

WHAT IMPACT WILL GENETIC TECHNOLOGY HAVE ON
THE SELECTION OF CALIFORNIA PEACE OFFICER
CANDIDATES BY THE YEAR 2009?

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Peace Officer Standards and Training

by

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Introduction

Over seventy-five years ago Freud said, “biology is truly a realm of limitless possibilities,” proving that he was a futurist.¹ Now perhaps more than at any other time in history, the world is standing at the threshold of a golden age of biology. This golden age is analogous to the computer revolution that has occurred during the last decade. Within the next few years the biochemical secrets of DNA (deoxyribonucleic acid), the chemical foundation for an individual’s entire genetic composition, will be revealed to the scientists who are working to discover the etiology of human disease. The project the scientists are working on is the Human Genome Project (HGP) with its stated goal to create a complete map of all human chromosomes, showing the location and description of each gene in great detail.

Matt Ridley, the author of *Genome, (the Autobiography of a species in 23 Chapters)*, considers this accomplishment to be “the greatest intellectual moment in history, bar none.”² The author thinks the analogy between the completion of the project and the discovery of the Rosetta stone to be an appropriate one. One decipherment permitted mankind to understand hieroglyphics; the other will ultimately lead to the understanding of mankind’s genetic composition and origins. The scope of the Human Genome Project has been likened to that of writing a set of encyclopedias describing all human genetic material. The volumes were defined in 2000. The final stage will be to refine the genetic information contained in each volume. The research is progressing ahead of schedule and is estimated to be complete by the year 2003.³

Although the Human Genome Project (HGP) is not concluded, it is rapidly approaching completion ahead of the target date. When the HGP is complete, the

implications and applications for humanity will be immense; with impacts occurring on all levels of society, particularly in technologically advanced countries. During the next decade, the policy decisions made relating to the use of the information derived from this project will have equally far-reaching consequences for mankind. The project was written to answer the question: what impact will genetic technology have on the selection of California peace officer candidates by the year 2009?

Overview

During the next decade, biochemical codes for humans will be revealed that will unlock the cause of disease and other biological processes. Medical researchers and biologists will be provided with a book containing the recipe to understand human biology. This recipe is coded into the genome using a combination of three-letter words, using the four letters: “A, C, G and T (which represent adenine, cytosine, guanine and thymine), written on chains of sugar and phosphate called DNA molecules. Each chromosome is one pair of DNA molecules.”⁴ Currently, scientists can examine a person’s forty-six chromosomes and the DNA within to make determinations about known inherited diseases. To date, more than sixty genes that lead to disease have been identified and scientific breakthroughs occur almost monthly in genetic research areas.⁵

In 1996, a group of technology experts were gathered together by the Battelle group and asked to predict the most significant technologies ten years from that time. The experts predicted that genetic mapping would be the number one technology by 2006. These experts predicted the next ten years would be a golden age of biology, analogous to the computer revolution that occurred during the last ten to fifteen years.⁶ Enhancing the speed of the discoveries in the HGP are parallel technologies being developed in

computing. During the first week in August 1999, “Hewlett Packard and the University of California at Los Angeles jointly announced a new chemical process that may lead to micro circuitry as thin as molecules. With this kind of circuitry supercomputers would become a billion times faster than the machines today.⁷ This increased computation speed will increase DNA research discoveries which rely heavily on computers to decode the unknown number estimated at between 30,000 to 80,000 genes in human DNA. These genes are then further broken down in one billion components. Obviously computers greatly enhance the entire time consuming decoding process.⁸

The same Battelle group of futurists envisioned an explosion in genetic research during the next decade. The synergistic combination of explosive genetic research combined with enhanced computing will create medical improvements for all humanity. Genetic research may ultimately lead to the medical treatment and cure of most gene-linked diseases such as Alzheimer’s, Lou Gehrig’s, alcoholism and obesity. Researchers estimate that scientific discoveries such as those predicted would prevent thirteen million deaths from heart disease and another two million deaths from lung cancer, leukemia and colorectal cancer.⁹ In the not so distant future, parents may be able to have children with defective genes repaired in utero, via microsurgery on the defective genes or to have the faulty genes replaced with benign genes.

