilt, by seeking to turn the subject's body – in the form of the lighting up of the brain – against himself in eliciting a confession. Might we not consider this as a form of disqualification of the expert who on the basis of his machine and complex statistical routines

elaborates the probability of guilt only to find himself bound up with the most uncomfortable of proofs? It seems that in depending on the same mechanism, the ensemble of the modern-day neuro-scientific expert/interrogator and the lie detector/fMRI scanner that ‘light up’ the ‘neuro-circuitry of deception’ equally fit into the category of the grotesque. Drawing on the same performative and measuring logic of the lie detection examination, it seeks to ‘maximise the effects of power’ through the threat that the lie will be known. Yet at the moment at which it succeeds it also disqualifies itself, for its verification depends on the subject’s admission of the lie, which, in the social world, means his confession – as a result of which the mere signification of the lie is forever to remain undecided.

Thus to recall my critique of Alder in chapters 5 and 6, the critique of lie detection cannot proceed on the level of the practitioners who developed it. Rather, the construction of an historical critique on the basis of ‘the sort of lie detection’ which developed in the US based on Keeler’s development of polygraphy misses its target. The historical critique of lie detection must proceed on the level of how it is framed as a knowledge practice itself – on the way in which *power* and *knowledge* become entangled in it. As I have tried to show, the attempts at capturing deception within the new paradigm of cognitive psychology elaborated on the basis of the current notion of psychological testing and a probabilistic conception of science, ultimately rely on the same grotesque mechanism which defines the polygraph examination. The historical critique of lie detection must therefore return to the constitution of the human sciences – and how they have developed, as Hacking has called it, a ‘surrogate of the human soul.’ It must examine how the construction of this soul is intimately connected to the subject’s control. Will the endeavours into capturing the lie continue? Surely, they will – as long as our inner life is defined on the basis of our bodies, the attempts to turn the lie into an entity that can be measured, recorded, made visible, will continue. In light of the voracity of the human sciences to finally be able to capture the lie in order to protect society from its criminals, monsters, terrorists, to mend or break marriages on public television, we might thus – having started this thesis with one of the great humanists – end its substantive part with a saying of another albeit more ironically inclined one:

“A Lie is a vice only when it does harm, it is a very great virtue when it does good. So, be more virtuous than ever. You must lie like a devil, not timidly, not for a while, but boldly, and persistently ... Lie, my friends, lie, I shall repay you when I get the chance.”⁵³⁵

⁵³⁵ Voltaire, (1736/1954), p. 286-287.

Chapter 8 Conclusion

Having travelled from the first attempts at teasing out deception - reducing its 'hundred thousand shapes' and 'undefined limits' by materialising its truth on the body's script as 'the reverse of what the liar said' to its most recent instantiations in which the lie is lit up as magnetic signal in the brain by the press of a button, in concluding this thesis I will revisit the main arguments that I have made along the way. I will especially elaborate on their significance in two respects: the directions that they point to and contributions that they entail in terms of historical studies in the sociology of science and technology. Finally, I will suggest that this study might provide a starting point for a field, which up to this point, has remained under-explored in sociology: the sociology of the lie.

This thesis set out to provide a contribution to historical studies in the sociology of science and technology and the history of the human sciences by studying lie detection as a knowledge practice, which has remained contested but has nevertheless successfully settled and even spread. In this it applied an opposite logic to the one currently most prominent in the sociology of science and technology: to demonstrate that the 'hardest' of scientific facts and technological objects are in fact the result of social (as well as technical) negotiations. In going about this, this thesis was inspired by two approaches. On a broader level it was inspired by the Foucauldian tenet, shared by most historians of the human sciences, that the history of the human sciences – in this specific case psychology – is intimately linked with modern systems of social control. In taking up Foucault's argument that modern society is marked by a benign 'political technology of the body,' which constructs and intervenes upon the subject by means of the creation of the 'modern soul' this thesis studied lie detection as one of the 'bits' and 'pieces' of this technology: as a technique which intervenes on the subject by means of constructing what goes on his mind on the basis of his bodily movements. From this followed that this thesis sought to account for lie detection as a technique of knowledge production and intervention, i.e to study the linking of power and knowledge with regard to the social and material processes of the examination and with regard to the effects it comes to exert within its specific contexts of application in systems of social control.

However, in accounting for the special status that lie detection has had as a knowledge technique which has remained contested and has been generally excluded from the courts, on the concrete level of the study of the development of lie detection, this thesis drew on methodological tools and premises developed in the sociology of science and technology. A serious and sustained sociological analysis of the specificity of lie detection as knowledge

practice required that no position was taken on its status in light of its contestation but rather that its development within its different contexts of application and exclusion be analysed. Thus, I drew on one central methodological tenet of the sociology of scientific knowledge: the symmetry of knowledge, i.e. the premise that the same type of analysis should be applied to all types of knowledge regardless of whether they are currently held to be true or false. This methodological tenet was supplemented by the use and extension of the notion of boundary-work originally put forth by Gieryn. The notion of boundary-work focuses the analysis of knowledge practices on the varied resources that are used in distinguishing science from non-science and thus allows for an analysis of how those distinctions are elaborated in the first place. This guards against evaluating knowledge in terms of what are currently thought to be accepted standards of scientific knowledge. In using the notion of boundary-work I showed that it could be extended to examine the resources used by non-scientific institutions (the courts) in including or excluding certain types of knowledge (lie detection). Additionally, I drew on it to analyse the rhetorical resources employed by lie detection practitioners in contesting polygraphy: Larson, in seeking to implement a clinical team approach and, more recently, proponents of the guilty knowledge test in seeking to institute an 'epistemology of recognition' in the detection of deception.

By combining a Foucauldian motivation and seeking to account in detail for how lie detection developed as a knowledge practice, this thesis was then able to provide insights into the development of lie detection as technique of knowledge production and intervention on three interrelated levels: the development of lie detection as knowledge practice, the power/knowledge mechanism of the lie detection examination, and the functions that polygraphy takes on in systems of social control.

8.1 Lie Detection as Knowledge Practice

In the description of the development of lie detection as a knowledge practice, I traced the movements, which deception has undergone in being framed as an object of knowledge within psychological practice and discourse. I showed how the simple lie emerged as a measurable entity on the body's script in early psychological discourse on the basis of a two-fold reconfiguration. As part of the first reconfiguration, deception moved from the measurement of the deviant processes of the mind in overcoming its necessary, i.e. truthful representations to those of the viscera of the body becoming associated with the emotions of fear. In the second reconfiguration, deception itself was reframed in being reduced to its bare minimum - a simple falsification. As part of these reconfigurations, the detection of deception became set within the distinction drawn in early psychology between emotion – associated

with uncontrollable bodily processes – and cognition – as controllable by the subject. It was in this period that the psychological basis and the interactional set-up of the ‘epistemology of fear’ was established. It entailed the materialisation of the link between fear and deception through the distinction between the internal ‘truthful’ movements of the body and the external deceptive appearance of the subject. On this basis the lie was rendered into a psychological condition that could be read on the body’s script by means of a physiological and normative evaluation, whereby the ‘truth’ of the subject’s lie was constructed in terms of the ‘abnormal’ functionings of the body. I showed how in its recent development, the detection of deception has equally been informed by broader developments within psychological discourse in following its move from the study of emotion to the study of cognition. As part of this move, the detection of deception was re-organised around the notion of ‘guilty knowledge,’ which, first, reinterpreted the bodily measurements that formerly used to denote the subject’s fear, in terms of information processing seeking to implement an ‘epistemology of recognition.’ Based on the same distinction of the uncontrollable and controllable functions of the body that had emerged in early psychology, it implemented a translation mechanism whereby the culprit’s bodily reactions are framed as ‘orienting response,’ denoting his knowledge of ‘factual details’ of the crime, which he cannot but recognise and therefore point to his guilt. Second, more recently, the detection of deception has completed the move towards a cognitive conception of deception, by utilising brain measurements. On the one hand, the bodily measurement of the guilty knowledge test has been replaced by so-called event-related potentials denoting minute electrical fluctuations in the brain. On the other hand, on the basis of functional brain analyses the simple lie has found a name and location that is lit up by means of fMRI in the brain. Here the normative and physiological distinction between the normal=truthful responses of the body as opposed to the abnormal=deceptive ones are interpreted in terms of ‘response inhibition,’ whereby the lie becomes associated to cognitive digression requiring the overcoming of the brain’s ‘truthful state.’

