

SEPTEMBER 1980

CONTENTS

Section Notes	2
Study Group Activities	2
Committees for 1980-81	
Upcoming Meetings	3
Employment Exchange	4
Announcement	4
Ethical Dilemmas - Pete Barnett	
Thoughts on Discovery Examinations and Consulting Ethics - Lowell Bradford	7
CAC Code of Ethics in Relation to the Legal System - Parker Bell	9
Evaluation of the Nanometrics 10 Microspectrophotometer	
and the Leitz Ultropak - Duane Mauzey	22

This mailing contains two documents requiring your attention.

- The current draft of the revised ethics procedures. These will be discussed at the fall seminar.
- 2. A draft statement suggesting some changes in membership policy.

Submissions for the December Newsletter are needed. Send material, clean copy and single spaced, to

G.F. Sensabaugh School of Public Health University of California Berkeley, California 94720

The production staff for this issue were P. Kalish, L. Sensabaugh, J. Sensabaugh, and L. Sensabaugh.

SECTION NOTES

1. Northern Section

The annual Contra Costa chicken barbeque and volleyball tournement was held on 30 Aug. A pick-up team, Scrub II, won the trophy, much to the chagrin of the teams that had practiced for weeks in advance.

2. Southern Section

The August dinner meeting was hosted by the San Bernardino Laboratory. Featured was a talk by John Kennedy, Judge of the San Bernardino Municipal Court, on the role of the criminalist in court as viewed by the prosecutor, the defense attorney, and the judge.

STUDY GROUP ACTIVITIES

1. Southern Drug Group

The August meeting was concerned with cocaine analysis. Terry Fickies, Riverside DOJ, is the new chairman.

2. Northern Biology Group

The July meeting was devoted to further discussion of guidelines for the preservation of biological evidence. A third draft of a proposed statement was prepared from the discussion and circulated to the group and to the southern section group for comment. A final draft will be presented at the Yosemite seminar. In August, SERI hosted a meeting at which Janice Davis, from the Oklahoma City Laboratory, described her experience with the use of sperm morphology as an individualizing marker.

Southern Serology Group

At the June meeting, the discussion centered on three topics: responses to Nation, availability of blood type standards, and comparative methodologies for electrophoretic analysis. The latter two topics were continued at the July meeting. In addition, Keith Inman reviewed the problems of separating seminal and vaginal acid phosphatases. The August meeting was devoted to PGM subtyping; various methodologies were demonstrated.

4. Other Study Groups

No information regarding summer meetings was provided.

COMMITTEES FOR 1980-81

Awards..... Karen Sheldon Pete Barnett By-laws..... Rico Togneri Certification..... George Roche Education..... Ethics..... Tony Longhetti Paul Dougherty Historical..... Barry Fisher Nominating..... Professional Liaison..... Lance Gima Lance Gima Public Health Liaison..... Public Relations..... Jim Stam Steve Shaffer Training and Resources..... Ad Hoc: Ethics Procedures..... John Murdock Appointment to Ethics Committee Chuck Morton

UPCOMING MEETINGS

Canadian Society of Forensic Science -- Sept. 30 - Oct. 3, 1980

Toronto, Canada. Program chairman: John Wells, Centre of Forensic Sciences, 25 Grosvenor St., Toronto, Ontario, M7A 2G8.

Northwest Association of Forensic Scientists -- October 8-10, 1980

Eugene, Oregon. Program chairman: Charles H. Vaughan, 1500 Valley River Drive, Suite 120, Eugene, OR, 97401.

- American Academy of Forensic Sciences -- Feb. 17-20, 1981
 Los Angeles, Cal.
- 4. CAC Spring Seminar -- May 15-17, 1981
 Pasadena, Cal.

AND OF COURSE DON'T FORGET THE FALL SEMINAR AT YOSEMITE DURING NOV. 6-8, 1980

EMPLOYMENT EXCHANGE

1. Position Open

Metropolitan State College, Denver, Colo. Full time faculty position in criminalistics. Doctorate required. Apply to Dr. Jack Cummins, Chairman, Dept. of Chemistry, Metropolitan State College, 1006 Eleventh St., Denver, CO., 80204.

2. Position Wanted

Steven Brown. B.S. in Forensic Science, Eastern Kentucky University, 1980. Address: 2213 Gillis St., Alton, Ill., 62002.

3. Position Open

Criminalist, San Diego Police Department. Apply to Employment Information Center, City Administration Bldg. Lobby, 202 C St., San Diego, Cal., 92101.

Position Open

QD Examiner, Dade County Laboratory, Miami, Florida. Requires B.S. degree, two years experience and prior court qualification. Contact Edward Whittaker, Commander, P.S.D. Crime Laboratory Bureau, 1320 Fourteenth Street, Miami, Florida, 33125.

5. Position Open

The U.S. Army Criminal Investigation Laboratory (Pacific) is expanding its effort to recruit civilians to fill vacancies that periodically occur in its laboratories. Inquiries should be directed to

USACIL - Pacific Attn: Chief, Chemistry Division APO SF 96343

or

U.S. Army Criminal Investigation Command Attn: CIPA - ZCP (Mrs. Stephanie Williams) Room 117 5611 Columbia Pike Falls Church, VA. 22041

ANNOUNCEMENT

Journals Available

Orange County has J. Forens. Sci. Soc., vol. 5 (1965) - vol. 18 (1978) and J. Forens. Sci., vol. 12 (1967) - vol. 24 (1979) which they will give free to anyone who will pay the shipping fees. Contact Jim White.

