

FROM THE VOICES OF HISTORY - A SPECIAL EDUCATIONAL SERIES BY CRIME LAB REPORT

America's Sherlock Holmes in the early years of forensic science – an interview with Luke S. May

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About Voices of History

Forensic science is both young and old. As an organized profession shaped by strict quality management standards and higher educational requirements, forensic science is very young – less than 30 years old. But many of the most commonly practiced techniques have a long history of development and research that is often forgotten even by forensic science practitioners themselves.

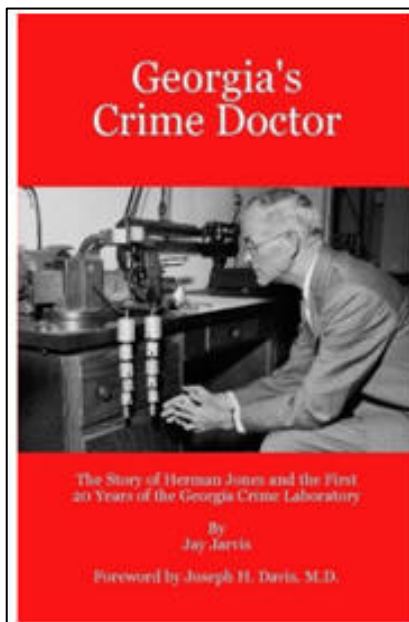
In our *From the Voices of History* series, *Crime Lab Report* resurrects pioneers and thinkers who were critical to the development of today's forensic sciences. In their own words, we learn of their contributions, their setbacks, and their perspective on contemporary issues facing the profession.

What follows are the comments of one such pioneer set within an imaginary interview conducted by *Crime Lab Report's* associate managing editor, Jay Jarvis. In some instances, actual quotes have been used. In other instances, *Crime Lab Report* has exercised editorial liberty by either carefully paraphrasing the individual or providing answers that are most consistent with comments appearing in various literature sources. Every effort has been made to preserve both the meaning and context of such comments.

If you have an idea for a *From the Voices of History* interview or would be willing to assist us in researching the literature, please contact our editors at editors@crimelabreport.com or call us toll free at 866-674-9194.

Introducing Luke S. May

Luke Sylvester May was known as America's Sherlock Holmes. For all intents and purposes, he was the first to apply the fascinating scientific methods portrayed by Arthur Conan Doyle in real life criminal cases in the United States.



Read more about the fascinating and rich history of forensic science in **Georgia's Crime Doctor**, written by *Crime Lab Report's* Associate Managing Editor, Jay Jarvis.

Copies of this book may be purchased at Amazon.com and many other book sellers.

Please contact *Crime Lab Report* for more information.

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May owned and operated an independent, private scientific investigative agency applying such forensic disciplines as questioned documents, fingerprints, trace evidence, and firearm and toolmark identification. He provided services to law enforcement in the early decades of the twentieth century – long before such agencies established their own laboratories.

May died after a long battle with Leukemia in 1965, but his impact during the earliest years of forensic science survived long after his passing.

Crime Lab Report's associate managing editor, Jay Jarvis, received valuable assistance during this project from Mindi Reid, the granddaughter of Luke May, and Mr. Jan Beck, a veteran questioned-document examiner who had previously compiled a significant amount of information about May's work and life. By collaborating directly with Mindi and Jan, Jarvis was able to uncover bits of information that can't be found anywhere else.

For example, May's unique skills and expansive body of knowledge regarding the most advanced methods for solving crime were of great interest to the United States government. According to his granddaughter, May "disappeared" into intelligence work immediately after the bombing of Pearl Harbor. To this day, the May family does not know where he went or what he did. All they know is that he left to serve in World War II as a Lieutenant Commander in the Naval Reserve and returned home as a full Commander.

Understandably, May's family was eager to speculate on what Luke might have been doing during the war. One story was told of a high-level Japanese spy who apparently masqueraded as a gardener at the May's Seattle home. As work broke out with Japan in the Pacific Theater, the gardener had left.

But it was the laborious research and practical knowledge taught to law enforcement agencies for many long hard years that made Luke May the "last of a breed." After the war, the famous independent consulting detective no longer had a major role in law enforcement or the coming era of "official" crime labs. Few cases came his way in his later years, except for those involving forgery and the like. Nevertheless, his unique intelligence and wisdom preserved a place for him in the history of the forensic sciences and earned him the respect and admiration of many who would follow him in the years following his death.

