ANIL AGGRAWAL'S
Internet Journal of Forensic Medicine and Toxicology
The world's first online journal devoted entirely to forensic medicine and toxicology · Published 1 January and 1 July

VOL. 2, NO. 1
Downloaded from www.anilaggrawal.com · ISSN 0972-8074 (Online) · https://www.anilaggrawal.com/ij/vol_002_no_001/others/interview/butler.html

Interview with John M. Butler

(*John Marshall Butler grew up in the Midwest and enjoying science and law decided to pursue a career in forensic science at an early age. After completing an undergraduate education at Brigham Young University in chemistry, he moved east to pursue his graduate studies at the University of Virginia. While a graduate student, he enjoyed the unique opportunity of serving as an FBI Honors Intern and guest researcher for more than two years in the FBI Laboratory's Forensic Science Research Unit. His Ph.D. dissertation research, which was conducted at the FBI Academy in Quantico, Virginia, involved pioneering work in applying capillary electrophoresis to STR typing. After receiving his Ph.D. in 1995, Dr. Butler obtained a prestigious National Research Council postdoctoral fellowship to the National Institute of Standards and Technology (NIST). While a postdoc at NIST, he designed and built STRBase, the widely used Short Tandem Repeat Internet Database that contains a wealth of standardized information on STRs used in human identity applications. Dr. Butler then went to California for several years to work as a staff scientist and project leader at a startup company named GeneTrace System to develop rapid DNA analysis technologies involving time-of-flight mass spectrometry. In the fall of 1999, he returned to NIST to lead their efforts in human identity testing with funding from the National Institute of Justice.*

Dr. Butler is a regular invited guest and participant in the semi-annual meetings of the FBI's Scientific Working Group on DNA Analysis Methods (SWGDAM). In addition, he serves on the Department of Defense Quality Assurance Oversight Committee for DNA Analysis and as a guest editor for the Journal of Forensic Sciences. His more than 70 publications in the field make him one of the most prolific active authors in the field with articles appearing regularly in every major forensic science journal. He has been an invited speaker to numerous national and international forensic DNA meetings and in the past few years has spoken in Germany, France, England, Portugal, Cyprus, and Australia. In addition to his busy scientific career, Dr. Butler and his wife serve in their community and church and are the parents of five children.

Dr John M. Butler



He has written the bestselling Forensic DNA Typing, which earned a rave review from our editor Dr. Niels Morling.

Naturally we at the "Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology" wanted to know more about him. We approached him for an online interview and he graciously agreed. The interview was conducted for well over two months. Some excerpts.. ..)

Qu. 1. Is this (Forensic DNA Typing) your first book? Which books have you written before? On which subjects?

Ans. Yes, Forensic DNA Typing is my first book. I have just completed the second edition, which is about twice the size. It should be published in January 2005.

Qu. 2. What is your next book about? Does it have anything to do with DNA analysis?

Ans. The second edition of Forensic DNA Typing is just more of the same with an additional 10 chapters and updated material.

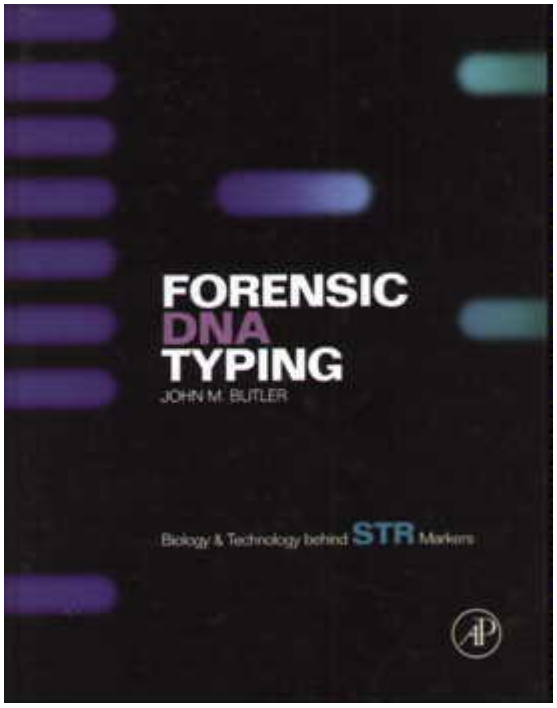
Qu. 3. Can you tell us about your career? Your educational background?