This analysis, on the one hand, demonstrated the continuity in the attempts at framing deception in terms of the ‘uncontrollable’ physiological processes of the subject and interpreting them in terms of a normative evaluation whereby ‘normal’ processes correspond to truthfulness, and ‘abnormal’ ones to deception, and, in turn, guilt. In this, the detection of deception has been set within the broader epistemological framework that defines psychological practice ranging from psychoanalysis to experimental psychology to this day. This framework operates on the notion that the ‘truth’ of the subject’s inner life is to be found in those processes which are beyond his control – the movements of his body or, as, for example in psychoanalysis, his slips of the tongue. They are to be interpreted as symptoms

of an underlying condition repressed by the subject, which reveal his 'true' nature and open up a space for the application of remedies, whether this be therapy or punishment. On the other hand, my analysis showed that 'deception' is not a straightforward entity but rather has been refashioned following different conceptions of where the 'truth' of the subject's inner state can be captured on the basis of broader shifts within psychological discourse. The examination of the psychological underpinnings which accompanied the emergence and development of the lie as object of knowledge was combined with the study of the context in which lie detection developed as a concrete knowledge practice.

While early lie detection was carried out by academically trained psychologists, who did experiments but also applied their knowledge in individual cases following the notion that psychological knowledge could and should be applied in curing society of its ills, the development of lie detection as a separate practice involved its movement to law enforcement agencies – the police department and crime laboratories from the 1920s – as part of the police professionalisation movement seeking to implement 'scientific methods of criminal investigation.' In analysing this period in terms of lie detection as a knowledge practice, I placed a particular focus on the development of the instrument(s) – the 'lie detector' and the 'polygraph' – and the reframing of lie detection as it moved from the academic realm to the realm of criminal investigation. This was by contrast to the history of the lie detector provided by Bunn, which conflated the history of both instruments. As a result his analysis reified lie detection as a 'popular science' rather than examining its development as a practice. In disentangling the lie detector and the polygraph, and focussing on the institutional specificities of the structure of knowledge practices as lie detection moved across realms, this thesis was able to account for the ways in which external representations of the 'lie detector' fed back into lie detection practices. Secondly, it allowed for a symmetrical analysis of changing models of expertise involved in the development of lie detection, which provided an explanation for the disappearance of Larson's model of lie detection and the success of polygraphy in establishing itself as separate discipline (over and against Alder's normative history of polygraphy). Thirdly, it furnished the basis for an historically contextualised understanding of the maintenance of polygraphy as only applied technique in the detection of deception and the failure of the 'guilty knowledge test' to move from the laboratory into the social world.

As regards the role of the instrument, I re-interpreted Bunn's history of the lie detector to analyse the role that the media representation of the 'lie detector' as machine with superhuman powers that could detect the lie by itself took on in the practices of lie detection specialists. I thus followed the rationale of scholars in science communication working against an hierarchical view of science by accounting for the various ways in which the construction

of scientific knowledge moves ‘upstream’ and ‘downstream.’ Although lie detection specialists benefited from the media attention in terms of the promotion of scientific methods of criminal investigation, they equally denied that there was such a thing as a lie detector as this threatened their status as experts. For, if there was a machine that could detect lies by itself, no expert was needed for its operation. They claimed that the actual ‘lie detector’ was the trained expert who rendered a diagnosis of the lie on the basis of the interpretation of the instrument’s charts. At the same time the notion of the ‘lie detector’ fed back into their practices in lie detection examinations. In the examination, they equally portrayed the instrument as a machine that could detect lies by itself. On this basis the instrument assumed an uncertain ontological status, which resulted in its dual role in the examination – it took on a performative role in modulating the body’s responses as ‘lie detector’ as well as a measuring role as physiological instrument. My thesis thus showed how ‘downstream’ representations of knowledge practices can feed back into and inform those practices in complex ways. Not only did the notion of the ‘lie detector’ come to play an important role in the construction of the examination itself. It also informed the organisation of early polygraphy as expertise. Once Keeler had the polygraph produced as integrated instrument, he made its sale subject to his approval. He employed this strategy to ensure that its commercialisation would not result in the polygraph being sold as a lie detector to be used by anyone, but rather to guard its status as scientific instrument earmarked for the evolving figure of the polygraph operator as professional expert in lie detection.

As regards the development of the polygraph and the establishment of polygraphy as separate discipline, I showed how the development and commercialisation of the polygraph by Keeler mediated the institutionalisation of lie detection as a separate practice in criminal investigation. Its setting within criminal investigation was initiated by Larson, who represented a transitional figure in the development of lie detection. He implemented the final set-up of the examination and took lie detection to its field of application. At the same time he remained rooted in an academically oriented approach to lie detection, which in conjunction with the detection of the lie sought to develop a deeper understanding of the criminal’s personality. In the movement to the police department, lie detection, however, came to mirror the structure of knowledge practices and epistemological aims as they were elaborated in the implementation of ‘scientific methods of criminal investigation.’ Matching the more immediate epistemological goal of criminal investigation to simply apprehend the offender on the basis of material traces of his crime, the lie detection examination came to centre on capturing the offender on the basis of the simple lie. In a corresponding fashion the notion of ‘scientific expertise’ elaborated in criminal investigation centred on the application of a particular technique. The polygraph operator, just like the fingerprint examiner and the

ballistics expert, became not an academically trained expert but rather represented a technician versed in a specialised technique, which he had been trained in through apprenticeship rather than university studies. The development of the polygraph facilitated the reframing of lie detection around this notion of expertise. While it was legitimised as scientific instrument that would contribute to medical and psychological knowledge more generally, it was designed and marketed by Keeler as instrument for the use in lie detection. The integration of measurements in one portable 'black box' meant that detailed expertise in the assemblage of measurements in lie detection, which would traditionally have been the province of the psychologist, was no longer required. Instead the polygraph could simply be used by an individual trained in its application.

By contrast to Alder, who, as I showed, drew on a Mertonian view which analyses scientific practice in terms of the norms elaborated in the generation of 'objective knowledge,' leaving scientific knowledge *per se* untouched, the analysis of shifting models of expertise in lie detection provided an explanation for why Larson's version of lie detection disappeared. In opposition to Alder's normative account which took Larson's seemingly more acceptable psychological practices as a measure against which to evaluate Keeler's and the current status of polygraphy more generally, I showed that the success of polygraphy to establish itself in criminal investigation could not be conceptualised as due to the overtaking of the rogue commercialisation of polygraphy. Rather, Larson's model, being rooted in a deeper understanding of the personality of the offender and an academic notion of expertise, did not correspond to the technical notion of 'scientific expertise' and the immediate aim of apprehending the offender which came to orient the endeavours of the fingerprint examiner, the ballistics experts and the polygraph operator.

In comparing the early development of lie detection leading to the establishment of polygraphy and the (currently) failed implementation of the guilty knowledge test, I showed on a broader level that there is no straightforward trajectory as to how knowledge practices travel in between the scientific realm and the social world. Rather, their taking up is dependent on the specific historical context in which they emerge and, more fundamentally, how the relationship between knowledge and the social world is constructed, legitimised and reconfigured. In the context of the detection of deception the differing development of polygraphy and the guilty knowledge test was due to the divergent institutional placement and context of lie detection experts within and outside criminal investigation. Additionally, it depended on the employment of different knowledge strategies in the legitimation of their technique. This centred on the abolition of the link to the laboratory in the case of polygraphy and affirming it as a main source of authority in the case of the guilty knowledge test.

Methods of lie detection emerged as part of early experimental psychological discourse which did not draw a clear-cut distinction between the laboratory and the social world. This made it possible for Larson to subsequently completely sever the link by turning the social world itself into the laboratory and moving lie detection into its area of application. As lie detection became set within and at the interstices of the police professionalization movement, which elaborated new specialised functions integrating and borrowing from various scientific techniques, it came to match the institutional aims and structure of knowledge practices in its area of application (although not intended by Larson) as I elaborated on above.

By contrast, the institutional development and legitimisation of the guilty knowledge test has developed in a different manner. Its proponents legitimise the applicability of the guilty knowledge test on the basis of how current-day psychology claims knowledge of the social world: laboratory testing. The testing and validation in the laboratory is used to justify its applicability in the social world. Proponents of the guilty knowledge test are mostly psychophysicologists working at academic institutions and have no established links within criminal investigation. In drawing a clear distinction between the construction and legitimisation of the technique by the laboratory psychologist and its subsequent application by investigators in the social world, its integration would take on the form of a hierarchical dissemination in which psychologists would attain superiority as regards the structuring of investigation practices. By contrast, in developing at the interstices of the police professionalization movement, polygraphy could be integrated more ‘organically’ – polygraphy was applied as well as further developed by its practitioners. Additionally, in contradistinction to the period in which polygraphy emerged, the guilty-knowledge test would require the re-organization of settled investigation structures that were just emerging when lie detection was integrated into criminal investigation. Finally, the practicality of the lie detection examination in providing a knowledge technique that can be used for the testing of *all* suspects as opposed to only those, where the suspect is the only person familiar with the details of the crime, provides little reason for investigators to succumb to the psycho-physiologist and thus has made for the technique remaining locked in the laboratory.

