1 Introduction

Forensic document examination, like all forensic specialties, is first and foremost based on knowledge. However, there are many other important aspects to the job that should not be overlooked because knowledge on its own is not enough to ensure the competence of experts. In this chapter these other aspects are described to give the reader some idea about these issues, which are easily overlooked but which are vital if the quality of forensic procedures is to be fit to be put before the courts.

1.1 Historical background

Just when and where writing started is not certain, but it has been around for thousands of years and probably first appeared in the eastern Mediterranean, at least partly driven by the need to record trading transactions among seafaring nations such as the Phoenicians – who may have been the first to create an alphabet.

Whatever its historical origins, once people started to write it was inevitable that others would start to abuse the written form for fraudulent reasons. In the intervening years, the criminal motivations have probably changed very little but the means to achieve them have changed beyond all recognition.

Document examination, and in particular handwriting examination, has been a recognised specialty in the context of the judicial systems of many countries for well over 100 years. Part of the reason for its early inclusion centres on the importance of handwriting, and in particular signatures, as a mark of agreement and endorsement to authorise various business and other transactions. The need for a third (independent) party to give an opinion about the genuineness, or otherwise, of disputed signatures and handwriting can readily be appreciated.

Foundations of Forensic Document Analysis: Theory and Practice, First Edition. Michael Allen.

Companion Website: www.wiley.com/go/allen/forensicanalysis

As technology developed in the late nineteenth and throughout the twentieth century new problems for document examiners arose in tandem with the expansion of business and commerce across the world, and as a result much of the work of the expert is concerned with commercial transactions. Nonetheless, the domestic environment continues to produce its share of cases, from anonymous letters to ransom demands to murder and terrorist activities.

Other strands of document production have their own separate histories, such as the production of paper, the use of printing, advances in ink formulation and writing implements and the development of the typewriter and its eventual replacement by the computer printer. The many faceted work that faces the document examiner tasked with determining a document's authenticity has made the specialty a mainstream forensic discipline present in forensic science laboratories across the world.

In the early days of the specialty, textbooks on document examination were few and far between and they generally focused on handwriting and signature examination, but in 1910 in the USA the first book to draw the disparate examination types together into one place was written by Albert S. Osborn and entitled *Questioned Documents*. Since then a number of textbooks have been written, each one able to give more up-to-date information as methods have improved and developed.

While document examination is widely regarded as a mainstream forensic specialty, and certainly there is no disputing the need for experts in this discipline if cases involving documentation are to be prosecuted, one question that needs answering is: Are the underpinning foundations of document examination robust? Or put another way, can the courts rely on the evidence that forensic document examination provides (and that individual practitioners present in a given case)?

1.2 Is document examination a science at all?

Forensic science, by its high profile nature and the considerable public interest in the subject – both in the real world and in fiction, is perhaps one of the most scrutinised of scientific endeavours. Given the consequences that arise from it (fines, imprisonment and more depending on the country) it is of course quite right that all areas of forensic science should be able to justify themselves so that the public can be as sure as is humanly possible that the evidence presented to the courts is the best available.

And there is the first (and most intractable) problem – forensic science is a *human* endeavour – it does not exist in a world where uncertainty and error are somehow suspended in striving for absolute perfection and reliability. The possibility of error should be the single biggest factor influencing practitioners as they endeavour to maintain as high a standard as possible in all that they do, as they determine the evidence in a case, and especially when assessing the weight of their evidence. Most of forensic science ultimately comes down to interpreting evidence, and that is a cerebral process conducted by the expert, whatever the specialty, based on whatever evidence has been discovered and evaluated. Thus, using technology to detect, analyse and measure amounts of material (be it drugs in the body or DNA on clothing) is often just the foundation upon which the expert's opinion is based. There are instances when the technology may effectively be providing the expert evidence – such as identifying what a suspicious white powder is (of course, using the technology correctly is itself an endeavour requiring expertise). But expert evidence is human *opinion* evidence, not machine-generated data. Indeed, one of the most important factors that defines expert witnesses is that they are allowed to, indeed are encouraged to, express an opinion about the significance of their findings. Opinion evidence is almost forbidden from other categories of witness in many legal jurisdictions.