Please enjoy our conversation with Luke S. May, *America's Sherlock Holmes*. *****

CRIME LAB REPORT: Mr. May, can you tell us a little about your background and how you got started in the field of scientific crime detection?

LUKE MAY: Certainly. I was born in Nebraska in 1892. My parents were both immigrants and life was pretty tough growing up. As a youngster, I really enjoyed reading the tales of Sherlock Holmes, which whetted my appetite for real criminal investigation. After my family moved to Salt Lake City, I really became involved in the actual study of criminal investigation. I even had a German-speaking friend translate Hans Gross's classic treatise about the application of scientific methods to crime solving.

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CLR: How old were you when you began to investigate actual crimes?

MAY: When I was sixteen, I became involved in my first murder investigation, and at seventeen opened the Maylon Detective Service.

CLR: You were obviously one of the first people in the U.S. to recognize the potential of scientific analysis in the investigation of crime. Who did you learn from?



MAY: Hans Gross of Prague was considered by American students as the most outstanding disciple of science applied to criminal investigation. Alphonse Bertillon of Paris, who devised the anthropometric system of identification known as the Bertillon system, also stands out as one of those making vast contributions to modern scientific investigation. However, I think that the writings of Conan Doyle have probably done more than any other one thing to stimulate active interest in the scientific investigation of crime. All of these men helped introduce a fundamentally new technique in crime detection.

CLR: When did you first begin to apply these principles in real cases?

MAY: In 1914, I entered into a partnership with a man named J. Clark Sellers and opened the Revelare International Secret Service. While there were many private detective agencies during this era, what set us apart from the others was the emphasis we placed on scientific crime analysis, which was in its infancy in the United States. With our work based largely in the northwest, we moved our operations to Pocatello, Idaho the following year. In 1919, we again relocated, this time to Seattle, where I was based until I retired.

CLR: If these techniques were so revolutionary, why were they embraced so slowly by law enforcement?

MAY: Good question, but you have to remember that the crime problem in 1914 was nothing like what you are experiencing today. As crime increased rapidly over the years, so did the awareness of scientific criminal investigation. It's a matter of supply and demand.

CLR: If demand was so much lower in 1914, how did you go about educating law enforcement and the public about the use of science to investigate crimes?

MAY: Well, let me jump ahead to the 1920s and 1930s. I was called in to assist law enforcement with many high profile cases, the most notable being in the northwest. I always used my involvement with cases as an opportunity to teach and educate officers and prosecutors on the value of scientific criminal investigation.

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In the 1930s, I was contacted by the publisher of the popular magazine *True Detective Mysteries* and asked to collaborate with some of their writers to publish some stories detailing some of the more memorable cases that I had been involved with. The response from readers led to a monthly column in which I responded to reader's questions, which is something I really enjoyed. So even though crime rates were lower than you have now, I was able to appeal to people's imagination and their fascination with solving crimes.

CLR: You also authored some books during this time period, didn't you?

MAY: Yes I did. In 1933, I completed *Scientific Murder Investigation*, the first of two books targeted for the professional criminal investigator. The second book was entitled *Field Manual of Detective Science*. In 1936, I authored *Crime's Nemesis*, which was written for the general public.

CLR: That is an interesting title, why did you choose it?

MAY: When an individual commits a crime, he pits his wits and his chances to escape detection against life itself, every phase of it. Sometimes it would even seem that the criminal is shadowed by a sort of nemesis provided by fate to protect society. Though this metaphysical concept may seem superstitious, anyone who has been in contact with criminals realizes that subtle elements are often at work that eventually trip up the most clever of them. That is why the criminal is usually caught in the end. Always he is working against infinite possibilities for probable slip-ups, and no human brain ever existed that could go up against the infinite in any form and come out a winner. This universal law seems to be a watching nemesis that dogs the footsteps of the criminal.

CLR: With all due respect sir, you make it sound like every criminal is clear-thinking and logical in their acts. Many, or perhaps most crimes, are committed in the heat of passion or in moments of desperation.

MAY: Things were much different in my day and I am limited in my ability to comment on the societal factors that lead to crime in your world today – so I'm not going go there. I'll just say that it's the job of investigators to solve crimes. It's somebody else's job to study any social influences that cause people to commit crimes. I am a crime solver. In my day, forensic science, as you call it, was not a mass production operation. It's a shame that it became that. I spent a lot of time on each case and treated it with respect.

CLR: Fair enough. Let's assume, then, that we are dealing with professional criminals or habitual criminals that are the cleverest.