Ethical Dilemmas

Peter Barnett

Forensic Science Associates

The dilemma posed by this month's ethics case is representative of numerous situations which develop in which legal and ethical responsibilities are in conflict. The circumstances are as follows:

In reviewing a case which has been worked up by a criminalist employed in a law enforcement laboratory, a consulting criminalist finds what he believes to be major discrepancies between the conclusions expressed in the report of the prosecution criminalist and the data as reflected in the laboratory records which were obtained by virtue of a discovery order. In some cases, the data in the laboratory notes are not reported in the report. For example, in the examination of a semen stain the presence of A antigen as indicated by an inhibition technique is not reported in the report, and the typing results of that stain are said to be inconclusive. In other instances, there are not data in the notes regarding the examination of certain items of evidence, yet such examinations are described in the laboratory report. After reviewing the report and the laboratory notes of the prosecution criminalist it is the conclusion of the consultant that, at the very least, the prosecution criminalist failed to keep adequate and accurate records of the work he did in the laboratory, and there is some indication that work that was reported in the report was, in fact, never done.

In examining the same items of physical evidence that were examined by the prosecution criminalist, the consultant's conclusions are not only at odds with those of the prosecution criminalist, but do not favor the defendant. After reviewing the reports and notes of the prosecution criminalist, and re-examining the same evidence that was examined by the prosecution criminalist, it is the consultant of the consultant that the findings of the prosecution criminalist are not only incorrect, but they are incorrect due to basic lack of understanding of the principles and laboratory procedures involved in the examination of this type of physical evidence. There is also strong indication that analyses reflected in the report were not done, and relevant data in the laboratory notes were not reflected in the written report.

As a result of the consultant's findings the defense attorney decides not to call the consultant as a witness, but to call the prosecution criminalist as a witness since the findings in the prosecution criminalist's report are more favorable to the defense than are the findings of the defense consultant. It is clearly the intention of the defense attorney to use what the consultant feels is incorrect and misleading evidence from the prosecution criminalist in an attempt to win an acquittal for his client. The question of whether or not the consultant has any responsibility to try and prevent this false and misleading information from coming before the trier of fact is not considered in this article.

This issue of concern in this article is that the consultant feels that, not only has the prosecution criminalist demonstrated a considerable lack of competence in the examination of evidence of this type, but that the prosecution criminalist has violated certain sections of the CAC Code of Ethics. Specifically

Sections 1B, 1E, 1F, 2C, 2E, 2H, and perhaps others.

The following courses of action are open to the consultant criminalist:

- Having advised the defense attorney of his suspicions the consultant is absolved of further responsibility, and must refrain from taking further steps as a result of the privilege which exists between him and the defense attorney.
- 2. Before the trial the consultant could contact the laboratory supervisor in the laboratory which the prosecution criminalist works. Although the consultant cannot divulge specific information from his work on the case he should indicate to the laboratory supervisor that he feels the prosecution criminalist has some short comings in which the laboratory director might be interested. Since he cannot divulge any information about this specific case, and perhaps even his involvement in it, the defense consultant cannot be very persuasive in his argument that the prosecution criminalist has not done a good job. Since he is unable to divulge the basis of his accusation to the laboratory supervisor it would seem the supervisor would be unable to take very effective action. This is especially so because many of the problems would not have occurred if there was adequate supervision.
- 3. Since the defense consultant cannot divulge any information that would violate the privilege which exists between him and the defense attorney he decides to wait until the trial is over and then present his findings to the laboratory supervisor. Although he has not had permission to do so from the defense attorney the consultant decides to present his information fully to the laboratory supervisor so that the supervisor can take whatever action is felt to be appropriate.
- 4. After presenting his information to the laboratory supervisor the defense consultant is told by the supervisor that, in the supervisor's view, there is no problem since no ethical violation of laboratory policy has occurred. The defense consultant then decides to present the entire issue as a ethics charge against the criminalist in front of the California Association of Criminalists.

Please indicate on the attached tear sheet your selection of the appropriate course of action in this case and return to the author.

The response to last month's ethical dilemma has been sparse, although a number of people have expressed interest. Steve Schaeffer writes, "I believe that the accused criminalist is entitled to the protection of his professional stature granted by confidentiality until such time as any accusations have been proven or substantiated under formal proceeding. However, if the knowledgeable second party criminalist is sufficiently confident of the truth of pending

Indicate below your resolution of	the September dilemma:
I would select alternative	
The controlling section(s) of the	CAC Code of Ethics is
Comments:	

Send to: Peter Barnett
Forensic Science Associates
P. O. ['x 8313
Emeryviile, Calif. 94608

allegations to have the genuine fear that a miscarriage of justice might occur if the accused is allowed to proceed with the case work then that second criminalist is bound by (Section 4D) of the Code of Ethics to attempt to prevent such a miscarriage of justice from taking place...the DA and perhaps a court would have to be taken into confidence and informed of the circumstances..." So far, of the three responses received, each of the respondents has chosen a different one of the alternatives present in the newsletter, with no one yet choosing alternative 4.

SOME THOUGHTS ON DISCOVERY EXAMINATIONS AND CONSULTING ETHICS

LOWELL BRADFORD

The recent dissertation in the March issue entitled "Ethics: A Case Dissucion" brings to mind that the subject of "discovery" in criminal cases is worthy of further discussion.