Another use for this technology would be to optimize the occupational selection process. The military of the future may utilize science to identify optimum candidates for specific occupations requiring specific characteristics. Occupations such as pilot, astronaut and other highly specialized occupations would be ideally suited for such

genetic profiling. Government agencies could use this scientific knowledge to optimize the selection process. Who could argue that such selective genetic profiling of the secret service agents that guard the President and the First Family is not a necessity? It would be a matter of National Security. Such practical applications over time would lead to a general level of acceptance for this type of intrusion, if the incursion was based on necessity and the benefits outweighed the loss of individual privacy. Biometric scanning is already occurring at events such as the Super Bowl and is being used to scan for previously identified terrorists et al, whose biometric data is retained in a data base.

The successful completion of the Human Genome Project will provide public and private employers the ability to benefit from the scientific knowledge, by using it for personnel selection purposes. Using this information employers would be able to accurately screen candidates for positive personality attributes, rather than to screen out only the undesirable and hope for the best. Law enforcement agencies could also use this technology to eliminate those candidates expressing undesirable characteristics that are gene based and select those who have desirable gene based characteristics.

Along with these exciting medical advances there will be concomitant complex social issues. These ethical issues will involve many different groups, with competing views that are strongly antithetical to each other. Sorting out the ethical issues from the personal agendas will take careful consideration. It is important to ensure that all parties are allowed a voice in determining the appropriate ethical course of action in these issues. Numerous ethical questions will be posed: for example, “What good is it to identify a genetic disease for which there is no cure and should children be genetically screened at

birth for defective genes?” These issues will become more prevalent as the project nears completion.¹⁰

In the government sector, personnel and other legal issues regarding hiring, insuring, occupation, advancement and assignment will need to be addressed by public agencies. According to a November 1999, labor employment update, “AB 1670- California Civil Rights Amendment of 1999, this law will make it unlawful for any public or private employer to require genetic testing from its employees or applicants.”¹¹ At the time of this writing it does not appear that the full impact of this legislation will affect public agencies, due to the existence of the bona fide occupational qualification exception. However, like any other law, it is subject to substantial legislative modification and or judicial changes, should the character of the Supreme Court shift appreciably during the next decade.

According to Nobel Prize- winning chemist Kary Mullis who discussed what is holding back genetic research, “it is religion that is making the government’s ethical viewpoints.”¹² Mullis thinks that religious interference with scientific research causes unnecessary delays. Delays in research cause loss of lives and increases suffering. In addition to religious objections to such research, another trend impacting biomedical research is gene patenting. According to Ralph Nader during an address on the issue of patents on human, animal and plant life, “We are now confronting the conversion of the genetic resources of the world into corporate monopoly.”¹³ Monopolies such as these compromise the integrity of the research and could actually prevent scientific collaboration because of the issue of patent rights and the potential for super profits.

These complex social issues will require lawmakers, religious leaders, special interest groups, community leaders, scientists and educators to work together, to redefine how society views disease and disability. Society's leaders will also have to determine the extent to which genetic profiling will be permitted to be used as a benchmark in employment selection by both public and private employers. Within the established legal framework these groups will chart the direction for the next decade. Industry standards will be established and special interests groups like the American Civil Liberties Union will undoubtedly share a pivotal role in setting the guidelines.

The Commission on Peace Officer Standards and Training (POST) already has written guidelines that govern a variety of criteria for the selection of California law enforcement candidates, and their role in these issues will be continue to be critical. The standards range from reading and writing ability to psychological suitability. POST's responsibility includes conducting research into the reliability of tests and procedures.¹⁴ The psychological tests used in conjunction with the other background instruments such as the polygraph and interviews, remain at best limited in terms of reliability as instruments of personnel selection. The entire selection process is time consuming, expensive and in need of improvement. An improved selection system should be more efficient, more cost effective and more reliable. Genetic screening offers the possibility of providing all those enhancements over the existing methods and improving the reliability of the results.