MAY: That's the point I'm trying to make. Events that occurred months or perhaps years prior to the crime, unknown to the criminal, may bring themselves into play. A passing stranger, a bit of hair or fiber left at the scene of the crime, the sudden fall of rain, a flash of lightning, an unexpected thaw, or any other element of nature may contribute to the criminal's detection. A bit of foreign matter under a fingernail, blood in the pores of the skin, characteristics typical of

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certain vocations-all such traces are used to bring down the vengeance of the law upon the head of the criminal.

CLR: What techniques were generally used to investigate crimes prior to the introduction of science?

MAY: From the days of Vidocq, who organized the first detective bureau in Paris in the early 1800's, the human elements of common sense and logic have always played a major role in crime detection. That will never really change, nor should it. But human factors can be notoriously unreliable. Before science, the criminal was simply traced backward from the crime beginning with possible motive and opportunity. It often involved examining all suspects, interviewing witnesses and, by the process of elimination, blaming the most likely person. Extracting a confession was usually the last step in this type of approach.

CLR: Yes, but at what point did science first become an apparent way to overcome human fallibility in investigations?

MAY: Think about it. How many people have gotten away with murder because the authorities were unable to prove their guilt? How many innocent men have been imprisoned because people made mistakes in identification? No two eyewitnesses of a particular incident will give identical reports. What each sees is influenced by so many factors. A state of excitement or terror will distort the true picture. Memories are notoriously faulty, many witnesses lie without malice, vanity may prompt some to fill in gaps in their story from pure imagination. Other witnesses may be moved by a mistaken zeal to be helpful to the investigator and report their own deductions and opinions as actual facts.

CLR: So if I understand you correctly, the benefit of using science in the investigation of crime was recognized early on not only to aid in the arrest and conviction of criminals but to prevent wrongful conviction as well?

MAY: Oh, most definitely. The chief value of physical evidence being scientifically analyzed and presented is not only the aid it gives in apprehending the criminal. It also avoids the pitfalls of eyewitness mistakes, hearsay testimony, and bogus confessions. That is why the scientific laboratory, with its test tubes and its precision instruments, can offer more reliable evidence to the court.

CLR: Crime laboratories are now being accused, by some critics, of causing the convictions of innocent people. Do you think this is true?

MAY: You may be interested to know that I conducted a study of cases over a period of some twenty years where innocent persons were convicted of serious offenses; however, in most instances such persons had long criminal records. So while justice may have gone wrong in a particular case, when you look at their entire past records and other crimes which they had committed and for which they were never tried, justice did not go entirely astray.

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CLR: That would be a profoundly risky and inflammatory position for a scientist to take in today's climate. After all, you just said that you were not concerned about the social aspects of crime.

MAY: You're misunderstanding me. I said that in my work of solving a crime I don't concern myself with what aspects of society may have caused it. That doesn't mean I can't contribute to a discussion about how society views wrongful convictions and expends resources to prevent them. For me, that was an area of professional interest. From my study of the known cases where innocent persons have been erroneously convicted of crimes, I estimate that the percentage of such persons is less than one-tenth of one percent of the total convicted. I can't say how often your modern crime labs send innocent people to prison, but I imagine it's quite rare.

CLR: With all the research you've done, it's no surprise that you did some formal teaching. Can you expand on that?

MAY: Yes, the Northwest Association of Sheriffs and Police established the Northwest College of Criminology to promote scientific criminal investigation. Qualified students were allowed to study under my tutelage. I also taught extensively at the law schools of the University of Washington, the University of Oregon, and Willamette University.

CLR: Who are some of the people within the criminal justice community who were the first to embrace the use of scientific methodology in the investigation of crime?

MAY: Some of the names that immediately come to mind are John Wigmore, Northwestern University School of Law; Andrew Cavanaugh, President of the International Association of Chiefs of Police; August Vollmer, University of California and former Chief of Police in Berkeley, California and Justin Miller, Assistant U. S. Attorney.

CLR: Wasn't John Wigmore instrumental in establishing one of the first crime laboratories in the United States?

MAY: Yes, in fact Dean Wigmore called me shortly after the St. Valentine's Day Massacre in Chicago. Many prominent individuals had concluded that the city needed a modern scientific crime detection laboratory, so I went to Chicago and helped to set up the new lab on the Northwestern University campus. I also responded to a request from the Royal Canadian Mounted Police in 1931 for assistance in setting up their crime laboratory.

