



### B48 Dr. McCrone's Life of Science - Its Significance and Impact in Criminalistics From an Academic Perspective

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There is no question that Dr. Walter C. McCrone had a very significant and profoundly positive impact on training, scientist certification, and education in forensic science. The awards bestowed on him by an impressive array of scientific societies attest to this. But this is only part of the story. The contributions of his students and others he influenced are another. He was a multifaceted man with many talents. Among others he was a dedicated scientist, a gifted teacher, and a very successful entrepreneur. He was active on many fronts. Information and insights on these activities can be presented far better by other contributors to this session. On the subject of Dr. McCrone's successful entrepreneurship, it should be noted that the bulk of the proceeds from these endeavors was used to support worthy causes, including the vigorous promotion of microscopical teaching and research. In addition, although tuition was charged for his courses, he freely awarded "tuition free scholarships" to many students.

The author first learned of the work of Dr. McCrone 40 years ago as a forensic science student at the University of California at Berkeley. Dr. Paul L. Kirk introduced students to Dr. McCrone's contributions of particular relevance to forensic science. Dr. Kirk recounted and reviewed many of these for his students. It was at this time that the author first learned of electron beam microanalysis from Dr. Kirk's descriptions of Dr. McCrone's work with an early electron microprobe. There were many other examples including fusion microscopy. All stimulated the imagination of a young student of criminalistics.

Dr. McCrone was deeply concerned about the decline of and lack of appreciation for chemical microscopy. In the years following World War II, even more sophisticated chemical instrumentation was introduced into analytical laboratories at an increasing pace. Gradually chemical microscopy, once very widely employed, began to be abandoned for many applications in science and industry. Advocates of chemical microscopy, including Dr. McCrone, recognized that the newer techniques were more efficient for routine and repetitive high volume analyses, but that chemical microscopy was unsurpassed for complex non-routine problems such as those occurring regularly in criminalistics casework. Unfortunately, there were few such advocates. One illustration of the decline in the use of chemical microscopy, and of Dr. McCrone's efforts to counter this decline, can be seen in the publication history of a classic two-volume reference in this field. This reference was first published in 1930 by two of Dr. McCrone's mentors at Cornell University, Drs. Émile Monnin Chamot and Clyde Walter Mason. Volume I of the *Handbook of Chemical Microscopy* by Chamot and Mason went through three editions, the last of which was published in 1958. The first volume of the series had a broader appeal. It contained information applicable to a range of microscopical problems beyond chemical microscopy. Volume II, an unrivaled reference for microchemical crystal tests directed to the detection of inorganic ions, never made it past its second edition of 1940, although it did go through additional printings for about another 20 years. When copies of Volume II became scarce after John Wiley and Sons ceased publication, Dr. McCrone arranged to reissue it and distributed it at very low cost to students under his McCrone Research Institute (MRI) imprimatur. He also made other publications available to students at affordable prices. It is a pleasure knowing that Volume II of "Chamot and Mason" continues to be available to students. There is no substitute.

Dr. McCrone was far and away the most effective advocate of the virtues of chemical microscopy and the microscopical approach to problem solving. He decried the fact that this analytical approach had nearly vanished from university curricula and worked tirelessly to make students and forensic scientists aware of the exceptional power of the microscopical approach to problem solving. Although the centerpiece of the approach was the polarized light microscope (PLM), it assumed the intelligent incorporation of other analytical instrumentation. He saw that this approach was particularly well suited to problems in criminalistics.

The battle is not yet won. Dr. McCrone's mission does not end with his death and his work must be continued. In some ways the situation has worsened. Certainly on a percentage basis there has been a decline in the numbers of scientists who could be described as forensic microscopists. In large measure this is due to the rapid and sustained influx of personnel into forensic science laboratories to meet the demands for DNA typing. Trace evidence and the problem solving approach that Dr. McCrone espoused, as persuasive as his exhortations were, has been neglected. Even simple admonitions about "looking at the sample with the microscope before dissolving it or mindlessly stuffing it into an instrument" bear repetition. That this was difficult to appreciate suggests that more sophisticated concepts need to be explained. Dr. McCrone's torch must be picked up and carried it into the 21<sup>st</sup> Century where the next generation can carry it farther.

#### **Dr. McCrone, Forensic Science, Tribute**