This thesis not only accounted for the processes by which lie detection instituted itself in the social world, but also provided an analysis of how its status and location within it was mediated by processes of exclusion by other institutions – the courts. Drawing mainly on Golan’s analysis of the Frye ruling which formed the basis of the continued exclusion of lie detection as judicial evidence, I showed that lie detection evidence was rejected not because of its scientific questionability but because of its potential power in influencing the ‘credulous jury’ and, more significantly, undermining the structure of the judicial system. The admission of lie detection evidence, which provided a direct statement of the guilt of the individual

entailed the threat of replacing the jury's role in passing judgment on the defendant. In counter-acting this threat to the organisation of the judicial process, the court elaborated the 'general acceptance rule' implementing a community-oriented notion of science and providing the courts with wide interpretive leeway as to which kind of knowledge was to be seen as generally accepted in a 'relevant' scientific community and thus to be allowed to cross the courts' institutional boundaries. My discussion thus entailed an extension of Gieryn's notion of boundary-work, which focuses on how scientists construct boundaries between science and non-science, by examining how a non-scientific institution – the court – implemented a particular notion of science, which allowed it to maintain and defend its mode of constructing judicial truth. As regards the further development of lie detection, we saw that its rejection from courts was not complete, for the kind of proof that it could furnish – the confession – was still an important if uncomfortable proof in court. Even more, as regards lie detection as technique of knowledge production and intervention, the setting of the polygraph as confessional technique at the entrance of the criminal justice system fit quite well into the functioning of the US criminal justice system, which has become focused on the efficient processing of cases and negotiates judicial truth mainly outside of the court.

With respect to broader directions that this study of the history of lie detection as knowledge practice points to in the sociology of science and technology, I indicated in the introduction, that given the proliferation of 'expert' knowledges, science studies have developed an increased interest in studying the ways in which scientific knowledge is constructed and translated into other domains such as courts of law or policy processes.⁵³⁶ In relation to the use of scientific evidence in the context of criminal law, I detailed the general lack of studies in this field. Additionally, the studies that exist, have focused on the negotiation of scientific expert knowledge *inside* the court-room mostly focussing on those techniques which have been constructed as unquestionable – fingerprinting and DNA evidence. In this context, this thesis has provided a contribution to how lie detection as expert knowledge, which has been excluded from the courts, nevertheless successfully operates in criminal investigation at the entrance of the criminal justice system. This has not only meant that it has given an insight into how the courts mediate the construction of scientific knowledge by means of implementing boundaries regarding which types of knowledge are allowed to pass through them. Additionally, it points to the necessity of studying more closely how 'expert knowledges' are constructed and legitimised outside the courts' boundaries. This might provide further insights into how conceptions of scientific expertise might differ between the courts and criminal investigation and would allow for an examination of how one is translated into the other in moving from criminal investigation to the courts. Conversely, it may provide sociological accounts for why such translation

⁵³⁶ Collins and Evans (2002); Edmond (2004); Jasanoff (1990; 1995).

processes fail and whether, in a round-about way, these failures might constitute successes as in the case of lie detection, which thrives at the entrance of the criminal justice system.

As regards studies of forms of 'expertise' in the sociology of science and technology on a broader level, my thesis has provided an analysis of how one form of expert knowledge develops and settles in the social world. By studying the changing models of expertise associated to early lie detection and polygraphy, I showed how knowledge practices are re-configured in moving from one realm to another and become shaped by differing institutional epistemologies. Set within these institutions, they may prosper as 'scientific' expertise which otherwise remains contested and is subject to processes of exclusion. In this, I additionally showed that as regards applied knowledge techniques, the translation of expert knowledges from what is conventionally considered the academic realm into its area of application is not a straightforward process but is configured within a particular historical context and depends on how the relationship between knowledge and the social world is framed. In this, the history of lie detection constitutes an especially interesting case in that the seemingly outdated and contested 'epistemology of fear' until this day has remained the only technique to root itself in the social world, while the more recent 'epistemology of recognition,' which constructs its authority on conventional markers of scientific authority such as academic credentials and adherence to current standards of academic practice, has remained locked in the laboratory. As a result, this study has not only accounted for the variable ways in which knowledge practices are organised across different realms as they move between institutional locations in the social world, such as the courts and criminal investigation, and what is considered more conventionally as the scientific realm. Rather, it has made possible a sociological examination of how those boundaries are constructed in relation to each other, in the first place, rather than presupposing them.

8.2 *Grotesque Knowledge and Symmetry*

The examination of the power/knowledge mechanism that defines the lie detection examination followed from my critical engagement with Alder's history of polygraphy. Having problematised Alder's analysis on the level of his Mertonian conception of knowledge practices and provided a symmetrical assessment of the different models of expertise that Larson's and Keeler's technique entailed, I elaborated on the impossibility of evaluating lie detection on the basis of a knowledge-oriented versus a power-oriented approach. I showed that lie detection is marked by the fact that the aim and the only verification of lie detection – the confession – could not be disentangled, which not only rendered a judgment of the psychologist's versus the polygraph operator's technique futile but additionally did not

account for this special feature of the lie detection examination. Rather, an assessment of the lie detection examination needed to focus on the way in which knowledge and power become linked in this technique. I applied Foucault's notion of the grotesque, defined as a power mechanism in which the 'maximization of effects of power' – in this case the confession – 'are accompanied by the disqualification of the one who produces them.'⁵³⁷

The lie detection examination depends on a circular mechanism which links the 'truthful' responses of the uncontrollable emotional body with the lie through the 'fear of detection.' The lie plays a special role in the management of the subject's fear in entailing the threat of an absolute power in overcoming the subject's mind. The modulation of the body's responses is mediated by the ensemble of the instrument/lie detector and the expert/interrogator. In the management of fear the performative function of the former as instrument with superhuman powers that can read the subject's mind by itself and its measuring function become inextricably linked. With the respect to the latter, the examiner becomes a hybrid drawing on the hierarchical position of the psychological expert elaborated at the end of the 19th century while simultaneously exerting the normative power of the representative of social control. The spatial elaboration of the set-up of the examination in combining a quasi-experimental setting and the modern interrogation room equally implements an air of intimidation turning the subject into an object of knowledge as well as subjection and augmenting the impersonal authority of the ensemble of the instrument/examiner. On this basis the circular mechanism of the management of fear and its measurement is maintained in which its persuasive and its measuring functions cannot be disentangled. Rather, it expresses the stitching together of psychological knowledge and the elaboration of guilt which extracts knowledge by means of turning body against itself in seeking to elicit a confession. Since the verification of the examination depends on the confession, which constitutes its simultaneous aim, the moment at which the lie detection examination succeeds in instituting its effect, it is disqualified or at least becomes questionable.

I extended this analysis to current attempts at replacing the 'epistemology of fear' in polygraphy by means of novel attempts at lighting up the lie in the brain, arguing that they equally bear the marks of the grotesque. The guilty knowledge test and lie detection by means of brain imaging techniques legitimise their scientific authority over and against polygraphy by contending that they have done away with its unreasonable epistemology and the impressionistic methods of the polygraph examiner. Instead they have elaborated an objective procedure that corresponds to standards of psychological testing, which removes the influence of the examiner and provides failsafe statistical estimations of the probability of guilt. By contrast, I demonstrated that these methods which aim to fulfil the promise that the lie detector once made, are marked by the same

⁵³⁷ Foucault, 2003, p. 34.

indeterminacy that has characterised methods of detecting deception since the inception of psychology in constructing the subject on the basis of the distinction drawn between his controllable and uncontrollable processes. They all depend on a similar translation mechanism, which seeks to evoke and interpret a physiological measurement as ‘fear,’ as an ‘orienting response,’ or as ‘response inhibition’ which in turn is taken to point to the subject’s deception, which, again, in turn, is taken as evidence of guilt. As regards the most promising development at lighting up the lie in the brain by means of fMRI, it is marked by the same stitching together of psychological knowledge and the elaboration of guilt as the polygraph examination, albeit in a changed manner. The instrument is enlisted in the same way as machine that can detect what is going on in this subject’s mind. While the examiner has disappeared from the examination room, he is still present in manipulating the instrument, in framing the questions and in the construction of statistical routines that mark out the brain’s patterns as deceptive or truthful. One might even argue that his virtual absence and the framing of the examination in terms of technical procedures – the pressing of buttons to indicate ‘yes’ or ‘no,’ and the complex translation of data into the visualisation of the brain’s functions even increase the impersonal authority exerted on the subject. In the same manner as in the polygraph examination, the moment at which the ensemble of the lie detector/fMRI and the neuro-psychologist/interrogator succeed in exerting their effect, they are disqualified for if applied in the social world, the aim and verification of the lighting up of the lie in the brain would still depend on the confession.