CLR: So by the 1930s, you were beginning to see law enforcement agencies take an interest in establishing their own crime laboratories, and it appears that your work had a strong influence on this trend.

MAY: I like to think so. Since I was seventeen, I've studied the basics of almost every science, along with mechanical and electrical engineering. Much of this work, especially its application to crime problems, was original. Science had only recently become the handmaiden of the

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criminal investigator when I came on the scene. When I opened our scientific detective laboratory, it was one of the first of its kind in the United States, with few if any precedents to follow.

CLR: In your early days, which areas of scientific criminal investigation interested you the most?

MAY: Is this what you refer to now as a forensic discipline?

CLR: Yes.

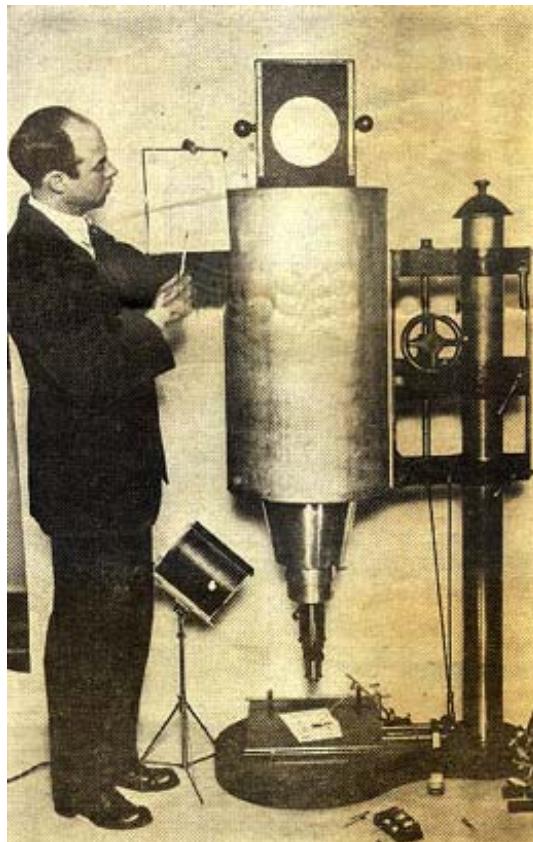
MAY: That's a difficult question to answer. I became interested in making toolmark identifications in 1912 while seeking to identify the particular tool used in a screw-cutting lathe to cut fine threads on parts of a scientific instrument. Microscopic examination of the cutting edges of the tools in question showed markings which were so characteristically different that it was quite obvious to anyone viewing them through the microscope which tool had cut the thread in question. These interesting findings provoked even further study. After a series of experiments, I conclusively proved that practically every tool used in the shop could be positively identified. Lathe tools were ground with a very fine stone and then honed to a razor-like cutting edge, and even when so sharpened, the microscopic marks made by them in steel, brass, bronze and copper could be identified as coming from the particular tool used.

Other tools, such as chisels, turning tools, axes, etc. were then studied. An early application of the method was the identification of a plane used to smooth the surface of a pine board forming the cover of a miniature casket in which an infant was buried. The identifying marks left by the imperfections in the bit of the plane were clearly visible when properly magnified.

Exhaustive research in hundreds of tests and examinations made of knife blades has proved to me that not only cuts made by a particular tool held in a fixed position or held in the hand can be identified positively.

CLR: You made mention of using a microscope, what types of equipment were available for this type of work?

MAY: Since the majority of such markings are invisible to the naked eye, I obviously needed some



Luke May demonstrates his Revelaroscope, formerly called the Magnascope.

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sort of magnification, but even ordinary microscopes were often inadequate. I found it necessary to design my own instrument, the magnascope, which I later called the Revelaroscope. It was seven feet high and weighed more than half a ton and had a magnification range between two and five thousand diameters. Instead of looking through a small lens at the object in question, it was projected on a screen ten inches in diameter.

CLR: From reading some of your writings, I remember a precedent-setting case in Washington State regarding toolmark identification, can you tell us about that?

MAY: Yes, that was an interesting case. In December of 1928 a young girl was brutally raped on her way home from school near Tacoma. The suspect had cut some branches and constructed a makeshift blind to hide behind while waiting for the victim. This was discovered by accident when an officer who was searching the scene grabbed a small fir sapling to push it out of the way and it came out of the ground with ease. It was actually a fir branch that had been freshly cut and stuck into the ground. Seven such branches were discovered. The sheriff demonstrated unusually good judgment by preserving these branches as evidence. When a suspect was identified, he was found to have in his possession a three-bladed pocketknife.