In this context, the specialty of document examination will be seen in the following chapters to have to admit that it does not always have many databases upon which to call when assessing evidence. The greatest focus of criticism of the specialty has generally been on handwriting and signature examination (Risinger et al. 1989). As we will see in this book, much work has been done by various researchers to address some of the criticisms and in so doing provide reassurance that the knowledge and processes that underpin the specialty of document examination are of sufficient reliability to justify their use. The capability of individual practitioners is a separate matter that also needs consideration.

In many areas of science, the use of computing power has transformed the methods and procedures used and it is not surprising that this is also true in document examination, particularly so in handwriting and signature identification. Perhaps one of the principal motivations for such an approach is to remove (or reduce) the human element of the expert's opinion and replace it with a mathematical (non-human) result based upon a de-personalised evaluation of the evidence. In Chapter 2 some consideration is given to the use of computers in handwriting examinations. The fact is, however, that despite considerable amounts of research into computer-based methods of assessing handwriting, no method has emerged to replace the human expert. At best, some of the findings of these research endeavours provide assistance to, but in no way yet replace, the human expert.

The reason for this is that of all of the 'things' that forensic practitioners examine (from paint to glass to body fluids), handwriting is unusual in being the constantly varying physical product of the human mind and body, unlike any other physical material that forensic science tries to examine. (Some of the closest relations are forensic phonetics and forensic linguistics, which seek to examine the human voice and the way that we use language, respectively, and forensic gait analysis, which assesses how we move as we walk.) Handwriting examination does not have the luxury of having invariant materials to look at, be they glass fragments, flakes of paint, or stains from biological fluids, the analyses of which do not have to cope with intrinsic natural variability let alone variability that is under human control.

It can readily be seen why technological solutions that address questions such as 'what is this thing made of' are less difficult to answer than questions such as 'who did this handwriting', for example, given that every piece of handwriting is unique and people may deliberately try to disguise their writing or else someone may try and copy their handwriting. How does a computer [operator] factor in even those basic issues since there are no global rules that dictate how good or bad a particular person is at writing (or how variable it is), disguising or copying?

The study of handwriting can currently only be carried out by human practitioners, albeit potentially with some assistance from computers that can provide some supporting information in some instances. The processes involved in handwriting comparison are described in Chapter 2. In some ways the requirements are really quite simple to describe, as in essence they require a forensic document examiner to undertake a lot of study around the subject and gain experience in examining handwriting from many people in many case situations to build up a personal database of experience and information. This may seem to be a cause for concern since this leads to experts forming opinions based on reasons that are not freely available in the public domain but are rather based on thoughts that occur in their heads. This misses the point that experts must be able to show they have followed appropriate methods (such as those described in Chapter 2) and they must be able to demonstrate and justify their opinions to others (such as the court). Any specialty that allowed practitioners to say 'This is my expert opinion, take it or leave it' would rightly be discounted. Ironically, the more technologically advanced the methods used by a forensic practitioner, the more there is an element of trust between their evidence and those using it, simply because the complexity of the technology is beyond the understanding of the lay person. Indeed, the actual *working* of a piece of equipment may not be fully understood by the person operating it, but the *results* obtained from it (from which the evidence is then derived) are of course understood.

Science can be defined as an intellectual and practical activity requiring the comprehensive study of the structure and behaviour of the world by observation and experiment. Looking at the elements of this definition in relation to handwriting, the *activity* of handwriting examination encompasses both intellectual (interpreting what is observed) and practical (observing and recording findings) aspects. The examination process is *comprehensive* (it is based on a thorough and complete process not focusing on isolated aspects). The relevant structure is in the handwriting (and an understanding of its physiological origins) and the behaviour is covered by an understanding of the capabilities of people when writing. The experimental dimension is given in the body of published knowledge that can be drawn on by practitioners. And careful observation is the single most important element of the examination process whatever the forensic specialty.

The notion that science somehow exists outside of human endeavour, in particular in a machine-based, infallible and statistically perfect world, is not only wrong, it is potentially dangerous precisely because the human elements of understanding and interpretation can be all too readily subsumed to a machine that then conveniently becomes the source of error (thereby allowing a practitioner to be absolved from any implied criticism when an error occurs). This diminishes the role of the (human) expert to the point where personal responsibility for the evidence placed before, say, a court is deflected to machines.

Looking at this another way, there is an expectation that human forensic practitioners are infallible when presenting their evidence. This is as unreasonable as it is ridiculous. No aspect of human endeavour can live up to such a high level of pressure, not medical science, not computer science, not even the law.