Another factor to be considered when examining the efficacy of using genetic screening in applicant selection is the increasing competition from the private sector. With a healthy economy and low employment, the private sector is in direct competition

for qualified law enforcement applicants. Based on the shrinking labor market, as senior employees begin to retire, they will be more difficult to replace due to a scarcity of qualified employees, suitable for hire. Recently at a POST symposium on retention and recruitment the data presented confirmed that twenty-percent of the workforce is over fifty years of age.¹⁵ As private security continues to grow, it too will compete for potential candidates from the same candidate pool. Using scientific knowledge to assist in the selection process to more efficiently develop tests to evaluate candidates should result in an improved success rate.

An important component of the issue is the public fear of violent behavior among peace officers. It is a current trend that will continue to exert influence on POST to enhance public agencies' ability to optimally select peace officers who will not abuse their authority. As a result of the recent scandals involving the Los Angeles Police Department's Rampart Division, the Board of Inquiry recommended that POST reexamine the issue of psychological testing in an effort to improve an agency's ability to weed out the unfit.¹⁶ Recently, the legislature mandated expanded training in racial profiling pursuant to 13519.4 P.C. and required the commission, in conjunction with a five person panel, to develop the curriculum.¹⁷

Unless genetic data using gene-based characteristics is used, POST will not be able to appreciably improve the process. Risk administrators automatically recognize the necessity for selecting peace officers who will not behave recklessly. In an effort to mitigate the effect of lawsuits being lodged against their agency, these managers strive to improve the selection process. Clearly all law enforcement would benefit from the ability to make an absolute determination as to the psychological suitability of a candidate

during the selection process. Ideally, candidates who possess empathy, excellent communication skills, intelligence, and cooperation would be selected. Candidates who possess violent, hostile, aggressive, cruel, paranoid, ethnocentric and anti-social personalities would not be selected. If this seems far-fetched or administrators are concerned about the costs of using this technology, consider the alternative. According to a recent Los Angeles Times article, “legal experts have estimated the city ultimately will be liable for more than 100 million in total damages as a result of the Rampart scandal. 30.1 million has been paid out in settlements” (to date).¹⁸ 100 million could be used to fund the necessary technology to improve the hiring process substantially.

Recommendation

Because of the rapidity with which these technological advances are occurring, it is necessary that law enforcement professionals begin to monitor the biomedical advances occurring as the Human Genome Project nears completion. Based on the information generated during the futures research conducted for this project and during the nominal group technique, it is strongly recommended that POST become involved in this issue. POST should convene a panel of experts in fields such as bio-ethics, religion, law, law enforcement, personnel administrators, biomedical researchers, etc. to monitor developments and develop policy regarding the use of this technology and its impact on the law enforcement profession. This panel could assist POST in the development of guidelines governing the selection criteria to be used for law enforcement candidates using genetic technology. It is further recommended that organizations such as the California Peace Officers’ Association become involved in the process and participate in

the panel of experts. CPOA could convene a Futures Task Force to address the issues facing law enforcement in this evolving area of technology.

Prior to the implementation of the revised guidelines, legal questions and challenges have to be overcome. Appropriate judicial review, assessment and in particular, the use of validity testing to determine the accuracy of this selection device must occur, before the use of genetics screening for law enforcement personnel can be implemented. Based on the results of those actions, POST could then begin the process of modifying the guidelines for minimum standards, by incorporating genetics screening (assuming it is scientifically proven and lawful), as part of the selection process.