CLR: Was the knife brought to you?

MAY: Yes it was. When I examined it, I found pitch on the large blade similar to the type that comes from fir trees. However, the suspect had some greenery hanging in his room for Christmas which he said he cut with the pocket knife. So when I discovered the tool marks on the cut edges of the branches, I began making a series of test cuts in similar sized fir branches for comparison.

CLR: This can be a tedious process, can't it, since the precise area of the blade and the angle at which it is held is critical to making toolmark comparisons?

MAY: Absolutely. That is precisely why I designed a device that resembles the human arm including the shoulder, elbow and wrist joints, having variable adjustments that help to simulate the shoulder and elbow movements. The part holding the knife can be controlled and varied by a series of cams, pawls and levers to simulate the degree of supination and pronation of the wrist when making a cut. This makes it relatively easy to duplicate repeatedly the same cut using the same portion of the blade each time, the blade entering and passing through the wood at the same angle with relation to the plane surface of the portion cut.

CLR: I can't imagine a toolmark examiner doing something like that today. I guess that's the problem, as you said, with mass production in forensic science. So what were the results of your testing?

MAY: The test cuts were compared under the comparison magnascope until the angle at which the knife was held was determined and a perfect match resulted from cuts made with the knife. Photomicrographs were made and used in the court presentation.

CLR: How was your toolmark identification accepted by the court?

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MAY: I had good math on my side, something that your labs today should think more carefully about – if I may say so.

CLR: Absolutely. What kind of math are you talking about? Statistics?

MAY: Well, first of all, the case was tried in the Superior Court of Pierce County before Judge Hodge. The cut branches that were used in the construction of the blind, the stumps from which they were cut, together with the large photomicrographs of the cuts, were introduced in evidence. Considering only the major marks on this cut, it was mathematically determined that no other blade in the world would make a cut exactly like this. Using the algebraic formula for determining combinations and permutations, with only one-third of the marks used, there would be only one chance of there being another blade exactly like this if every one of the hundred million people in the United States at the time had six hundred and fifty quadrillion knives each. Using all the marks and the factors of depth, width and shape, it would carry to infinity. The defendant was convicted.

CLR: Was there an appeal?

MAY: Of course there was, but the Washington State Supreme Court affirmed the conviction in 1930 and issued an opinion on the tool mark identification that was cited in other states. I'll read it to you:

“Courts are no longer skeptical that by the aid of scientific appliances, the identity of a person may be established by fingerprints. There is no difference in principle in the utilization of the photomicrograph to determine that the same tool that made one impression is the same instrument that made another impression. The edge on one blade differs as greatly from the edge on another blade as do the lines on one human hand differ from the lines on another. This is a progressive age. The scientific means afforded should be used to apprehend the criminal.”

It was also gratifying that John Wigmore saw fit to include in his work, *Principles of Judicial Proof*, the development of this type of physical evidence, along with my illustration of my tool mark in this case. I also wrote an article in the *Journal of Police Science* about this case that may have inspired the wood expert Arthur Koehler in the Lindbergh kidnapping case in his identification of the plane used by Bruno Hauptmann to finish parts of his ladder used to reach the baby's bedroom.

CLR: In its opinion, the court acknowledged that persons could be identified by fingerprints, so I assume that this was common practice by this time. True?

MAY: Yes it was. At the time the Bertillon system had been almost entirely displaced by some form of fingerprint comparison. Even though there is ample evidence that the ancients knew of the characteristic peculiarities of the fingerprint, it was not used as a means of criminal identification until a relatively few years ago. Sir William Herschel made the statement that the ancient Chinese used the fingerprint as a countersignature on bank notes. Herschel himself had

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used it as early as the 1850s, working as a British officer for the Indian Civil Service, when he began putting fingerprints on contracts. He also documented his own fingerprints over his lifetime in an early attempt to prove permanence.

CLR: Nowadays, many have forgotten the deep historical roots that the forensic sciences have.

MAY: That's a shame. As is generally the case, it was a scientist who did investigations that became the basis for fingerprinting as you know it today. Sir Francis Galton, a famous English scientist, in his study of heredity, established the fact that no two fingerprints are ever alike. Following up this established theory, Sir E. R. Henry, Assistant Commissioner of Metropolitan Police, London, devised a simple but comprehensive system of filing and classifying prints in 1901, a method still in use today.

CLR: I understand you were also the first to recognize the value of fingernails as evidence. Tell me about that.