I engage in a considerable amount of "discovery" work for defense attorneys although my consulting services are primarily concerned with civil litigation.

During the period 1947 to 1973 while I was Director of the Laboratory of Criminalistics in Santa Clara County, I had the opportunity to see great changes in the law and policies concerning the revelation to defense attorneys of physical evidence in criminal cases. In the early years, defendants were not able to learn of the evidence against them until such time as it was introduced in grand jury, preliminary hearing or trial proceedings. Upon the introduction of examination results and interpretations, it was not uncommon for the defense to obtain a consultant midtrial, withdraw the evidence, have it examined and then proceed. This often interrupted trials in progress, required taking the evidence out of court for examination and generally disrupted proceedings.

The current method of discovery in advance of trial is a far better approach to the subject.

"Discovery" stems from the constitutional right of the defendant to be confronted by the evidence which forms the charge against him. Thus the forensic science reexamination of physical evidence held by the prosecution has several points:

1. To inform the defendant of the nature of evidence.

- To inform the defendant of the meaning and implications of the evidence and the role that it plays in the problems of proof of the charge.
- 3. To determine whether the examinations made by the forensic science resource of the prosecutor are correct, incorrect or lacking.
- 4. To determine whether the interpretations given to the examination results of the prosecutorial resources are valid, invalid or lacking.
- 5. To perform such additional examinations as may be necessary to accomplish the above points.

Laboratory findings are easy to verify if good notes of examinations, photos of physical matches and records of analysis are kept.

The verification of prosecutorial laboratory findings and interpretations frequently avoids trial struggles over these points and invaribly leads to a number of cases in which the physical evidence is not contested.

This spares both defendant and taxpayer the costs of trial time and even goes so far as to eliminate the necessity for trial in many instances.

The crime laboratory staff should welcome discovery as an opportunity to display good work and to avoid the cost of time unnecessarily spent in court appearances.

The defense examiner should not abuse the discovery process by game playing. His role is to relay the laboratory findings to the defense attorney in terms that are understandable and applicable to the problem of proof. It should be an inviolable rule that in the process of the discovery examination that there be no alteration of physical evidence of any kind without the express approval of the attorney client.

The examiner's relationship should be with the attorney and not with clients of the attorney. Any communication required with the client, with the adverse parties, the courts, etc. should be directed through the attorney client.

With reference to the "Ethical Dilemmas" of Peter Barnett in the June 1980 Newsletter, the proposition is wrong in that the scenario has the D.A. directly contacting the consultant for expertise beyond the capability of the local laboratory. Making liaison and obtaining specialized resource assistance should be the job of the local crime lab staff. The staff member should conduct a coordinating role. However it may be, it is always the duty of the crime laboratory professional to offer advice to the D.A. of the jurisdiction in which he operates. The closer this relationship is, the better is the situation. It is generally improper for a Criminalist to directly contact either the court or the adverse attorney. All communication should be conducted through the client attorney. Miscarriage of justice situations are the only exceptions.

CAC CODE OF ETHICS

IN RELATION TO THE LEGAL SYSTEM

by V. Parker Bell

The recent hypothetical cases proposed by Peter Barnett in the CAC Newsletter¹ have stimulated discussion regarding the application of the CAC Code of Ethics. While in many ways this paper is not directly responsive to Mr. Barnett's cases, I have attempted to do some research into the law as it relates to some of these issues, and particularly as it relates to the differences in conduct between criminalists employed by law enforcement and criminalists employed by defense counsel. Overriding all of these issues, whether they be requirements of the law or requirements of the CAC Code of Ethics, is the issue of "doing justice."

But, to keep our perspective, we must first define which is the dog and which is the tail, and who is to do the wagging. It cannot be the individual criminalist, nor criminalists acting together through the CAC, who define "justice," if such a definition varies from the definition imposed by the criminal justice system as a whole. The criminalist may not circumvent the ideals of the legislature nor the State nor Federal Supreme Courts, merely because his definition, or the definition of his associates, differs from the definitions of justice formulated by these bodies. The criminalist plays but one role in the whole scenario, and

he should be aware of what that role is.

As an example of misunderstood role playing, we can examine Joseph Wambaugh's The Blue Knight. Although some people may debate the literary merit of Wambaugh's writings, most would agree that the man has an uncanny ability to depict personalities. Most people who have been associated in law enforcement for any length of time will recognize the Bumper Morgan personality, that of an individual who has his own strong sense of justice. Bumper Morgan, therefore, imposed upon himself the roles of prosecutor, judge, jury and punisher. When necessary to achieve his own sense of justice, Bumper would violate the penal laws of the state or lie under oath. Most would agree that Bumper's philosophy is contrary to the real cause of justice, since our nation is a nation of laws and not of individuals. However, some criminalists have indicated their belief that, because their sense of justice requires the conviction of the guilty and the exoneration of the innocent in all cases, that they should be free to give their opinions without the restraints of the rules of evidence or criminal procedure. Merely because a criminalist may characterize himself as a scientist, however, he should not be exempt from such laws. Certainly, if a criminalist has done work on evidence which would have a significant influence on the trier of fact on the question of guilt or innocence of the defendant, and such evidence had been ruled inadmissible for some reason, it is not required by the CAC Code of Ethics that the criminalist circumvent the judge's ruling and express his opinion based on the suppressed evidence. An authority higher than the criminalist has determined that justice requires that such evidence not be produced.