The National Academy of Sciences report (National Research Council, 2009) into forensic science added another layer to this debate by insisting that *any* specialty should justify its methods *and* also require a process of ensuring that individual practitioners can demonstrate an appropriate level of competence. In other words, there is a (deceptively) simple two-stage process needed to make sure that the science is good and that the scientist is good, or more broadly, that the methods used in any forensic specialty are good and the practitioners are good (hence side-stepping the issue of just what constitutes science with all of the mental baggage that almost everyone attributes to it). Surprising to some might be the fact that even those specialties that are widely regarded as safest, from fingerprinting to DNA, are not immune from needing to demonstrate the theoretical and practical underpinnings of their practice.

Handwriting (with signatures) has come in for its share of attention in this wider debate and this has been very well summarised by Kirsten Jackson in Chapter 6 of the second edition of *The Scientific Examination of Questioned Documents* (Kelly & Lindblom, 2006). The standing of forensic evidence was tested in the US courts using what was often called the Frye test (named after a particular judgement in the USA) in which the concept of *general acceptance* of the methods and knowledge in a specialty amongst those working in the peer group was regarded as a reasonable approach to adopt. In other words, if most practitioners regarded a particular methodology acceptable then the courts would accept that as an adequate demonstration that it was sound.

In 1993, in the US Supreme Court, a decision was taken to consider this principle of general acceptance together with a different principle based on the idea that the court would accept evidence that was based on scientific or other specialised knowledge providing it was likely to assist rather than hinder the court and, crucially, it was left to the court to determine the acceptability (by questioning the experts) on a case-by-case basis. This was the so-called Daubert ruling.

These general principles then came to be applied to a case known in short-hand as Starzecpyzel in which the court described handwriting testimony as a technical skill rather than a science and called into question the underpinning of the subject. This has led to a number of studies (discussed in Chapter 2) to improve the published literature on the methods and reliability of handwriting and signature examinations in particular. Similar focus on improving the robustness of processes has occurred in other specialties. The net result has been a greater output of published materials aimed at demonstrating the underpinnings of all forensic specialties.

Specific cases and legal rulings do not apply to other countries and so these rulings did not have a direct influence in the UK. Nonetheless, forensic practice is a worldwide profession and it is wise that all practitioners should be mindful of developments elsewhere. There have been repercussions in the UK inasmuch as the legal authorities have looked at the standards behind expert evidence here too. In the UK a key role in this is played by the Forensic Science Regulator who is responsible for standards in forensic practice, working in conjunction with the practitioners in the various specialties.[1]

1.3 Quality assurance

The problematic nature of decision-making was highlighted in the previous section and its relevance to the forensic process is huge because forensic practitioners make many, many decisions during the course of their examinations. Depending on the specialty involved, the use of test results derived from various items of equipment will also need to be fed into the decision-making process. However, pieces of equipment, just like people, are also not infallible precisely because people build and maintain them.

Given these constraints, the notion of having another expert to check findings makes a lot of sense, since certain categories of error can readily be identified and corrected. Clerical errors are inevitably commonplace and having someone read over a report will reduce their occurrence – but not eliminate their possibility. To reduce the likelihood yet further, a second checker could be employed and even a third. This makes the point that all processes have to have a sensible limit, and having one or at most two checkers is a very fair and sensible way of reducing as close to zero as possible the probability of, say, clerical errors.

The request that an investigator makes of the forensic practitioner determines to a large extent what the expert will decide to do and, importantly,

[1] https://www.gov.uk/government/organisations/forensic-science-regulator.

not to do in the case. It is to be expected that a busy expert may misread or misunderstand what is required and this highlights a second purpose of any checking procedure, namely to make sure that the relevant questions have been addressed in the expert's report. This may seem uncontroversial, but it can cause problems if during a forensic examination evidence is uncovered that has not been asked for by the investigator but which may be relevant to the overall matter in hand. The expert can either ignore the non-requested evidence (but that might lead to a miscarriage of justice) or notify the investigator or, better still, put it into the report even if the investigator (or some other interested party) seeks to have it removed and, more likely still, refuses to pay for the extra time spent on the additional examination.

The primary reason for checking an expert's findings, however, is to get a second expert's view as to whether the conclusion (and the reasons leading to it) is reasonable and the weight of evidence expressed (opinion) is consistent with the outcome of the forensic examination given the circumstances of the case. The views of a second expert are clearly valuable since if two experts agree then it is more likely that the conclusion is robust.