MAY: I did hundreds of experiments with nail clippings and was able as early as 1925 to develop a definite method for identifying the fingernails through a special means of incident and opaque illumination using the comparison magnascope, even after the nail had grown out. There were many factors in this system which I found made identification absolutely certain in particular cases.

CLR: So most of the scientific analyses that you pioneered were comparative in nature, correct?

MAY: Yes, that is true. Even today, one of the primary tools of the scientific detective is identification by comparison. Sometimes the scientist must determine minute differences or points of similarity between two or more things or substances. To this task science has brought its best skills, the microscope, the chemical test tube and the use of ultraviolet and infrared rays. The fluorescent properties of various substances, for example, has greatly aided the work of comparative identification.

CLR: What are your thoughts about hair comparisons. That has been a scientific discipline that has come under much criticism in recent years.

MAY: There is nothing wrong with hair evidence. You just have to use the results responsibly. Personally, it is still surprising to me the number of details that can be compared from the examination of hair. Unfortunately science still has not reached the stage where an expert can definitely and positively identify a hair as coming from a particular individual.

CLR: You also pioneered the study and interpretation of blood stains. You even coined a term for this new technique, which I'm not sure I can pronounce.

MAY: Sanguilologic, meaning blood, its location, and the logical conclusions drawn from it. It is pronounced sangwa-loko-logic. It is the science which pertains to the logical conclusions that may be developed based on the location, size, and shape of blood stains – drops or spatters

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found at the scene of a crime. Much can be learned from the study of bloodstains in their relation to a crime.

CLR: Let's jump way ahead to 2009. A recent report from the National Academy of Sciences recommended that crime laboratories be removed from the control of law enforcement agencies because of, in part, a perceived bias. Since you operated as an independent, what are your thoughts on this?

MAY: I recall a discussion I had with British officials about this very topic. For years, Scotland Yard did not maintain a complete scientific laboratory or scientific staff. However, when the occasion required, they used the foremost scientists and recognized experts outside the police establishment to analyze evidence. They often contended that scientific judgments would be better received as having been interpreted and presented from a disinterested scientific standpoint – in other words, experts not on the regular staff of the police department. But another reason that was cited was that scientific experts could not be attracted to continuous employment in a law enforcement laboratory because of the inability to pay the large salaries that such experts command.

CLR: That's more an issue of economics, isn't it?

MAY: Certainly. By the 1940's, crime was increasing so dramatically that the demand for scientific crime investigation went up also. This forced many police agencies to start their own laboratories. That being said, as long as experts are not subjected to undue influence and base their opinions on scientific reasons, their opinions should be sound because two and two will always make four. In some instances, opinions have been given without sufficient reasons to support them and in some cases by those who are not really scientists. The real scientific expert can demonstrate and point out to the jury the reasons for his opinion so that the jury may form its own conclusion.

CLR: These are very deep issues. I'm afraid that in today's mass production crime laboratory, scientists don't often take time to reflect on them.

MAY: I am reminded of the quotation posted in the classroom in the School of Scientific Police at the Palais de Justice in Paris:

“The eyes see in things only what they look for, and they look only for what is already in the mind.”

This should be a universal warning in scientific crime detection. Often the most significant evidence is overlooked or misinterpreted because someone has jumped to a premature conclusion.

CLR: What other advice do you have for the modern scientists working in today's crime laboratories?

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MAY: I have two things I'd like to leave with you. First of all, logic, the science of reasoning, is by far the most important of the sciences used in the detection of crime. The true scientific detective must first of all be a logician, one skilled and versed in the art of analytical and orderly thinking.

Second, no crime is committed without leaving a trail to the perpetrator. There is always a clue. True, it may not be detected in every case, but it is there. Modern crime detection methods and the marvelous developments in the scientific detective laboratories of today bring stupendous odds against the criminal. Your forensic scientists of today probably take this for granted. But in my day, it was a profoundly new way of looking at crimes and solving them in a more objective manner.

CLR: Mr. May, it has been a pleasure speaking with you today and on behalf of forensic scientists throughout the U.S. and Canada, I want to thank you for your pioneering work which laid the groundwork for all of us who followed you.

MAY: Thank you very much. The pleasure was mine. I'm thrilled that you were able to speak with my granddaughter, Mindi. I'm sure she was able to share some interesting facts that might be of interest to your audience.

CLR: She certainly did. But you seem to have lived a rather secretive life during your service in World War II. Your family would love to know what you were doing.

MAY: I'm sure they would! *****

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