Secondly, a basic question which is presented is this: What is the issue in a criminal case? It is <u>not</u> the guilt or innocence of the defendant, as I have heard some criminalists express it. Rather, it is: Can the prosecution prove the guilt of the defendant beyond a reasonable doubt? It must be remembered that the defense has <u>no</u> obligation. The defendant may not <u>raise</u> a reasonable doubt. It is the prosecution's burden to prove the case beyond a reasonable doubt. With the question presented in this manner, it can be understood why the rules of discovery in California allow for almost complete discovery by the defense but practically none by the prosecution; the issue of the evidence to be presented by the defense is really immaterial to the issue of the case, as it is expressed in this manner.

Thirdly, while our criminal justice system seeks to find the truth, many rules have been established which suppress the truth, because a higher sense of justice demands such a privilege. For example, probably the strongest privilege that exists in the law of evidence is the priest-penitent privilege, to which there is no exception. Would it not be more effective in convicting the guilty, if we could force the priest to divulge what was told to him in confessionals? It has been decided, however, that the principle that such communication must be kept inviolate is a stronger principle than the principle that the guilty should be convicted. Justice, therefore, requires that these confidences not be

divulged.

Despite his own desire to seek the truth, and his own desire to do justice, the criminalist is bound by the privileges which require him to keep confidential certain of the facts which may relate to the issue of the case.

Fourth, the roles of the various participants in the criminal justice system have long been set. A prosecutor's role is not just to obtain

convictions.

"A member of the State Bar in government service shall not in-

stitute or cause to be instituted criminal charges when he knows or should know that the charges are not supported by probable cause. If, after the institution of criminal charges, a member of the State Bar in government service having responsibility for prosecuting the charges becomes aware that those charges are not supported by probable cause, he shall promptly so advise the court in which the criminal matter is pending."2 The defense counsel, on the other hand, is to serve the best interests of his client, subject to the laws and the rules of professional conduct. He may not "seek to mislead the judge, judicial officer, or jury by an artifice of false statement of fact or law."3 Nor shall he "suppress any evidence that he or his client have a legal obligation to reveal or produce."4 If however, the counsel for the defendant can legally suppress evidence incriminalting to his client, he has the obligation to do so. Likewise, a criminalist employed by defense counsel--even if his own feelings are that the interests of justice are best served by putting before the jury all of the evidence, whether legally suppressed or not-may not circumvent this role of the defense counsel.

If we can accept the legitimacy of a criminalist working for

defense counsel, and the legitimacy of his being bound by the rules of law, we are faced with three* separate but confusingly intertwined doctines: the attorney-client privilege, the work product rule, and the obligation of the defense to turn over possibly incriminating physical

evidence to the prosecution.

The attorney-client privilege is probably the oldest of all privileges, having been known at the time of Elizabeth I. The character of the privilege has changed over the years, having been first for the attorney's benefit to keep his oath, and now to encourage the free flow of information between the attorney and client; it now exists exclusively for the benefit of the client. The privilege is defined in Evidence Code Section 952 to mean:

"information transmitted between a client and his lawyer in the course of that relationship and in confidence by a means which, so far as the client is aware, discloses the information to no third persons other than those who are present to further the interests of the client in the consultation of those to whom disclosure is reasonably necessary for the transmission of the information or the accomplishment of the purpose for which the lawyer is consulted, and includes the legal opinion formed and the advice given by the lawyer in the course of that relationship."

Information, therefore, is not privileged if an unnecessary third party is present. However, it has long been held that persons who are necessary for the effective use of the information—such as the attorney's secretary, stenographers, or translators—do not destroy the privilege. More recently, it has been recognized that others—such as investigators or expert consultants—are also a necessary part of the attorney's work, and disclosure of confidential communications to them also does not destroy the privilege.

An important distinction, which is sometimes difficult to apply, is that while the <u>communication</u> is privileged, this does not necessarily mean that the <u>subject matter</u> of that communication is also privileged. A matter not otherwise privileged, cannot be made privileged by the fact that it is communicated to the attorney. The communication must be distinguished from the subject matter of that communication. In <u>In Re Navarro</u>6, the attorney represented the defendant in a robbery case. Subsequently, the defendant was charged with murder and at the preliminary hearing the attorney, who did not represent the defendant in the murder case, was asked if she had shown a police report to the defendant, while she was representing him in the robbery. She refused to answer, claiming the attorney-client privilege. The court ruled that while the police report itself did not emanate from either the attorney or the client and was therefore not privileged, the act of showing the police report to

^{*}The rights granted under the Fifth and Sixth Amendments to the United States Constitution may also be involved, but will not be discussed here.

the client was a communication and did fall within the privilege*. In People v. Meredith, defendant advised his attorney in confidence that he had disposed of the victim's wallet in a trash can. The attorney then employed an investigator to look for the wallet. The investigator found the wallet and turned it over to the attorney, who then turned it over to police investigators. While the communication to the attorney as to the location of the wallet was within the privilege, the observation of the investigator was not privileged. Thus, at trial the prosecution was properly able to inquire of the investigator as to where he found the wallet --but on direct examination was not allowed to inquire as to why he looked there, nor as to his employment at the time he did so. (By divulging his employment, it would have been obvious to the jury as to why he looked there, thereby destroying the confidentiality of the communication by the defendant to the attorney.) This case did not discuss the attorney work product rule.