However, there is one difficulty, and that relates to how experts in any specialty acquire their knowledge and experience. We all learn the vast majority of what we know and can do from others who have gone before. In a forensic practice context, that means gaining knowledge at, say, university and then being trained in a particular laboratory environment to gain experience of applying our knowledge. This can tend to produce a situation where a practitioner does what they have been taught and, in due course, passes that on to the next generation. If several organisations are able to carry out forensic examinations in a given specialty, it is likely that they all operate in slightly different ways, due to slight variance in practice advocated by the individual experts in each place, but also constrained by, for example, the availability of equipment. There is, therefore, the potential for institutional differences of approach in a given specialty, and indeed this does occur ('our lab does it differently to your lab'). In order to try to reduce the effect this might have on the consistency of evidence from different organisations, collaborative studies can be carried out that provide the same material for examination to those participating and the results obtained can then be compared and discussed. From such exercises, it is hoped that best practice (or good practice or, at least, highlighting bad practice) will emerge with a consensus view as to what methodologies are appropriate to given examination types.

Of course, practitioners can be tested to see how well they deal with such exercises. Testing is a normal part of most practitioners' work load. Tests can be declared (so that the practitioner knows it is a test) or undeclared (so-called blind trials). Declared trials tend to be much easier to arrange but they have the drawback that awareness of being tested does alter the 'psychology' of the situation with practitioners becoming more wary and looking for traps in the evidence, for example. Undeclared trials are better from this perspective since the practitioner treats them in a ‘normal’ manner, unaware that they are a test; but getting material into a laboratory with all of the administrative ‘red tape’ that is involved makes this a much less frequently used test procedure.

One particularly valuable form of testing is where experts in different laboratories are given the same test material and after completion the results are compared. This inter-laboratory regime is good at passing on good practice and should lead to common standards being applied so that the final users (investigators and the courts) obtain a reasonably uniform quality of result irrespective of which organisation they go to for their forensic services.

1.4 Standards in forensic document examination

There is much merit in the idea of determining and then publishing good practice guidelines in a forensic specialty for reasons of quality and consistency of evidence put before the courts. The highest level for such standards are the ISO standards published by the International Organisation for Standardisation (whose acronym varies in different languages so ISO was settled on as being similar to, but not identical with, any of the languages concerned). There is no ISO standard specifically for forensic practice, let alone document examination. The nearest standards that have been adopted are:

- ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories, and

- ISO/IEC 17020 Conformity assessment – Requirements for the operation of various types of bodies performing inspection.

ISO 17025 is the standard that closest matches the function of forensic practice, especially laboratory-based examinations. ISO 17020 applies more to the crime scene and its inspection since there is less emphasis on analysis and interpretation at that point in an investigation. Having stressed the value of consistency and cooperation between organisations (not just those concerned with *forensic* practice) in the previous section, such cooperation has been formalised in the International Laboratory Accreditation Cooperation (ILAC), which publishes guidelines that help to achieve this, one of which, known as G19,[2] has the purpose of interpreting the ISO 17025 standard in a forensic laboratory context.

The process of conducting assessments of laboratories against these two ISO standards is managed in the UK by the United Kingdom Accreditation

[2] Guidelines for Forensic Science Laboratories available online at https://www.ilac.org/documents/g19_2002.pdf.

Service (UKAS). The assessment process is very detailed and looks at both the *management* of an organisation and at the *technical* aspects carried out by the practitioners within the organisation. The reasoning is essentially that *both* aspects must be fit for their intended purpose if an organisation is to function properly: in other words neither a well-run laboratory producing poor results, nor a technically competent but poorly organised laboratory, would comply with the standard. Much of the assessment process looks at records (paper-based or more often computer-based) of laboratory functioning covering typical business functions but with some emphasis on those that might impact on the technical side, for example the repair and maintenance records of equipment or the environmental control records in a DNA lab. The technical aspects involve the pieces of equipment used, the reliability of the results obtained from them and the interpretation made by the forensic practitioners. In parallel to this is an assessment of the staff capability and training needs and thus there is some focus on individual practitioners – not with a view to registering each individual as competent but to establish that the organisation properly supports staff and tests their competence appropriately (for example by using trial cases with known outcomes) so that only those practitioners that the *organisation* is satisfied are capable of dealing with particular cases will be allowed to do so.