It is recommended by the author the Executive Director of POST assume the leadership role in this process and be designated the Transition Manager with the assistance of the following organizations: the State Chiefs' and Sheriffs' Association, CPOA, State Cooperative Personnel Services, the American Civil Liberties Union, the Urban League and the American Psychological Association or similar professional organization representing psychologists. This diverse group could supply experts to assist the Director of POST with the various issues that will need to be addressed during the next decade. A DNA Consortium should be formed to coordinate, formulate, evaluate and perform oversight for the applications of DNA based screening for law enforcement candidate selection. This group would serve as a focus for research, development, testing, evaluation and application of DNA technology for law enforcement selection purposes. Included in their charter would be to establish safety, performance, legal and ethical issues that arise in the use of this technology. Of critical importance will be their opinions

on the core demand characteristics of the job needed, as well as desired in peace officer candidates.

Conclusions

This article explores some of the issues surrounding the use of genetic identification technology (DNA) derived from the HGP, as a major component of the candidate selection process used by law enforcement agencies. Available research has indicated that the use of such scientific technology will be a beneficial adjunct to the existing process and might ultimately replace the more subjective aspects of the psychological tests now utilized. Although there are still sufficient political-legal challenges that need to be overcome prior to the widespread acceptance and use of DNA in employment selection, true leadership will continue to explore this vision of change that has the potential to improve the quality of law enforcement service provided to the community.

As we approach the next millennium, all levels of law enforcement leadership are encouraged to examine their respective organizational paradigms. The old adage, “if it isn’t broken, don’t fix it,” has no application in the age of technology. The new saying will need to be, even if it isn’t broken, break it or at least take it apart, to see if you can make it work better. This vision of reengineering systems will be a key to success in the future. The majority of the structures and procedures used today in modern law enforcement organizations were developed from an eighteenth century industrial model. Many are still useful, some are less efficient and a few could be considered vestigial. Leaders at all levels must examine these structures and systems as we move from the machine age into the information age as it merges into the biological age.

Law enforcement is without a doubt one of the most stressful occupations in existence and it requires a multitude of abilities to perform optimally. Adding to that enormous professional stress are two tremendous changes facing law enforcement agencies: the computer revolution and the dawn of the age of biotechnology. The effect of computerization and its corresponding changes is already being felt throughout the criminal justice system. The bio-medical advances that will occur when the human genome project is completely decoded and understood will be equally significant, but may appear much less obvious.

The public continues to demand the highest possible standards for selection, yet existing techniques only screen out extreme behavior and have not been developed to the level of screening in positive attributes. The identification of behavioral characteristics including components usually attributed to personality via DNA technology will be available within the next decade. This information would allow law enforcement agencies to scientifically and objectively assess a candidate's suitability for the profession.

A final impact of the genetic research will be forthcoming during the next decade. This will be the impact on society's view of criminal behavior. For over one hundred years criminologists and sociologists have been focusing on environmental explanations for criminal behavior and ignoring biological explanations for deviance. Millions of dollars have been poured into efforts to reduce drug usage, improve literacy, eradicate slums, provide enhanced education, etc. without bringing about any appreciable decline in criminal behavior. If the Human Genome Project reveals that addictive behavior, certain violent impulsive behavior and other areas of human conduct that impact the

criminal justice system are inherited and therefore, not able to be environmentally mitigated, then the entire system will have to be reevaluated and revamped.

As recently as February 2000, researchers at the University of Southern California announced that violence-prone men have significant brain region deficiencies in the region of the brain that enables “most people to learn moral sensibilities and exercise self-restraint.”¹⁹ Based on such findings it is time for the psychology profession, like sociology and anthropology, to enter the twenty-first century and stop embracing nineteenth century theories that are antithetical to genetic explanations. In view of the scientific evidence, it can no longer sustain such ignorance. In fact a very unpopular explanation for the reduced crime rate most of the United States is enjoying, is the legalization of abortion. Definitely, this is a genetic explanation for lower crime, but not one that is openly discussed for fear of inviting severe criticism from many quarters.²⁰