The attorney-client privilege presents a dilemma to the criminalist employed by defense counsel. In order to prepare adequately for the case, it is often necessary for defense counsel to divulge to the criminalist confidential communications received from his client. With this information, which has been unavailable to the prosecution, the criminalist may now make other tests and examinations beyond those made by the prosecution (since the prosecution had no idea of the relevancy of such examinations), and may now develop further information highly detrimental to the defendant. To divulge the fact of such findings would likely be to divulge the communication which emanated from the client. Only the client can waive the privilege, not the attorney, and certainly not the criminalist. The criminalist may, therefore, have difficulty in answering questions under oath so that he does not violate this privilege.

In the first case posed by Mr. Barnett**, the attorney-client privilege is not relevant, since the physical evidence itself did not originate from the client, and the discovery of the relevant evidence on the bullet was not the result of a communication from the client. However, the attorney's work product rule may still restrict the disclosure

of the observation.

^{*}Cf. In Re January 1976 Grand Jury (Genson v. U.S.), 534 F.2d 719 (1976), in which the client gave \$200.00 to his attorney about an hour after a bank robbery. The attorney refused to comply with a subpoena duces tecum before the Grand Jury, citing the attorney-client privilege. The court ruled that the mere payment of money cannot be considered a confidential communication.

^{**}Defendant is charged with attempted murder. A spent bullet is found at the scene in a location which would be unlikely, given the location of the defendant by a reliable eyewitness. The bullet is linked to the defendant by class characteristics consistent with a weapon owned by the defendant and by other ammunition owned by the defendant of the same type; it is not linked to the victim. The defense criminalist obtains the bullet from the prosecution and finds a fiber imbedded in it which matches fibers of the victim's clothes.

The attorney's work product rule finds its genesis in the United States Supreme Court case of <u>Hickman v. Taylor</u>. 8 In that case, defendant's attorney obtained oral and written statements from survivors of the sinking of a tugboat. Plaintiff sought production of these interviews. The Court ruled that the matter did not come within the attorney-client privilege; "The protective cloak of this privilege does not extend to information which an attorney secures from a witness while acting for his client in anticipation of litigation." The Court did, however, determine that this work product of the attorney was not subject to

discovery, except in cases of necessity;

"Proper preparation of a client's case demands that he assemble information, sift what he considers to be the relevant from the irrelevant facts, prepare his legal theories and plan his strategy without undue and needless interference....Were such materials open to opposing counsel on mere demand, much of what is now put down in writing would remain unwritten. An attorney's thoughts, heretofore inviolate, would not be his own. Inefficiency, unfairness and sharp practices would inevitable develop in the giving of legal advice and in the preparation of cases for trial. The effect on the legal profession would be demoralizing. And the interests of the client and the cause of justice would be poorly served."

California at first refused to follow this rule, the courts indicating that the legislature had expressly refused to extend the concepts of the privilege when adopting the discovery procedures. However, in 1963, Code of Civil Procedure, Section 2016 was amended to include in

subdivision (b) the following:

"The work product of an attorney shall not be discoverable unless the court determines that the denial of discovery will unfairly prejudice the party seeking discovery in preparing his claim or defense or will result in an injustice, and any writing that reflects an attorney's impressions, conclusions, opinions, or legal research or theories shall not be discoverable under any circumstances."

Subparagraph (g) states the policy for this rule:

"It is the policy of this state(i) to preserve the rights of attorneys to prepare cases for trial with that degree of privacy necessary to encourage them to prepare their cases thoroughly and to investigate not only the favorable but the unfavorable aspects of such cases and (ii) to prevent an attorney from taking undue advantage of his adversary's industry or efforts."

The legislature purposely did not define the term "work product",

leaving this to judicial interpretation.

Clearly the rule applies only to work done in anticipation of litigation; any document or other thing already in existence prior to the litigation is not protected from discovery under this rule. In Mr. Barnett's first hypothetical case, the fiber itself, therefore, could not be free from discovery, since, presumably, it was in existence on the

bullet prior to the time the attorney requested an examination of it. The question is: Is the observation of the fiber free from discovery?

The rule applies to protect attorneys in the preparation of their cases. The case law indicates, however, that material of a derivative character, such as diagrams prepared for trial, audit reports, appraisals, and other experts' opinion, developed as a result of the initiative of counsel in preparing for trial, are to be protected as work products. Many cases can be found in which the counsel has commissioned a scientific investigation, and then, presumably because the investigation established unfavorable facts, refused to divulge the contents of the report; in these cases, the courts have upheld such refusal to divulge the facts as being within the attorney's work product rule.

It should be noted that the attorney's work product rule is intended to prevent unfair advantage by the less industrious counsel, and not as an absolute cloak protecting all work done on behalf of the attorney. Thus, once a consultant is expected to testifiy as an expert, his status

changes:9

"When it becomes reasonably certain that an expert will give his professional opinion as a witness on a material matter in dispute, then his opinion has become a factor in the cause. At that point the expert has ceased to be merely a consultant and has become a counter in the litigation, one to be evaluated with others."

Thus, in the first hypothetical case proposed by Mr. Barnett, it would appear that if the analyst is called as a witness by the defense, that he may be properly examined by the prosecutor as to all of his observations of the evidence, and he may not exclude from consideration those

elements which are unfavorable to the defense.