The analysis of the lie detection examination in terms of ‘grotesque knowledge’ might at first glance appear to contradict the principle of a symmetrical analysis of knowledge whose significance I stressed in the methodology chapter. It seemingly entails a valuation of the lie detection examination as a knowledge practice by pointing towards the indeterminacy of its translation mechanism and its continual disqualification. However, I would venture that while my analysis of the lie detection examination constitutes a form of historical critique, it does not run counter to the principle of symmetry. A distinction needs to be drawn between an evaluation of knowledge based on what seem to be acceptable standards of knowledge as Alder did and the analysis of the way in which knowledge and power come to intersect in knowledge practices. The former necessarily involves a hierarchical view of science. In my analysis, I have not presupposed a standard of knowledge against which to assess polygraphy and recent methods in the cognitive detection of deception. Rather, I have provided an in-depth account of the social and material relationships which constitute the lie detection examination as technique of knowledge production and intervention that is marked by the entanglement of psychological knowledge and interrogation.

By using the term ‘indeterminacy’ I have sought to throw up the complex translation mechanism, which defines the lie detection examination in moving from the mechanical

translation of an inner bodily movement onto graph paper to not only the diagnosis of a particular social act but the framing of guilt in terms of this act, thus moving in between the construction of scientific and judicial truth. As an applied technique it is its location in between the two that also mediates its disqualification since the translation mechanism in the lie detection examination cannot be contained within itself. Rather, both with regard to the individual case in which the verification can only be provided by the 'object' of knowledge itself but also with regard to broader attempts at verification by means of using 'solved,' that is adjudicated cases, it has to break its own, and seek its affirmation in a different 'order' of truth – the subjective truth of the individual entailing the danger of false confessions and judicial truth marked by the jeopardy of false judgments.

This thesis does not seek to make recommendations as to the legitimacy of lie detection as a knowledge practice overall and whether current attempts at lighting up the lie in the brain should or should not be pursued. Interpreting the manner in which I have used the category of the grotesque in this way, would be to misunderstand its analytical purpose. Rather, in throwing up the continuities in the way in which lie detection is constructed, I have proceeded in the manner of a critique, which seeks to problematise current knowledge techniques in light of their historical constitution. I have tried to show that the indeterminacy in the translations and their disqualification are common to techniques of lie detection for they draw on a particular notion of the subject in psychology which remains prevalent to this day. The decision as to whether this notion of the subject should be maintained or, rather, whether in the case of lie detection, it can finally be brought to fruition, does not rest with the sociologist. What rests with the sociologist of science and technology is to provide an understanding of the historicity of these constructions and to convey the curiosity that the continuing attempts at capturing the lie entail – which also means throwing up the possibility of their being otherwise.

8.3 Polygraphy as Tool in the 'Political Technology of the Body' and Historiography in the Sociology of Science and Technology

How are we to evaluate historically, the different functions that the polygraph examination comes to attain in shifting systems of social control? The polygraph examination has been marked by its very malleability in following these shifts. It is at once reminiscent of the old system of torture as a confessional technique at the entrance of the criminal justice system, combining an inquisitorial logic and the main structure by which knowledge has constructed and intervened upon the subject with the emergence of what Foucault calls disciplinary society in the 19th century – the examination; it has spread beyond the criminal justice system as disciplinary technique, which directs employee's behaviour; lastly it has implemented a

technique of pre-emptive control as ‘truth facilitator’ in the management and containment of classes of ‘risky’ individuals.

Having sprung from early psychological and criminological discourse it has left behind the aim of understanding the criminal’s personality and the application of an individualised treatment to him. As confessional technique, which formed its first and most extensive function, the polygraph examination came to operate in the 1930s, as the system of reform was nearing its submersion in a logic which has become more and more geared towards the management and containment of a delinquent population, less to be treated but more to be controlled in the period since WWII.⁵³⁸ In the latter part of *Discipline and Punish*, Foucault argues that the implementation of the treatment and rehabilitation of offenders that has accompanied the emergence of the penal system since the 19th century has had one central effect: the continual maintenance and reproduction of a delinquent population set apart from the rest of society.⁵³⁹ Additionally, in his analysis of the ‘carceral’ society, he points to the continuity of the mechanism of the prison across society which is instituted on the basis of graded disciplinary techniques.⁵⁴⁰ Foucault’s analysis of the carceral society has been the basis of analyses which identify a new phase of social control which is defined by a radicalisation of surveillance and a shift towards increased control. These interpretations extend his analysis by arguing that disciplinary mechanisms do not disappear but are reconfigured by losing their functional specificity and by penetrating more deeply into the social body. This is accompanied by the diversification of classical sites of confinement such as the prison that is supplemented by varied measures of detention and supervision within society. In combination with increased technological possibilities of social surveillance they institute the seamless control of individuals in what have been termed ‘post-disciplinary societies’ or ‘societies of control.’⁵⁴¹ Following the logic of increased surveillance and control, the aim of reform of the individual is increasingly framed in terms of the management and containment of different groups of delinquents.

As I argued in the last chapter, it is the anachronistic nature of the polygraph examination, which combines the inquisitorial aim of torture by intervening on the body with the benign mechanism of the examination at the entrance of the criminal justice system that fits into this recent logic of control. It relinquishes the aim of understanding the individual offender’s personality and applying a treatment to him, but rather centres on the simple apprehension of *any* individual on the basis of his lie. The extraction of confessions, which not only renders this most uncomfortable of proofs in terms of a scientific technique, but also contributes to the quick negotiation of punishment outside of court that has become prevalent in the US, allows

⁵³⁸ Simon and Feeley, 1992, p. 457-458.

⁵³⁹ Foucault, 1975/1991, p. 276-277.

⁵⁴⁰ Ibid, p. 301-303.

⁵⁴¹ Campbell (2004); Deleuze (1995).

for the efficient insertion and management of delinquents in the criminal justice system. This system is no longer interested in the establishment of guilt for a specific offense to which a precise punishment can be assigned, and less and less in the individualisation and treatment of the offender. Rather, this system is oriented towards the supervision and control of the delinquent population through different measures ranging from imprisonment, variable containment, to probation and parole. Here, we find another reason for Larson's failure to implement the clinical team approach. Not only did it not match the epistemological organisation of criminal investigation, which was and is geared towards the simple apprehension of the offender on the basis of specialised technical expertise. Furthermore, Larson's approach was set within a model of knowledge production and intervention which centred on the individualisation and treatment of the offender, that has, if not fully, been displaced by a new one. By contrast, it is precisely because the polygraph examination has lost its depth as 'technology of subjective truth,' that has secured its continued success at the entrance of the criminal justice system.

As disciplinary technique, the polygraph examination also matches the increased grip of surveillance and control. While the polygraph examination still operates according to the logic of disciplinary power when it assumes the function of moral technology from the 1930s, but especially the 1940s onwards, it has lost two of the central characteristics, which mark the role of the examination as knowledge production technique in disciplinary society: individualisation and normalisation. In disciplinary society, the examination operates as tool which classifies and hierarchises, which accords the individual 'his own individuality, and in which he is linked by his status to the features, the measurements, the gaps, the 'marks' that characterise him and make him a 'case.'⁵⁴² It is on the basis of these 'gaps' that his grade of abnormality is determined and measures of his individualised treatment are defined. The polygraph examination abandons this feature of the examination and instead operates as tool of behavioural supervision and direction of *all* employees within commercial and, later more exclusively, government institutions – whether this be through the regular screening of the entire staff or the random screening of a certain percentage of employees, which reduces the numbers examined, yet seeks to implement the same effect. As 'truth facilitator' the role of the examination is equally not to distinguish between the grades of psychopathic propensity of an individual but rather to re-inscribe into the sex offender as member of the class of monstrous individuals, his irremediable pathology, which needs to be continually controlled. While it equally works as disciplinary technique, which directs the offender's behaviour on the basis that transgressions might be known in the future, it also radicalises this function by working as tool of pre-emptive supervision. In inquiring into illicit thoughts or acts of minor

⁵⁴² Foucault, 1975/1991, p. 192.

transgression, which it takes as warnings signs of future deeds, to be controlled in the present, it most completely matches the new logic of social control which is geared towards the management of individuals on the basis of an assessment of their 'riskyness.'

Yet, while the polygraph examination is thus an example of how psychological techniques come to operate in a system of social control that has become oriented towards the management and containment of 'risky individuals' and the radicalisation of surveillance in disciplinary mechanisms, its success also points to the fact that this shift is not straightforward and does not follow a single logic or trajectory.