Thus the ISO standards are generic and do not contain any information relating to specific specialties. ISO 17025 in particular is primarily focused on test results from a laboratory (with the emphasis very much on equipment-derived results) and has very little to say about the interpretation of findings that lead to expert opinion evidence. To fill the gap in specialty-specific standards, there are published guidelines in many areas of forensic practice that describe in general terms how to approach various types of examination. For example, there is SWG (Scientific Working Groups) DRUG for drug analysis and SWGDOC for document examination. The recommendations made by these Scientific Working Groups are available online[3] and provide step-by-step summaries of good practice derived from the combined experience of a number of practitioners.

Another similar set of standards covering many aspects of scientific work, including a number relating specifically to document examination, is published by ASTM International (previously known as the American Society for Testing and Materials), which again can be obtained online.[4]

Compliance with the recommendations in these various standards is a good starting point for practitioners, who can be reassured that the practical methods that they employ are in keeping with what others in the field regard as appropriate.

[3] SWGDOC at http://www.swgdoc.org/index.php/standards/published-standards.

[4] at http://www.astm.org/Standards/forensic-science-standards.html.

Crucially, however, compliance with a standard or recommended approach is not a guarantee that the results obtained in a particular case will be correct or interpreted correctly. Obviously, the implementation of the methods and the interpretation of the findings require human skills, and this is where the competence of *individual* practitioners becomes the central issue.

1.5 Competence of forensic practitioners

The courts in most countries are the final arbiters of who can and cannot give expert testimony. In most countries, the courts have received advice as to how they should go about this because forensic evidence is widely recognised as being particularly valuable in many cases in assisting the court in its deliberations. Three of the key concerns are: (i) the robustness of the knowledge underpinning the specialty, (ii) the competence of the individual practitioner in front of the court and (iii) the relevance of the evidence to the case. Point (iii) is very much outside the practitioner's remit, but demonstrating individual competence is something that is central to establishing a witness's credibility.

In many professions, ranging from doctors to lawyers to architects, there are schemes that are designed to allow individuals to obtain recognition of their ability to do their respective jobs. Typically, such schemes may involve some sort of testing. Attitudes to such testing and the need for it have changed significantly in recent years, not least in the aftermath of the trial of Dr Harold Shipman for the murder of some of his patients, which had the consequence that professionals could no longer guarantee the trust of the public simply by virtue of their professional standing in the community. In addition, a number of high profile court cases in which forensic evidence played a significant part highlighted the need for forensic practitioners to justify their important place in the legal system.

The UK government devised a register of experts who had demonstrated their competence and set up an organisation, the Council for the Registration of Forensic Practitioners (CRFP), to manage the scheme. From 1999 to 2009 the register grew to around 3000 experts from a wide spectrum of different specialties. Due to a number of pressures on CRFP, it then became unable to operate and disbanded. However, the process that was used to demonstrate competence is of interest here. Competence was focused explicitly on current casework as opposed to, for example, formal qualifications. The central element of the test of competence was a peer review by an experienced expert from the same specialty of some recent casework (rendered anonymous). The assessment looked at how the candidate approached the case, the methodology used, the interpretation of the results and data in the context of alternative hypotheses, and the writing of an appropriate report, all of which constitute the main requirements of a forensic examination in any specialty.

Following the closure of CRFP, the Chartered Society of Forensic Science (CSoFS) initiated a register of experts aimed primarily at practitioners who were not employed by the larger forensic organisations and who were concentrating on gaining accreditation against the relevant ISO standards, a process that requires a lot of time and effort and the cost of which for some practitioners (in the widest sense of the word) makes it difficult to justify. The registration process adopted by the CSoFS involves peer review of some casework but in addition requires a candidate to undergo a test of their technical knowledge in their specialty, a test of their knowledge of their wider forensic awareness in relation to more general matters such as the working of the courts, the interpretation of evidence and their professional responsibilities and duties, and finally a test of their technical competence in a mock case exercise. This rigorous process, if completed successfully by a candidate, will entitle them to be registered on the CSoFS register of experts.

There is, therefore, a lot of attention being paid to the quality of forensic evidence that is put before the courts, attention that is a reflection of the increasingly important role that forensic evidence plays in judicial systems around the world.