While most of the cases interpreting the work product rule are in the area of civil litigation, the rule is also applied to criminal cases. In the case of <u>United States v. Nobles</u>, the defense attorney had hired an investigator to interview the witnesses, and used the investigator's report in cross-examining these witnesses. He then called the investigator as a defense witness, apparently to impeach their testimony with prior inconsistent statements. The District Court required the defense either to make available to the prosecution the report of the investigator upon which he was relying in his testimony or to forego the testimony of the investigator. The United States Supreme Court held that this was a reasonable exercise of the Court's discretion; by calling the investigator as a witness, the conditional work product privilege was waived, and the notes and reports were discoverable by the prosecution. The concurring opinion, perhaps somewhat better reasoned, argued that the attorney work product rule is merely a rule against pretrial discovery, and not a privilege at all.

It has been held that in a criminal case, the notes of the District Attorney in interviewing his witnesses, etc., is his work product and not discoverable by the defendant.11 In a later case, however, this was in

effect disapproved.12

"The district attorney is not an 'attorney' who represents a 'client' as such. He is a public officer, under the direct

supervision of the Attorney General who 'represents the sovereign power of the people of the state, by whose authority and in whose name all prosecutions must be conducted.'"

It should also be noted that there are two criteria contained within subdivision (b) of <u>Code of Civil Procedure</u>, Section 2016; the attorney's impressions, conclusions, opinions, or legal research or theories shall not be discoverable under any circumstances; the other work product shall not be discoverable except upon a showing of unfair prejudice. The courts have gnerally indicated that unfair prejudice would be such situations in which the party seeking discovery cannot obtain such information for itself. Thus, where one party sought to discover the opinion of an appraiser, such was not discerable, since the paryy seeking discovery could have its own appraisal done. On the other hand, where a party seeks discovery of interviews conducted of witnesses, and the witnesses are now dead or otherwise unavailable, discovery may well be proper.

Referring again to Mr. Barnett's first hypothetical case, by removing the fiber and either retaining it or destroying it, he may well be unfairly prejudicing the prosecution by making such evidence unavailable. By replacing it in its former location and returning it, however,

he has not prejudiced the prosecution at all.

There are not a great number of cases on the issue of the obligation of the defense counsel to turn over physical evidence to the prosecution. Of the limited number of cases in this area, though, the most

frequently cited are In Re Ryder 13 and State v. Olwell 14.

In Ryder the attorney represented a client who was charged with bank robbery. The attorney had been advised that his client had had in his possession some "bait money" on which the serial numbers had been recorded. The client told the attorney that he had been paid to put a bag in his safe deposit box by a person whose name he could not divulge. Ryder, the attorney, did not believe this story. He advised his client that if the government could trace the money in the box to him, it would be almost conclusive evidence of his guilt. After consulting with various members of the local bar association and soliciting their advice, Ryder obtained a power of attorney from his cleint authorizing him to open his client's box and remove the contents. Ryder rented another safe deposit box at the same bank and removed the contents of his client's box, which consisted of the money from the bank robbery and a sawed-off shotgun. It was Ryder's intention to return the money to its rightful owner eventually, but in the meantime to destroy the chain of custody so that the money could not be used as evidence against his client. Ryder believed that his acts were privileged under the attorney-client privilege. Ryder was subsequently charged with violation of the canons of professional ethics and was suspended from practice before the court for eighteen months.

"Viewed in any light, the facts furnished no basis for the assertion of an attorney-client privilege. It is an abuse of a lawyer's professional responsibility knowingly to take possession of and secrete the fruits and instrumentalities

of a crime. Ryder's acts bear no reasonable relation to the privilege and duty to refuse to divulge a client's confidential communication. Ryder made himself an active participant in a criminal act, ostensibly wearing the mantle of the loyal advocate, but in reality serving as an accessory after the fact."

In <u>Olwell</u>, the attorney refused to produce his client's knife at a coroner's hearing, asserting the attorney-client privilege, since he had obtained the knife as a result of information received from his client during a conference while the client was in jail during a homicide investigation. The attorney was held in contempt of court and appealed. The Supreme Court of Washington held that the subpoena duces tecum served upon the attorney was overly broad and violated the attorney-client privilege; it therefore reversed the finding of contempt. The court continued,

"We do not, however, by so holding, mean to imply that evidence can be permanently withheld by the attorney under the claim of the attorney-client privilege. Here, we must consider the balancing process between the attorney-client privilege and the public interest in criminal investigation. We are in agreement that the attorney-client privilege is applicable to the knife held by appellant, but do not agree that the privilege warrants the attorney, as an officer of the court, from withholding it after being properly requested to produce the same. The attorney should not be a depository for criminal evidence (such as a knife, other weapons, stolen property, etc.), which in itself has little, if any, material value for the purposes of aiding counsel in the preparation of the defense of his client's case. Such evidence given the attorney during legal consultation for preparing the defense of his client's case, whether or not the case ever goes to trial, could clearly be withheld for a reasonable period of time. It follows that the attorney, after a reasonable period, should, as an officer of the court, on his own motion turn the same over to the prosecution.

We think the attorney-client privilege should and can be preserved even though the attorney surrenders the evidence he has in his possession. The prosecution, upon receipt of such evidence from an attorney, where charge against the attorney's client is contemplated (presently or in the future), should be well aware of the existence of the attorney-client privilege. Therefore, the state, when attempting to introduce such evidence at the trial, should take extreme precautions to make certain that the source of the evidence is not disclosed in the presence of the jury and prejudicial error is not committed. By thus allowing the prosecution to recover such evidence, the public interest is served, and by refusing the prosecution an opportunity to disclose the source of the evidence, the client's privilege is preserved and a balance is reached

between these conflicting interests. The burden of introducing such evidence at a trial would continue to be upon

the prosecution."