Authors who write about new systems of social control frequently set this shift within the emergence of new technologies and knowledge practices. Such analyses, for example, focus on the development of the computer, on the basis of which the generation of expansive data bases with different sets of information regarding individuals has become possible ranging from health data, banking information, consumer patterns, to criminal records. The potential linking of these sets of information across data bases makes for broader opportunities of surveillance and the management of conduct across society. As we saw in my discussion of Rose's networks of inclusion and exclusion, the intricacy in the way in which computer-supported technologies weave themselves through the social body, lies in the fact that they do not only constitute a mechanism of top-down surveillance and straightforward control. Rather, although they may be used in this respect, their inescapability is also characterised by the way in which they operate as diversified mechanism in the constitution of individuals – in the 'securitisation of identities.' The holding of bank and consumer accounts, credit cards, health passes, driver's licenses, etc. are different points of passage through which individuals must pass in order to act as citizens licensed to participate in a liberal society. In this the logic of surveillance and control lies in the fact that in order to maintain their citizenship, individuals must continually prove their credentials in order to enter new 'circuits of civility.'⁵⁴³ Additionally, writers on new systems of control often focus on a new 'biopolitics' engendered by the rise of the life sciences and biomedicine, whereby individuals are increasingly constructed on the basis of their somatic constitution by means of an analysis of their genetic code, and intervened upon on the basis of their biological functioning.⁵⁴⁴ The connection of computer technologies and the 'somatisation' of individuals makes for the operation of 'post-disciplinary' systems on the basis of 'bio-surveillance modalities'⁵⁴⁵ – ranging from the institution of DNA-databases for criminal identification to the management of the conduct of the individual in terms of his genetic 'risks.'

⁵⁴³ Rose, 2000, 325-327.

⁵⁴⁴ Lyon and Zureik (1996); Lyon (2001); Rose (2007); Novas and Rose (2000).

⁵⁴⁵ Campbell, 2004, p. 79.

However, the history of the polygraph examination shows, how knowledge production mechanisms, which now seem outdated, nevertheless become part and parcel of changing systems of social control. In polygraphy, the principles of the examination have not changed since the 1930s, nor have the assumptions drawn from early psychological discourse that the lie can be teased out on the basis of the distinction between the emotional body ruled by its evolutionary birthright and the deceptive subject. It is thus, that the 'political technology of the body,' used by Foucault to denote the way in which the emergence of the human sciences and the penal system have come to create a 'modern soul' as new mode of intervention upon the body, still holds sway. As one of the 'bits' and 'pieces' of this technology, the different functions of the polygraph examination combine mechanisms which range across the old system of torture and set themselves within the new system of control in acting upon the subjected body of the criminal and the sex offender as well as the productive body of the commercial and, now more exclusively, the government employee. What unites them is that they intervene on the individual by means of constructing the subject's inner life on the basis of the movements of his body. This intervention is framed in terms of a knowledge that combines a physiological interpretation of what goes on his mind with a normative evaluation of his conduct by rendering the lie as an 'abnormal' pattern on the body's 'truthful' script. This way of conceiving and taking control of the human subject's mind shapes psychology to this day. If anything it has tightened its grip, as we have seen with regard to modelling the mind on the basis of the brain's functioning.

In moving across the three levels of the development of lie detection as a knowledge practice, the constitution of the power/knowledge mechanism of the lie detection examination, and the functions of polygraphy as technique of knowledge production and intervention, this thesis has shown, that detailed historical analyses of the social and material relationships which serve in the constitution of techniques of knowledge production can usefully be combined with the study of broader questions of how psychological techniques are enlisted in and shape systems of social control. Foucauldian analyses of systems of social control and social studies of science have so far remained somewhat separate fields, although they follow similar aims in seeking to demonstrate that scientific developments do not follow an independent and progressive trajectory but are the result of (historically) complex social and material processes. By studying these processes they both problematise the fixed authority of scientific truth and instead reveal how 'truth' – of the subject, the scientific artefact, or the technological object – is variably constructed. This study suggests that by bringing Foucauldian analyses and the sociology of science and technology together they can both enrich each other. The former is provided with methodological tools, which allow for fine-grained analyses of how scientific techniques and technological objects are elaborated. This

can make for an analysis of the specificity of how these techniques and objects operate within knowledge-based systems of control. As a result, the analysis of shifts within these systems might gain in subtlety as well as reflexivity in conceptualising these shifts. The latter could be sensitised further to a perspective from which to provide contributions to broader questions of how our historical being is constituted in the co-constitution of various scientific and technological developments and processes of social ordering.

Historical studies in the sociology of science and technology, especially actor-network-theory, in the past, frequently have taken the shape of developmental accounts, i.e. tracing the processes which make objects stable or which account for the failure of objects to stabilize – i.e. to describe the constitution of technological objects or scientific facts.⁵⁴⁶ This developmental historicity was elaborated in opposition to the philosophy of science. It has been important in debunking notions of the independent nature of scientific knowledge and aimed at bringing about a positive change in the way in which we think about science, technology and society. In these studies, history thus becomes a vehicle through which a different notion of science and technology can be demonstrated. However, the sociological historiography of the sciences is not limited to the examination of scientific facts or technological objects in terms of their development. Additionally, they may contribute in a more extended fashion to studying how we are constituted and intervened upon as subjects. It is in this regard that this thesis has aimed to make a contribution: to provide a history of the development of lie detection as well as elaborate an understanding of the way in which psychological techniques have come to construct us as individuals whose mind can be overcome, whose monstrosity can be manifested, whose behaviour can be controlled. If elaborated further, this study, in following Foucault, would attempt to move towards a more detailed consideration of the limits within and against which our historical being and the constitution of ourselves as objects of knowledge is defined. It is with the aim of identifying these limits that I suggest broader directions in the study of the social phenomenon which has provided the background of this thesis – the lie.

8.4 *Preliminary Directions for an Historical Sociology of the Lie*

In learned discourse before the turn of the 19th century, the lie was the province of the moral philosopher and the theologian – the lie seemingly was an object of moral contemplation. By contrast, the emergence of the human sciences, especially psychology, from the late 19th century

⁵⁴⁶ Latour (1988; 1996); Pickering (1984; 1995); Bijker (1995). My argument does not suggest that the sociology of science and technology has not contributed to the study of how selves are constructed. Indeed there are insightful studies, especially within the ANT tradition, which focus on how selves are variously produced as part of socio-technical practices. For example, cf. Berg and Mol (1998). However these studies do not take an historical perspective.

onwards, initiates a new discourse on the lie. As part of this discourse, the lie has been turned from an object of moral contemplation to an object of knowledge and, as we have seen with regard to lie detection, an object of intervention. However, outside the human sciences, modern philosophy has continued to claim privileged status with regard to the evaluation of the lie, which has informed recent sociological work. Philosophical discussions of the lie frame the lie as an inherently problematic act. They centre on the definition of the lie as normatively loaded speech-act (mainly in the philosophy of language) and on elaborations on the question of what constitutes the moral reprehensibility of the lie (moral philosophy). These discussions are constructed in terms of the continuity of a philosophical and theological ‘canon’ on the lie which usually reaches as far back as Augustine. As might be the case with most ‘canons of thought’ the works that are considered part of it are taken as the most fundamental expositions on questions of lying and are seen to operate within a lineage of thought (from Augustine,⁵⁴⁷ through Thomas Aquinas⁵⁴⁸ to Kant⁵⁴⁹). Different thinkers’ works are taken as points of reference upon which an ‘improved’ conception of the lie is elaborated. In the philosophy of language this means a more precise classification of the lie as a certain type of speech phenomenon, whereas in moral philosophy this means increased precision in identifying moral principles for its evaluation. Correspondingly, the lie in this discourse is seen as a uniform concept which is defined by taking recourse to a stable and a-historical moral subject. In these discussions, the moral subject is conceptualised as conscious, rationally thinking being who should use his reason for the good and for the pursuit of ‘truth.’ In turn, the lie is frequently seen as violating reason and free will – the intellect turning against morality and ‘truth’ in order to pursue its own interests. In elaborating on the reprehensibility of the lie as a moral act, philosophy then seeks to ground it in more general and equally a-historical notions of free will, reason, truth, truthfulness and falsehood, and the nature of good and evil.⁵⁵⁰ Thus, in discussing the foundations for the evaluation of the lie, authors do not ask whether what appears to be a

⁵⁴⁷ Augustine wrote two texts on the lie – *On Lying* (*De mendacio*, ca. 395) and *Against Lying* (*Contra Mendacio*, ca. 420), cf. St. Augustine (1952a; 1952b).

⁵⁴⁸ Thomas Aquinas’ treatment of the lie is contained in his *Summa Theologiae* (written between 1266 and 1273). Cf. Thomas Aquinas (2006).

⁵⁴⁹ Kant’s central statement on the lie is ‘On a Supposed Right to Lie Because of Philanthropic Concerns’ in *A Grounding to a Metaphysics of Morals* written in 1785 (Kant, 1785/1993).