Neither can the law enforcement profession afford to remain ignorant about genetics, waiting for others to deal with the implications. As was quoted in a science fiction book about genetic engineering, “few non-scientists had any appreciation for how different the world of the next twenty years was going to be from the world of the present, as different as the 1980’s from the 1780’s.”²¹ This is the reality facing law enforcement in this decade. The profession during the next generation will be as different from the current as the type of enforcement practiced at the beginning of the last century. As the etiology of crime and criminal behavior changes, so too will the strategies for dealing with these problems change. The war on drugs will no longer be fought by law enforcement personnel, but will be fought by scientists who hope to permanently change the outcome. Strategies to deal with the changing environment, whether it is Internet crime, technology

or demographic changes will need to be developed during the next decade to adapt to the fluid environment. Law enforcement may have to adapt to a more sophisticated white-collar criminal, rather than the drug-based crime that currently engages so many resources.

Changing the type of law enforcement practiced will also cause a modification in the type of practitioner needed in the profession. Those who have a tolerance for confusion, the ability to formulate long-term strategies as well as short-term tactics, abstract problem solving ability and high intelligence are some of the evolutionary traits that will be needed for success in the next generation of law enforcement. Given the speed of technological advances occurring almost daily as this project was being researched, if law enforcement administrators begin today, they will need to work rapidly to develop sufficient knowledge of the topic to make informed decisions in this vital area. To drive home the urgency of becoming involved in these developments it is important to understand that “ninety percent of what you need to know is outside your profession and twenty percent of what you know today will be obsolete in one year.”²²

The most important aspect of any discussion concerning the use of scientific technology is that it should not occur behind closed doors. These discussions need to be held in open forums and advertised to include a wide variety of opinions, diversity and debate. Creating consensus among the stakeholders will be difficult, but it is necessary to address the concerns of the majority on such a sensitive issue. Now is the time for law enforcement to take a dynamic leadership role in deciding who and how this vital technology will be used. This is an area of critical importance to all members of society. It is imperative that law enforcement personnel become active participants in the dialog

from the onset. To passively observe from the sidelines of society and let special interest groups make critical decisions that concern the future of the profession, without participating in the process would be to abdicate our responsibility to the future and to future generations of law enforcement practitioners.

Recently, a new trend has been noted that involves groups who are opposed to biotechnology. “With the practical demise of socialism, the left continues to look for new, and popular, issues; opposition to biotech may be one (such issue).”²³ This use of biotechnology as a wedge issue for groups that are striving to survive is an important trend to note. Special interest groups with legitimate issues about the ethical practice of research involving stem cells or cloning need to be included in discussions to ensure a diverse representation of various views is presented. The professional protestors however, present a different aspect that needs to be factored into future planning. It is time to start using twenty-first century technology instead of twentieth century procedures to hire employees who will need the highest level of trainable and sustainable skills to perform a challenging profession in a fluid environment, where the rules are never static.

Endnotes

¹William Wright, *Born that Way, Genes, Behavior Personality* (New York: Alfred A. Knopf, 1998) 259. [quoted from Sigmund Freud, *Beyond the Pleasure Principle*].

² Matt Ridley, *Genome, The Autobiography of a Species in 23 Chapters* (New York Harper Collins Publishers, 1999).

³ Elizabeth L. Marshall, *The Human Genome Project Cracking the Code Within Us* (New York: Franklin Watts, 1996), 9.

⁴ Ridley, 7.

⁵ Marshall, 9.

⁶ Douglas E. Olesen, "The Top 10 Technologies for the Next 10 Years," in *Exploring Your Future Living, Learning, and Working in the Information Age* (Bethesda: World Future Society, 1996), 71.

⁷ Leslie J. Nicholson, "Race is on for Fastest Computer," *San Diego Union Tribune*, 14 August 1999, C1, 3.

⁸ Ridley, 6.

⁹ Marshall, 9.

¹⁰ Ibid.

¹¹ "New Legislation Affecting Your Workplace," *Labor Employment Update* (November 1999): 2.

¹² Kary Mullis, interview by Vincent DeFranco, "Works in Progress 21st Century Inventions," in FeedMag; available from <http://www.feedmag.com/invent/mullis2html>; INTERNET accessed 2 December 1999.