It is important to note that the <u>Olwell</u> court found the <u>delivery</u> of the evidence to the attorney to be within the attorney-client privilege, although the evidence itself was not so privileged. This is consistent with the long-standing rule that evidence which is not in itself privileged cannot be made privileged by the mere delivery of it to an attorney.

Olwell does not go into detail about what is meant by the phrase "which in itself has little, if any, material value for the purposes of aiding counsel in the preparation of the defense of his client's case." In Olwell, the attorney apparently made no attempt to have any analysis made of the knife. The tone of the case implies, however, that if such an examination of the knife had been made, the knife would have to have been turned over to the prosecution upon the completion of the testing.

In such cases bearing on the obligation of the defense to turn over physical evidence to the prosecution, there is an apparently absurd distinction drawn. If the attorney had never actually received physical possession of the evidence, he would have had no obligation to see that it was delivered to the prosecution, and the attorney-client privilege would have prevented him from divulging his knowledge about it. In Clark v. State¹⁵, the attorney advised his client over the telephone that he should dispose of the murder weapon. This was held not to be within the prupose of the attorney-client privilege and was therefore not privileged;

"When the Dallas voice advised appellant to 'get rid of the weapon'...such aid cannot be said to constitute aid 'in making or preparing his defense at law.' It was aid to the perpetrator of the crime 'in order that he might

evade an arrest or trial."

However, had the attorney merely advised his client of the probable consequences of the gun falling into prosecution hands, such advice would have been proper, although the same final consequence--destruction of the weapon by the defendant--would have ensued. There is, therefore, a great reluctance by defense counsel to obtain physical evidence unless they are fairly well assured that it will be helpful to the defendant.

The leading California case in this area is People v. Lee¹⁶. The defendant was charged with having kicked the victim to death. The defendant's wife turned over his shoes to the public defender, who then turned them over to a municipal court judge when private counsel was appointed to represent the defendant. The district attorney subsequently obtained the shoes through a search warrant, and they were introduced into evidence over defendant's objections. The shoes contained bloodstains matching the victim's blood; a bloody footprint at the crime scene appeared to have the same sole pattern as one of the shoes; and a human hair on one of the shoes matched samples removed from the victim's head. The court ruled that the seizure of the shoes by the district attorney did not violate the defendant's rights; "A defendant in a criminal case may not permanently sequester physical evidence such as a weapon or other article

used in the perpretration of a crime by delivering it to his attorney." The court further ruled that there was no attorney-client privilege involved in this case, since the shoes were delivered to the attorney by the defendant's wife, and not by a communication from the defendant to his attorney. There was, therefore, no violation of the defendant's

rights by the seizure of the shoes.

The most recent case of note in this area appears to be Morrell v. State .17 The defendant was charged with kidnapping and rape, having held a girl hostage in his home for eight days and raping her at least once a day. While he was in custody awaiting trial, a friend lived in his house. The friend turned over to the defense attorney a writing tablet which contained the kidnapping plan written in the defendant's handwriting. The attorney held the evidence and requested ethics opinions from both the Alaska Bar Association and the American Bar Association as to its proper disposition. The Alaska Bar Association gave an opinion advising that he return the evidence to the person from whom he received it and advise that person of the law with regard to suppression of evidence. The attorney followed this advise, without making any recommendation to the defendant's friend, advising him of the law but not advising him as to whether or not he should deliver the evidence to the police. The friend did, in fact, deliver the evidence to the police, and it was admitted at trial. The Alaska Supreme Court affirmed the conviction, apparently finding that the ethics ruling from the Alaska Bar Association is the correct interpretation of the law. It requires little comment to point out that such advice in that opinion may relieve defense counsel of a difficult choice, but it does little for the criminalist in the position described by Mr. Barnett.

In cases dealing with the obligation of the defense to turn over physical evidence, the courts usually buttress part of their arguments

on a penal statute similar to Penal Code Section 135:

"Every person who, knowing that any book, paper, record, instrument in writing or other matter or thing, is about to be produced in evidence upon any trial, inquiry or investigation whatever, authorized by law, wilfully destroys or conceals the same with the intent thereby to prevent it from being produced, is guilty of a misdemeanor."

This argument, of course, begs the question. If the material is privileged, it cannot be produced, and the destruction would not be criminal.

It may be noted in passing that there is no distinction between such rules relating to fruits and instrumentalities of the crime and to "mere evidence." At one time, such a distinction was made regarding the type of evidence that would be subject to a search warrant. 18 Apparently the rule was intended to protect against "fishing expeditions" under a search warrant, in order to protect a person's home and papers from unreasonable searches. However, in 1966, the United States Supreme Court rejected such a rule. 19 "Indeed, the distinction is wholly irrational, since, depending on the circumstances, the same 'papers and effects' may be 'mere evidence' in one case and an 'instrumentality' in another." The rule had previously been rejected in California both by statute and

case law. 20 Penal Code section 1524 provides in part as follows:

(a) A search warrant may be issued upon the following grounds:
(4) When the property or things to be siezed consists of any item or constitutes any evidence which tends to show a felony has been committed, or tends to show that a particular person has committed a felony.