Ans. I have a Ph.D. from the University of Virginia (Charlottesville) but did my graduate research in the FBI Laboratory's Forensic Science Research Unit located at the FBI Academy in Quantico, Virginia. I have been working in forensic DNA research ever since.

Qu. 4. When were you born? How were you attracted to Forensic DNA analysis? Any interesting experiences? Interesting court experiences?

Ans. I was born near Los Angeles, California but grew up primarily in a small town in the northwest corner of Missouri. I became interested in forensic science while in high school and pursued education in chemistry and biology.

"Forensic DNA Typing" by Butler. The first edition was released in January 2001. The second edition - almost twice the size of first - is due to release in January 2005. Click on the picture to go to its review.



Qu. 5. Any fascinating experiences while writing this book, or while researching for this book?

Ans. I enjoyed learning more about the field while gathering information for the book, which has helped my research efforts over the years.

Qu. 6. Could you tell us about your family? Did you inherit the love of science/writing from your parents? How many children do you have? Would you be happy if they took up the Forensic Science as a profession? What are they doing now anyway?

Ans. My father was a college professor and my mother

Qu. 7. What do you love most (besides your professional work and writing of course)?

Ans. I enjoy being with my family. My wife and I have 5 children ages 8 to only a few months.

Qu. 8. Your favorite dish, book, movie, star, person?

Ans. I like lots of food and have no real favorites in terms of books, movies, stars, or people.

Qu. 9. What do you dislike most?

Ans. Nothing comes to mind.

Qu. 10. What do you consider as your biggest achievement in life?

Ans. Raising our 5 children. Of course, this work is on-going.

Qu. 11. If God asked you choose your profession again, what would it be and why?

Ans. I am quite pleased with my current profession. I enjoy helping and teaching others and am able to do so through my research and writing.

Qu. 12. What has been your biggest failure/disappointment?

Ans. I used to run a lot (and competed in marathons in college) but now have sore knees that prevent me from being as active as I would like to be.

Qu. 13. Have you ever traveled to India, or to Indian subcontinent? Would you like to visit, if such an opportunity arose?

Ans. I have never traveled to India and would probably enjoy doing so sometime. I try to limit my travel though so that I am not away from my young children too much.



"....I am quite pleased with my current profession. I enjoy helping and teaching others and am able to do so through my research and writing. ...."

Qu. 14. Let me ask you a few questions from your bestselling book. On page 31 you mention about FTA paper. What does FTA stand for?

Ans. FTA is a trademarked name of this product. I do not believe that there is known basis for the initials.

Qu. 15. On page 53, you mention how the term satellite came into being. In my experience this is the first time a book has tried to give the derivation of this word. However you mention that the term arose because one or more minor satellite bands were seen in early experiments involving "equilibrium density gradient centrifugation". Can you tell something about "equilibrium density gradient centrifugation". This term could be new to many of our readers.

Ans. I have never conducted "equilibrium density gradient centrifugation" so if a reader is interested in learning more about the technique they could probably look it up in some older text books. I do not think that this technique is used much anymore.

Qu. 16. On page 67 you say that work is in progress for a system which co-amplifies ALL the 13 CODIS STRs. Is such a system available now?

Ans. Yes, this information has been updated in the second edition of my book. Promega Corporation offers a 16plex kit called PowerPlex 16. Applied Biosystems sells a 16plex kit called Identifiler that also amplifies the 13 CODIS STRs. These kits have been available for several years and are now widely used throughout the forensic DNA typing community.

Qu. 17. On page 71, you mention that TH01 has a simple tetranucleotide sequence with a repeat motif of TCTA on the upper strand. The repeat motif is commonly referenced as AATG, which is correct for the complementary (bottom) strand.. How can TCTA and AATG be complementary? Can you please explain to our readers?