⁵⁵⁰ Dietz provides four categories of arguments regarding the inadmissibility of the lie in contemporary moral philosophy and the philosophy of language. The first is the ‘domino theory of the lie’ which holds that once one has lied successfully, one will be encouraged to lie on other occasions (Dietz, 2000, p.2-3). The second argument portrays lying as an abuse of language. In this view the central communicative purpose of language is undermined by lying in that it violates the fundamental conditions of its use (to convey truthfully one’s thoughts, opinions, etc.) (ibid, p. 4-5). The third argument treats the lie as an ‘attack on freedom’. This perspective condemns all kinds of deceptive action in general as it violates the duty to respect each other’s freedom (ibid, p. 6). The fourth and final argument concerns the ‘unity of the soul’ and is employed by Augustine, Thomas Aquinas and Immanuel Kant. This argument focuses on the self, in that lying is conceptualised in terms of a denial of one’s own self. (ibid, p. 6). For moral philosophical discussions of the lie cf. Adler (1997); Bok (1978); Baruzzi (1992); Koorsgard (1986); Margolis (1963); Nyberg (1993); Schwarz (1970). For discussions that are more oriented towards the definition of the lie and language, cf. Chisholm and Feehan (1977); Simpson (1992); Reboul (1994); Falkenberg (1982); Weinrich (1966).

continuous moral problematic of the lie is not in fact subject to changes, in which the terms of reference would shift so as to transform the search for a universal definition and estimation of the lie into the examination of multiple, historically variable practices which, in turn, might destabilise current notions of the moral subject and the associated concepts of reason, truth, truthfulness and falsehood, and good and evil.⁵⁵¹

While sociology has tried to give flesh to the lying subject, it has been unsuccessful in fully distancing itself from the philosophical approach to the lie. Instead it has replaced the elaboration of abstract moral principles with the evaluation of different moral contexts. Moreover, the sociology of the lie is an understudied field. Barnes' study *A Pack of Lies* represents the only explicit, sustained sociological engagement to date that takes lying as an integral part of social life.⁵⁵² In his study, Barnes draws on a uniform philosophical definition of the lie. According to Barnes, a lie is 'a statement *intended* to deceive a dupe about the state of the world, including the intentions and attitudes of the liar.'⁵⁵³ The term 'intending to deceive' is qualified as: '*intending* to cause a dupe to adopt an understanding of the state of the world and/or of the mind of the liar that the liar believes to be false.'⁵⁵⁴ In this conception of the lie, the mendacity of a subject's statement is distinguished from the simple falsehood of that statement by means of a recourse to the intentionality of the subject. Someone who is mistaken about the general state of affairs, may not be intending to lie – he may be completely *truthful* in conveying a falsehood. Similarly, a person who lies may convey something true, mistakenly believing that he is conveying something false – although he states the truth, he or she is still trying to intentionally mislead a person. Thus, while truth and falsehood are thought to belong to the realm of ontology and epistemology, truthfulness and mendacity 'belong to the moral domain of intention.'⁵⁵⁵ On the basis of this definition, Barnes considers ways of classifying the lie: depending on the intentions of the deceiver, lies can be 'malicious' or 'benevolent.' He then provides an overview of how lying is valued in different social domains, in which lying is either expected to happen frequently and other domains in which lying is more heavily sanctioned. For example, warfare and politics are prime areas in

⁵⁵¹ Arguments within moral philosophy are more diverse than they may appear in this brief description. For example, Nyberg (1993) argues that deception constitutes healthy and socially necessary behaviour and investigates instances in which deception may be connected to morally desirable results. However, his work is also connected to a moral evaluation of deception. There is also a Nietzschean line of argumentation in philosophy which maintains that 'truth' is a ruse to make the meaninglessness of reality more bearable. Rue (1994) is an example of this line of thought.

⁵⁵² Recently an ethnomethodological study on the lie in everyday life was published, cf. Strauss (2006). Another area which studies the lie as a social phenomenon in terms of 'interpersonal deception theory' is social psychology/communication studies. Interestingly, this field grounds its normative conception of deception partly in physiology, attesting to the translation of the conception of the lie elaborated in lie detection back into psychological thought, cf. Buller and Burgoon, (1996a; 1996b); DePaulo, Ansfield and Bell (1996).

⁵⁵³ Barnes, 1994, p. 11 [my emphasis]. Barnes follows and slightly adapts Bok's (1978) definition.

⁵⁵⁴ Ibid, p. 11 [my emphasis].

⁵⁵⁵ Ibid, p. 12.

which lying is presumed to occur on a regular basis.⁵⁵⁶ There are also so-called ‘ambiguous domains’ such as advertising in which the interpretation of ‘untrue messages’ as lies varies according to the roles and expectations of different social actors, and may be sanctioned or condoned accordingly.⁵⁵⁷ Barnes’ broad overview of the contextual evaluation of lying in social life largely amounts to a debunking of debates in moral philosophy which seek to ground the moral reprehensibility of lying in universally applicable principles. However, his study has a serious drawback. A contextual analysis of lying will lend itself to becoming a treatment of lying in terms of its social or moral evaluation and come to centre on an explanation of the social domains in which it takes place, for example how much they are characterised by trust or mistrust. As a result, we lose sight of the lie as a social phenomenon *per se*. Additionally, by adopting a uniform philosophical definition of the lie, a stable (modern) notion of the subject is maintained, which cements a particular relationship between intentionality, truth, truthfulness and falsehood, and the morally problematic nature of the lie.

How to eschew a contextual analysis of lying that is based on a stable definition of the lie and the subject? Taking the three central dimensions of the definition of the lie – *intentionality (and associated philosophical concepts such as consciousness and free will)*, questions of *truth, truthfulness and falsehood*, and the *normativity* of the lie – one might investigate the variable relationships that they assume. This means problematising how they are configured in a specific historical location, rather than presupposing a stable relationship between them. We might explore the lie detection examination in criminal investigation as a potential example for such a problematisation.

As regards the first set of concepts – *intentionality, consciousness, free will* – in lie detection we have encountered a certain elaboration of the relationship between the functions of the mind and the body which centres on the distinction between voluntary and involuntary processes. The lie is constructed in terms of a struggle of these two processes whereby the ‘baser’ processes of the body, the so-called fight-and-flight system of the Autonomic Nervous System, turns against the ‘deceptive consciousness’ thus giving it away. This fight-and-flight system is characterised by two emotions: fear and anger. The distinction between voluntary and involuntary processes is supplemented by a distinction between the ‘internal,’ i.e. truthful, and ‘external,’ i.e. deceptive functionings, of the body. Whereas the external appearance of the body is subject to the mind’s deceptive control, the internal mechanisms of the body rage freely - ‘externalising’ them by means of physiological instruments allows to make this false appearance visible. Thus, instead of speaking of a possible notion of intentionality here, it

⁵⁵⁶ Ibid, p. 20-35.

⁵⁵⁷ Ibid, p. 36-53.

needs to be replaced by a particular configuration of the interaction between mind and body that is assumed in early psychological discourse.

The second set of concepts – *truth, truthfulness, falsehood*, is closely entwined with the first. The physiological conception of the lie used in lie detection posits particular physiological states which, in combination with the utterances of a person, suggest that he or she is speaking the truth or lying. In the development of the detection of deception, strict rules become elaborated as to the form in which truth or falsehood can be uttered – from the elaboration of a narrative to the eventual simple negation of a state of affairs by means of ‘yes’ or ‘no’ answers. Correspondingly, we found different representations of ‘truth’ and ‘lie’ in the development of lie detection – while both took the shape of distinct generalisable curves in William Moulton Marston’s research in 1914, truth and lie are distinguished on the basis of constancy and variability from John Larson’s research in 1923 onwards. The interpretation of a statement as truth or lie is based on the distinction between ‘normal’ and ‘abnormal’ physiological reactions, which are elaborated on the basis of how the human sciences construct the human subject as knowable object.

This takes us to the third dimension – the *normativity of the lie*. The physiological and normative evaluation of the lie as ‘abnormal’ was further extended in that truth and falsehood were equivocated to guilt and innocence, respectively. But this relationship is not an intrinsic one, as may be suggested in moral philosophy. The abstract moral subject is replaced by the criminal suspect whose utterances are taken to indicate his guilt or his innocence depending on the ‘normality’= ‘truthfulness’ or ‘abnormality’ = ‘mendacity’ of his bodily reactions. The resolution for the guilty subject – the confession, results in both mental and physiological relief – the body returns to its ‘normal’ functioning while the sinner expects the penance for his crime. The lie here becomes a site of intervention which is connected to specific normative effects that are induced by a certain technology of knowledge production – lie detection and the wider sphere of crime detection within which it is located.

This reframing of the dimensions of intentionality, truth, truthfulness and falsehood, and normativity in terms of their historical configuration in the lie detection examination in criminal investigation, demonstrates how the lie may be approached from a perspective which does not presuppose a certain conception of the subject nor a uniform definition of the lie. By contrast it provides an alternative approach in taking the three central dimensions as heuristics on the basis of which to investigate current elaborations of the lie in relation to an historically constituted subject. Early psychological discourse on the lie put to work a particular conception of the subject – as I have outlined, as one of the bits and pieces of the political technology of the body,’ it constructed the subject as ‘psyche,’ ‘personality,’ or

'consciousness' on the basis of his bodily movements.⁵⁵⁸ This was translated into lie detection by means of constructing the 'truth' of what goes on in the subject's mind through the split of voluntary and involuntary processes of the body, by framing the lie as a 'yes' and 'no' answer and refashioning its morality around the notion of abnormal functionings of the body.