Organisations and individuals that achieve accreditation and registration may feel that they have done all that is humanly possible to demonstrate to others their competence. But there is one more matter that they need to be aware of and that is perhaps the most intractable – cognitive bias – the unintentional misuse and misinterpretation of information by all of us.

1.6 Cognitive bias

Another issue that needs to be addressed, aside from the need to demonstrate the validity of the methodology and the experience and ability of the individual practitioner in a given specialty, is the universal problem of just how human beings make decisions, an issue that is central to all our endeavours and which nowhere comes under closer scrutiny than in the courts. The notion that any human being is a completely objective, robotic calculator of information is, of course, absurd. It follows that everyone is influenced (consciously or unconsciously) by all manner of facts and information and bias and prejudice and these require extra effort and procedures in an attempt to overcome them (Kahneman, 2011). The legal profession is itself not immune from the same issues, and it is therefore not surprising that given the many pieces there are to most legal jigsaws, and the fact that the ultimate decision-makers (such as judges and juries) themselves cannot escape from these cognitive effects, there has to be an acceptance that misjudgements (in the widest sense) will occur. Whilst this may be difficult to accept, it is much more dangerous if participants in legal matters think and believe that they are above such human failings because, in reality, no one can be.

Once this is realised, then it is possible to start to put in place measures that can minimise these effects. One obvious starting point is to make sure that an expert's findings and conclusions are checked over by another expert (see Section 1.3 above). Cognitive bias and, more broadly, the ways in which people make decisions, has become a major area of study but has only more recently been picked up by the forensic community. Research is being published into the effects it might have and how to minimise them in a practical environment. For example, suitable management of the flow of information in casework can reduce an expert's exposure to irrelevant potential sources of bias (Found & Ganas, 2013). Of course, one component of a submission can never be overcome, namely the fact that the material is being submitted for forensic examination at all means that someone somewhere thinks that it is worthwhile and more often than not it is submitted to confirm a pre-existing suspicion. That is not to say that sometimes material will be sent in for forensic examination with a view to ruling out either a particular suspect or to discounting a particular version of events. In situations where forensic examinations are directly paid for, there is a further danger that an expert might be influenced by this financial aspect of the transaction.

The decision-making process is obviously related to the way in which an expert makes the examination in the first place, and in some areas of forensic practice that require an assessment and interpretation of patterns (such as handwriting, blood pattern analysis and fingerprints) the way that the expert literally visualises the evidence is crucial since focusing the eyes on one part at the expense of another may form another unintentional 'bias' of perception (Dyer et al., 2006).

It is clear then that the underpinning science and technology, the competence of individual practitioners and the ways that they carry out their tasks, are all active issues in forensic practice, and this is a very healthy state of affairs since complacency is unacceptable in such an important profession. These issues are easily overlooked by those studying and thinking of starting careers in these disciplines.

1.7 Training to be a forensic document examiner

Forensic document examination requires a number of skills that need to be combined to give a well-rounded education that will lead to a career in the specialty. The remaining chapters of this book are concerned with the knowledge needed. However, no amount of knowledge can make up for the benefits gained from experience, and because much of what the document examiner does requires high levels of interpretation, gaining experience is an element of the job for which there is no substitute. For a potential recruit into the discipline this poses a problem, namely how to get into a career for which experience counts so much when having little or no experience to start the ball rolling. In reality, most trainee examiners will undergo what amounts to an apprenticeship, typically lasting two years or so, during which they need to be given the chance to work cases (as many as possible and with as wide a range of examination types – from handwriting to printing to altered documents – as come into the laboratory) while being mentored by an experienced expert.

To be able to do the job effectively, attention to detail, an enquiring mind, a methodical approach to practical problems and 'stickability' are all assets for the would-be expert. But the final product of most examinations in all areas of forensic practice is not 'the conclusion' itself, but rather the report or statement that is given to the investigator and which, ultimately, may end up presented in court as part of the evidence in a case. For this reason, it is also necessary that the practitioner has sufficient skills in writing clearly and concisely in order to describe the pertinent points of their examination for others (non-experts in the field) to understand. All of which can end up with the expert giving oral evidence in person, and this too requires another set of public speaking skills that do not come easily to a lot of people.

Jobs in forensic document examination are becoming fewer in the UK and perhaps in other countries too. This is in part likely to be a reflection of technological changes in that much that used to be done on paper is now done electronically. Nonetheless, there are still plenty of cases requiring the skills of the document examiner.

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