"....I have never traveled to India and would probably enjoy doing so sometime. I try to limit my travel though so that I am not away from my young children too much. ...."

Ans. Nomenclature of STR repeats depends on which strand is used and where a person chooses to start numbering the repeat. The upper strand should be TCAT in order to be complementary with AATG (and a single base shift). The TCTA listed in the text should be TCAT.

Qu. 18. On page 74 of your book, there is an interesting list of some additional STR markers. Can you tell our readers, the origin of names of STR loci such as FES/FPS, LPL, F13A01, F13B, CYAR04, ARA, APOAI1, ACTBP2, and so on.

Ans. Most of these STR loci are named for genes in which they are located. An interested reader would have to see the original publication for each locus to learn the full gene name.

Qu. 19. Dyes used to label PCR amplicons seem to have some fancy names such as JOE and NED. They are NOT acronyms. For instance JOE is 6-Caroboxy-2',7'-dimethoxy-4',5'-dichlorofluorescein. Can you please let us know the origin of these fancy names. Quite often there are interesting stories behind them. Our readers would be very interested in knowing them.

Ans. I do not know the origins of these dye names. Perhaps someone at Applied Biosystems where the dyes were developed could shed some light on this subject.

Qu. 20. You have given a fairly good introduction to how DNA markers are named (on page 18 for instance). On page 121, you mention some Y-Chromosome STR markers. The nomenclature of these is not clear. For instance, how is the marker Y-GATA-H4 named. Or how are DYS389 I and DYS389 II named?

Ans. Y-GATA-H4 was named by its discoverers (Scott White and colleagues) probably for the well position of the sample used to uncover the first sequence for this locus. The characteristics and background of DYS389I and DYS389II are examined in detailed in the new edition of my Forensic DNA Typing book.

Qu. 21. On page 254, while mentioning about O.J.Simpson's case you say that both RFLP and PCR markers were examined (a list is also given in table 17.1). You also say that no STRs were examined. However at many places in your book, it is implied that PCR methods and STR are almost synonymous. Can you explain please in some detail.

Ans. STRs were not adopted in most laboratories until the late 1990s and therefore not available in time for the O.J. Simpson case in 1994. Now we equate PCR methods and STRs because DQA1 and other early PCR tests not really used in the forensic community any more

Qu. 22. Are you interested in Science Fiction? Do you think SF is a good means to teach science to children?



"....I enjoy reading lots of books. Mark Twain is probably one of my favorite authors. ...."

Ans. I enjoy some science fiction but have not read much in the past few years because I have been too busy.

Qu. 23. What do you do in your spare time? Your hobbies, interests?

Ans. I do not have a lot of spare time. I am with my family as much as I can be.

Qu. 24. Are you religious? If yes, how do you reconcile religion with science, which is your profession?

Ans. Yes, I am religious. As a scientist I realize that we have a lot more to learn about the world around us. Someday we will understand as God does. Until then I will continue to learn from everything around me and try to become a better scientist and a better person.

Qu. 25. If a youngster of about 12-13 years wanted to take up Forensic Genetics/writing/science writing as a career, how should he proceed?

Ans. Study hard and learn everything you can in school.

Qu. 26. Your favorite authors/books?

Ans. I enjoy reading lots of books. Mark Twain is probably one of my favorite authors.

Qu. 27. Any message for our readers?

Ans. Nothing comes to mind on short notice.

Dr John M. Butler can be approached via E-mail at john.butler@nist.gov. The review of his book Forensic DNA Typing *appears in a future issue of this journal. Readers wanting to visit this review may want to the linked page (page001).*

Interview appearing in the previous issue Interview appearing in the next issue Interviews : Collective Index Interviews in our sister publication : Collective Index

IMPORTANT NOTE: ALL MATERIAL APPEARING IN THIS ONLINE JOURNAL ARE COPYRIGHTED BY "ANIL AGGRAWAL'S INTERNET JOURNAL OF FORENSIC MEDICINE AND TOXICOLOGY" AND MAY NOT BE REPOSTED, REPRINTED OR OTHERWISE USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE WEBMASTER