This particular configuration points to the necessity of abandoning uniform conceptions of the lie in Western philosophy, which, although in a more contextualised fashion, have dominated what little sociological thought there is on lying. An alternative form to studying the lie sociologically means to study it as an historical practice, to analyse how it is framed, where and by whom it is used and deployed, and how its normativity is constructed. Such studies would be supported by an historiographical premise set out by Foucault in 'Nietzsche, Genealogy, History.' In opposing Paul Ree's treatment of the history of morality as a linear movement, Foucault develops his notion of genealogy which

must record the singularity of events outside of any monotonous finality: it must seek them in the most unpromising places, in what we tend to feel is without history – in sentiments, lover, conscience, instincts; it must be sensitive to their recurrence, not in order to trace the gradual curve of their evolution, but to isolate the different scenes where they engaged in different roles. Finally, genealogy must define even those instances where they are absent, the moment when they remain unrealized (Plato, at Syracuse, did not become Mohammed).

As a result,

genealogy does not oppose itself to history as the lofty and profound gaze of the philosopher might compare to the molelike perspective of the scholar: on the contrary, it rejects the metahistorical deployment of ideal significations and indefinite teleologies.⁵⁵⁹

Apart from providing an analysis of the emergence and development of lie detection, this study might be seen as a starting point in this respect. If it has not provided a genealogy of the lie, by focusing on a shift which has turned it from an object of moral contemplation to an object of knowledge and intervention, it has at least enabled a reflection on how current thought proceeds with regard to lying and to problematise the 'monotonous finality' of approaches to the lie in philosophy and sociology. Thus in returning one last time to Montaigne, whom I cited at the beginning of this thesis and who complained about the lie's one 'hundred thousand shapes and undefined limits,' studies of the lie as an historically variable practice could provide a fruitful starting point for a nascent historical sociology of the lie. However, sociologists would not proceed in the manner of good Pythagorean philosophers, who, if they cannot control its hundred thousand shapes, will at least make its concept appear as 'definite and finite' entity. Rather, as I have hopefully been able to show, they would release the lie and the truth that is spoken about it – whether as seeming object of

⁵⁵⁸ Foucault, 1975/1991, p. 29-30.

⁵⁵⁹ Foucault, 1977, p. 139-140.

moral contemplation or scientific investigation – into the multiplicity of its historical constructions.

As regards further possible contributions that may be provided on the basis of this thesis, there are two directions in which it might be taken. First, as I indicated in the methodology chapter, this study could be complemented by a broader comparative study of the development of the ‘sciences of credibility’ at the intersection of criminal justice systems in the US and Europe. This would trace the divergent developments as regards the integration of psychology in the rendering of subjective truth in judicial processes. As I outlined, while legal and applied psychology had common roots in the early 20th century in both geographical locations, in Europe research on the physiological detection of deception soon stagnated, while a focus was placed on witness psychology. Witness psychology centred on the evaluation of whether a *witness*’ statement could be seen to be credible based on the assessment of the ‘objective’ capacity of his mind to represent past events on the basis of studies of memory and perception. By contrast, witness psychology made little headway in the US, where the construction of credibility came to focus on the evaluation of the ‘subjective’ truthfulness of the *suspect* on the basis of the movements of the body. Moreover, since the 1960s, methods of detecting deception have been developed within the ‘psychology of testimony’ in Europe, which focus on the analysis of the verbal content of the subject by means of quantitative content analysis. A comparative analysis would trace these divergent developments by examining how ‘subjective truth’ is problematised and its knowability elaborated at the intersection of legal psychology and judicial systems. This would involve studying the three dimensions of intentionality, truth, truthfulness and falsehood, and normativity, by means of examining how the ‘truth-speaking’ subject is constructed on the basis of where subjective truth is located – in memory, the body, or in speech – and how these constructions intersect with the framing of judicial truth and the ‘psycho-legal’ subject in the accusatorial system of the US versus the inquisitorial system in continental Europe.

Secondly, the study of the transformation of the lie from an object of moral contemplation to an object of knowledge might be broadened through the study of the construction of deceptive human types in the history of psychology. This would include an examination of writings in early psychology which elaborate classifications of lies and human types of liars, ranging from the ‘occasional,’ the ‘habitual,’ to the figure of the ‘pathological liar,’ the person suffering from so-called *pseudologia phantastica*.⁵⁶⁰ As is typical in psychological discourse, these types are framed in terms of ascending grades of abnormality. While the occasional liar is conceptualised as ‘bad’ liar in the sense that he is not well-practiced in lying and is fully conscious of his transgression in achieving a certain end, the pathology of the pathological liar

⁵⁶⁰ A good example of this is Duprat (1903).

is precisely constituted by the fact that his lying does not follow an apparent motive, it represents 'a falsification disproportionate to any discernible end in view.'⁵⁶¹ The mental processes of the pathological liar are likened to the ones found in the poet or author of fiction who expresses an urge for self-expression and views the creation of fictional stories as an end in itself.⁵⁶² However, those processes are radicalised in that the pathological liar can no longer distinguish between 'truth' and 'fiction.' Rather, the desire for self-expression is connected to a 'deep-set egocentrism,'⁵⁶³ which is expressed in the disregard for others and the 'social antagonism' that the pathological liar's fabrications causes.

The historical study of 'deceptive types' would place a focus on the 'rationality' of the lie in exploring how the three dimensions of intentionality/consciousness, truth, truthfulness and falsehood, and the normativity of the lie are configured around a certain relationship between rational, means-end related action and the boundary between reality and fiction, that marks the 'occasional liar' as transgressing moral bounds but in a 'normal' manner, while constituting the pathological liar as 'abnormal' in acting irrationally by disregarding what is real and what is not. Such a study could tie in with the analysis of the sex offender as monstrous individual, by analysing the transformations, that the elaboration of 'abnormal' human types in terms of their deceptiveness have undergone from the emergence of the pathological liar, whose 'condition' was originally associated with hysteria and epilepsy to the definition of the sex offender in terms of his 'dishonest lifestyle.'

On a final, more speculative and future-directed note, a genealogical study of the lie might be conceived, which would give the moral concept of the lie in modern philosophy a history in terms of its *problematization*, that is by studying *how* and *why* the lie has become a *problem*.⁵⁶⁴ Forrester has suggested that the importance given to the utterance of 'truth' in Western society might have its origins in the public pronouncement of faith and martyrdom that is rooted in evangelism.⁵⁶⁵ Such a study might therefore reach as far back as early Christianity. In this process it might trace the history of the modern conception of the lie and its web of relationships in Thomas Aquinas' and Augustine's biblical exegeses as well as Kant's critical philosophy among others. However, this would mean examining them not in terms of their continuity but in terms of the different historical interventions they represent within systems of thought and practice.⁵⁶⁶

⁵⁶¹ Healy, 1929, p. 729.

⁵⁶² Healy and Healy, 1915, p. 20-21.

⁵⁶³ Ibid, p. 250.

⁵⁶⁴ Foucault, 2001, p. 171.

⁵⁶⁵ Forrester, 1997, p. 8.

⁵⁶⁶ In this respect, Zagorin's study on practices of religious dissimulation in early modern Europe might provide directions for such a study. It provides an examination of how religious dissimulation was justified by groups subject to religious persecution on the basis of early church fathers' biblical exegesis, cf. Zagorin (2000).

9. Appendix A: Overview of Archival Material

Northwestern University Archives

At Northwestern University, I surveyed part of the Archives' holdings on the Scientific Crime Detection Laboratory in 2002. The Scientific Crime Detection Laboratory was founded in 1929 and affiliated with NWU's School of Law. The SCDL was sold to the Chicago Police Department by Northwestern University in 1938 due to financial pressures. The SCDL included a psychology department which was run by Leonarde Keeler. I was told by one of the archivists that Leonarde Keeler removed most of the case files when he was let go by the SCDL – this was confirmed by correspondence I found on the disappearance of Keeler's files.⁵⁶⁷

The Archives hold a general file on the SCDL which contains newspaper clippings, course materials, and the 'Outline of Scientific Crime Investigation' published by the SCDL, etc. The remaining sources on the SCDL are contained within individuals' papers who dealt with the SCDL in an official capacity:

Walter Dill Scott Papers

Walter Dill Scott, a well-known psychology professor, served as president of NWU during the period of the affiliation of the SCDL with NWU. I surveyed box 35 of the papers which include material relating to the setting up, maintenance, and financial upkeep concerning the SCDL in the period from 1930 until 1938.

John Henry Wigmore Papers

John Henry Wigmore served as dean of the Northwestern University School of Law and his papers include correspondence on organisational matters relating to the SCDL. I surveyed boxes 103 and 104, which relate to the organisational activities of the Scientific Crime Detection Laboratory.