¹³ Jacqueline Stenson, "Gene patents raise concerns Consumer advocates ask WTO to limit patents," in MSNBC NEWS; available from <http://www.msnbc.com/news/341612.asp>; INTERNET accessed 6 December 1999.

¹⁴ California Penal Code, § 13510(a).

¹⁵ Dr. David Swim, "An Issue of Retention and Recruitment," *Porac Law Enforcement News* (September 2001): 43.

¹⁶Board of Inquiry Final Report, Ch. 11 Conclusions and Recommendations, available from <http://www.lapdonline.org> accessed 14 March 2000.

¹⁷ California Penal Code, § 13519.4.

¹⁸ Racketeer Suits in Rampart Okd, “*Los Angeles Times*”, 20 April 2001, B1, 3.

¹⁹ “Size of Brain Linked to Violence,” *Science Daily*, available from <http://www.sciencedaily.com/releases/2000/02/00020375358.htm> accessed 29 July 2000.

²⁰ Thomas Esensten, “Change,” State of California, Commission on P.O.S.T., Executive Leadership Institute, Class 28, Session 6, August 16, 1999, 4.

²¹ Dean R. Koontz, *Watchers* (New York: G. P. Putnam’s Son), 225.

²² Edward Barlow, “Creating the Future,” State of California, Commission on P.O.S.T., Executive Leadership Institute, Class 28, Session 1, October 19, 1998, 1.

²³ Hank Greely, “A Revolution in Understanding How Life Works”, *San Diego Union Tribune*, 24 June 2001, G6.

Bibliography

Edward Barlow, "Creating the Future," State of California, Commission on P.O.S.T., Executive Leadership Institute, Class 28, Session 1, October 19, 1998, 1.

California Penal Code, § 13510(a) and § 13519.4.

Thomas Esensten, "Change," State of California, Commission on P.O.S.T., Executive Leadership Institute, Class 28, Session 6, August 16, 1999, 4.

Hank Greely, "A Revolution in Understanding How Life Works", *San Diego Union Tribune*, 24 June 2001, G6.

Dean R. Koontz, *Watchers* (New York: G. P. Putnam's Son), 225.

Elizabeth L. Marshall, *The Human Genome Project Cracking the Code within Us* (New York: Franklin Watts, 1996), 9.

Kary Mullis, interview by Vincent DeFranco, "Works in Progress 21st Century Inventions," in FeedMag; available from <http://www.feedmag.com/invent/mullis2html>; INTERNET.

"New Legislation Affecting Your Workplace, *Labor Employment Update* (November 1999): p.2.

Leslie J. Nicholson, "Race is on for Fastest Computer," *San Diego Union Tribune*, 14 August 1999, C1, 3.

Douglas E. Olesen, "The Top 10 Technologies for the Next 10 Years," in *Exploring Your Future Living, Learning, and Working in the Information Age* (Bethesda: World Future Society, 1996), 71.

Matt Ridley, *Genome, The Autobiography of a Species in 23 Chapters* (New York: Harper Collins Publishers, 1999), 5.

Size of Brain Linked to Violence, "Science Daily", available from <http://www.sciencedaily.com/releases/2000/02/00020375358.htm>. INTERNET.

Jacqueline Stenson, "Gene patents raise concerns Consumer advocates ask WTO to limit patents," in MSNBC NEWS; available from <http://www.msnbc.com/news/341612.asp>; INTERNET.

Dr. David Swim, "An Issue of Retention and Recruitment," *Porac Law Enforcement News*, September 2001, 43.

Henry Weinstein, "Racketeer Suits in Rampart Okd," *Los Angeles Times*, 20 April 2001, B1, 3.

William Wright, *Born that Way, Genes, Behavior, Personality* (New York: Alfred A. Knopf, 1998) 259. [quoted from Sigmund Freud, *Beyond the Pleasure Principle*, 1920.]