Wigmore was an important figure in the development of legal rules of evidence – he wrote a ten-volume work codifying different types and rules of evidence. 'The Wigmore' was one of the most important reference sources for lawyers when it came to rules of evidence and updated editions were produced on a regular basis.

Leon Green Papers

Leon Green succeeded Wigmore as dean of the School of Law. Again, most of the surveyed sources relate to organisational matters concerning the SCDL. I consulted boxes 17 and 18 of

⁵⁶⁷ Fred Inbau wrote a letter to Leon Green that Katherine Keeler, Leonarde Keeler's wife, had removed 'all polygraph or "lie detector" records' among other items' (LGP, Box 17, Folder 12: letter to Leon Green by Fred Inbau, 20/7/1938).

the papers which contain reports of the activities of the SCDL including weekly and monthly reports by Leonarde Keeler for the period from 1932 until 1938.

Fred Inbau Papers

I surveyed 17 boxes which form part of the collection. Fred Inbau was a member of the School of Law faculty and a member of the SCDL during its affiliation with NWU. Inbau worked with Keeler at the SCDL and is another well-known figure in the development of lie detection. When the Scientific Crime Detection Laboratory was sold to the Chicago Police Department in 1938, he assumed the position of the Director of the Laboratory before establishing himself as professor of law at Northwestern University. Inbau was one of the most outspoken opponents of the curbing of police powers in criminal interrogation, campaigning against the institution of the so-called Miranda ruling implemented in 1966, which requires police officers to inform arrestees of their rights. In addition to his legal career he maintained an avid interest in lie detection throughout his life publishing widely on the topic. The papers mainly contain material relating to his publication activities on lie detection and legal evidence and his campaign against the Miranda ruling.

Except for some of the sources contained in the Leon Green Papers and most of the sources in the Fred Inbau Papers, the other collections described above relate to the institutional history of the SCDL, i.e. the setting up, the maintenance, the continuing financial difficulties and eventual sale of the laboratory.

Bancroft Library, University of California at Berkeley

At the Bancroft Library I surveyed the papers of three individuals – August Vollmer, John Larson and Leonarde Keeler as part of two archival visits in 2002 and 2005. In the 1920s the first polygraph experiments were carried out by John Larson, Leonarde Keeler and others at the Berkeley Police Department, then headed by August Vollmer, one of the main figures in the police professionalisation movement in the first third of the 20th century.

August Vollmer Papers

BANC MSS C-B 403

Vollmer was head of the Berkeley Police Department from 1905 until 1931 and later taught police administration at the University of California at Berkeley. He taught at the University of Chicago from 1929 until 1931. Vollmer was considered to be one of the pioneers in developing the ‘modern’ police force, i.e. a college-educated professional police force trained in methods of ‘scientific’ crime investigation. As chief of the Berkeley Police Department he oversaw John Larson’s first experiments into lie detection and was

considered a lifelong mentor by Leonarde Keeler who worked under Larson at the Berkeley Police Department.

In total the collection comprises 46 boxes, 7 cartons, 3 volumes and 2 oversize folders.

Most of the sources I surveyed either related to background information on the social networks surrounding lie detection (the SCDL, the relationship between Larson and Keeler), or were newspaper clippings on the polygraph or papers or speeches given by Vollmer on police professionalism that referred to the polygraph in one way or another.

John Larson Papers

BANC MSS 78/160 c α

John Larson was one of the main figures in the development of lie detection, developing the final set-up of the lie detection examination and moving lie detection more closely into criminal investigation. Larson joined the Berkeley Police Department in 1920, moving to the Institute for Juvenile Research in Chicago in 1923. Larson worked for four years as Experimental Psychologist at the Institute for Juvenile Research and in the Illinois Department of Criminology in Chicago. In this period he received his medical degree, establishing himself as psychiatrist for the rest of his career.

I surveyed 6 out of the 10 cartons which made up the papers in 2002, which at that point had not been properly catalogued. When I finished reviewing the collection in 2005, the collection had been catalogued and re-arranged into 6 cartons and 3 boxes. Unfortunately the 3 boxes containing Larson's correspondence were still in processing when I visited the archive and were therefore inaccessible. A fair proportion of the papers consist of different kinds of polygraph read-outs which mostly did not include any interpretation of the charts. Additionally, the papers contained newspaper clippings, various materials relating to lie detection including brochures by instrument manufacturers, articles relating to lie detection and psychology, articles and drafts of papers published or given by Larson, as well as drafts of material for a second of his monograph *Lying and Its Detection*,⁵⁶⁸ originally published in 1932. These drafts have been most useful in reconstructing the conflict between Larson and Keeler.

Leonarde Keeler Papers

BANC MSS 76/40 c

Next to Larson, Leonarde Keeler was considered one of the most influential figures in the development of the polygraph. Keeler developed and patented the polygraph. He was instrumental in the development of polygraphy as independent profession through the commercialisation of the instrument and polygraph operator training as well as developing the application of polygraphy in personnel screening. He enjoyed a certain degree of popularity in the media and was one of the first polygraphers to set up his own independent polygraph business and training institution. Keeler carried out his first experiments on lie

⁵⁶⁸ Larson (1932).

detection at the police department in Berkeley in the early 1920s, moving to the Institute for Juvenile Research in Chicago in 1928 and joining the SCDL in Chicago in 1929. After having been let go by the SCDL after its sale in 1938 he set up his own polygraph business *Keeler Inc.* I surveyed 2 cartons out of the 3 cartons, 1 box, and 1 oversize volume which make up the collection in 2002 and completed the survey in 2005. The cartons contain a fair amount of biographical material (membership in societies, clubs, etc.), articles by Keeler and others on lie detection, criminal investigation and law enforcement, newspaper articles on Keeler, addresses and speeches by Keeler, drawings of early polygraphs, correspondence relating to the patenting and commercialisation of the polygraph, as well as correspondence on issues regarding the polygraph, criminal cases, and his relationship with Marston and Larson. Especially his correspondence with August Vollmer, whom he considered a life-long mentor gives insight into his activities at the Scientific Crime Detection Laboratory and the conflict which developed between him and Larson.

Charles Keeler Papers

BANC MSS 93/122 c

Charles Keeler, Leonarde Keeler's father, was a well-known local poet in Berkeley. The collection consists of 12 boxes and 14 cartons. The collection of his papers includes correspondence, writings, diaries, notes, and clippings. I surveyed Box 7, which contains his correspondence with Leonarde Keeler.

Berkeley Police Department Records

BANC MSS 72/227c

The Records consist of 49 boxes and 15 cartons and cover the period from 1909 until 1932, when August Vollmer was head of the department. They mainly consist of Vollmer's correspondence with law enforcement officers, city officials, private, governmental and professional associations, and contains budget data as well as some speeches. As my focus was not on the institutional history of the department, I only surveyed boxes 10 and 11 which contain the correspondence with individuals involved in the development of lie detection, i.e. John Larson, William Moulton Marston, and Leonarde Keeler.

Leonarde Keeler Collection at the Dr. William J. Yankee Library, Department of Defence Polygraph Institute, Fort Jackson, SC

The collection was donated to the Department of Defence Polygraph Institute by Leonard Harrelson who took over Keeler's business when Keeler died rather young in 1949. It consists of 43 boxes, 2 drawers with folders, 5 binders as well as a box with material on a murder case, which the department uses as introductory material on the history of polygraphy. The collection does not contain the case files that went missing from the SCDL

nor files of Leonarde Keeler's own cases after he had opened his own business. There are some scattered case materials and a collection of scripts of the radio programme 'Hidden Truth' that was broadcast between 1950 and 1952 and which was based on Keeler's most prominent cases. The collection consists of material relating to the SCDL, information on instruments, Keeler's correspondence, material relating to the training of polygraph operators, a collection of reprints of articles on various (mostly physiological) subjects, Keeler's notes on several articles and bibliographies drawn up by him, a notebook containing notes and drawings on experiments Keeler carried out using the polygraph in Berkeley in 1925, a research paper on physiological reactions of mental patients using the polygraph, polygraph brochures, a survey of police departments on the use of the polygraph carried out by Keeler, and 3 boxes containing drafts by Keeler's sister, Eloise Keeler, for her biography of Keeler. *The Lie Detector Man*.⁵⁶⁹ The collection additionally contains material on Keeler's involvement in questioning German prisoners of war after World War II.

⁵⁶⁹ Keeler (1983).

10. Bibliography

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August Vollmer Papers	BANC MSS C-B 403
Charles Keeler Papers	BANC MSS 93/122 c
Berkeley Police Department Records	BANC MSS 72/227c
John A. Larson Papers	BANC MSS 78/160 cz
Leonarde Keeler Papers	BANC MSS 76/40 c

Dr. William J. Yankee Library, Department of Defence Polygraph Institute, Fort Jackson, SC

Leonarde Keeler Collection

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