Since any item of evidence which is not in some way privileged cannot become privileged by the simple transfer to an attorney, and since <u>Penal Code</u> section 135 imposes a burden on the possessor of evidence to produce any evidence which is not privileged, it would appear to follow that "mere evidence" cannot be privileged, whether or not in the possession of an attorney, merely because it is not the fruits or instrumentalities of a crime.

In Mr. Barnett's first hypothetical case, the facts related are that the evidence is not obtained from the defendant nor from an agent of the defendant, but from the prosecution itself; the facts further assume that the prosecution is unaware of the existence, or at least the significance, of certain evidence contained therein. None of the cases cited above reaches the question of the obligation in such a case. Rather, they hold that the defense may not unreasonably withhold or destroy evidence prior to the prosecution's opportunity to utilize it.

It could be argued that once the prosecution has had its opportunity to examine the evidence the defense should not be prevented from then destroying it or otherwise making it unavailable. It may be noted in this regard that when evidence is released to the defense that there is normally a stipulation or order that the chain of custody from that time until the return of the evidence to the prosecution whall be considered intact and that if the evidence is lost or destroyed by the defense that such fact will

not render the evidence inadmissible.

On the other hand, it can also be argued that events may occur (e.g., the death of the criminalist who first examined the evidence for the prosecution) that can require reanalysis by the prosecution. If the defense is allowed to tamper with the evidence after receiving it from the prosecution, there may, in some cases, be little difference from the situation in which the defense is the first to obtain the evidence. I find such an arguement to be unpersuasive for two reasons. First, if the privilege claimed is the attorney work product rule, there is probably an exception for good cause in this situation, in which the analysis by the defense criminalist would have to be devulged. Second, the Constitutional right to effective assistance of counsel requires that the defendant be allowed to have reexaminations of the evidence made by his own experts. In at least some of these cases, destructive testing will be required. To deny the defendant the right to have such tests made would be to deny him the right to counsel. The only realistic approach for the law enforcement criminalist is, therefore, to perform all of the tests he feels will be necessary prior to delivering the evidence to the defense criminalist.

I have been unable to find any cases directly on point in this area of the law. The situation is analagous to the story in which there was a great confusion about the rule of law in a certain area. A case which would determine this question was finally appealed to the high court, where it was to be decided by the seven justices. When the court rendered its

decision, the first justice rose and stated that the law was very clear and held for the plaintiff; the second and third justices agreed that the law was clear, but held for the defendant. The fourth and fifth justices also indicated that the law was clear, but agreed with the first, finding for the plaintiff; the sixth justice also felt the law to be clear, and held for the defendant. All eyes fell on the chief justice as he rose to announce his decision. He declared, "The law is very clear on this point." He then gasped, grasped his chest, and fell dead of a heart attack. The interpretation of this case is that the law is clear, but it is uncertain. This is the same state of affairs in which the criminalist employed by the defense finds himself. The law is clear that if the matters are privileged, he may not divulge them. It is equally clear that if the matters are not privileged he may not withhold the information. However, the law is uncertain as to which is which.

Considering the drastic results which could result from an incorrect decision, I propose still another alternative course of action in Mr. Barnett's first hypothetical case: The defense counsel delivers the fiber to the court and requests a ruling from the court as to whether the fiber -and, more importantly, the information relating to the discovery of the fiber -- is admissible. While at first glance this option may appear attractive, it, too, has a problem associated with it. The court would almost certainly require a hearing at which the prosecution would be heard. This necessarily requires that the prosecution would be heard. The prosecution would therefore learn of the facts surrounding the discovery of the fiber. While some people might not see the harm here--if the fiber is ruled inadmissible the prosecution cannot use it--the fact remains that if the evidence is ultimately determined to be priviledged, the defendant has lost a part of the benefit of that privilege. Inadmissibility is only a part of the privilige; the privilege also includes the benefit that the prosecution is not to discover its existence. Thus, by following this course, the attorney, to protect himself and the criminalist, necessarily sacrifices a significant part of his cilent's possible right. It can be easily seen how damaging this could be to the defendant; if the judge rules that the defense criminalist's observations are inadmissible but the fiber itself is not privileged, the prosecutor may be able to evidence the location and significance of the fiber through other means; the privilege would therefore have benefited the defendant not at all.

Although the situation posited by Mr. Barnett is not an unreasonable one to expect, a far more common situation presented to the criminalist employed by the defense is the following: Defense counsel has received information relayed by his client in confidence indicating the location of certain physical evidence desired by the prosecution; defense counsel is not certain whether such evidence may be helpful or harmful to the defense of the case (e.g., blood stains on an item may indicate self defense, but could more closely tie to defendant to the act; several weapons may have been used by various people, and it is unknown whether the defendant's weapon caused any injuries); before determining whether he wishes to have possession of this item, defense counsel confers with a criminalist regarding the potential value of the evidence, both to the prosecution and the defense. I would seem that under these circumstance there would be no ethical prohibition for the criminalist to give his best judgment to the attorney. Further, if it is determined by the attorney that he does not wish to have possession of the evidence, and such evidence is never recovered by the prosecution through other means, it seems clear that the criminalist is restrained from divulging any information about it that he received through such communications.

This conclusion does not, however, appear to serve the cause of justice. Would it not be a better rule for the defense to seek out the evidence and the criminalist to examine it? If the results are favorable to the defendant, the evidence can be delivered to the prosecution; if they are unfavorable, the defense could return the evidence to the same place it was found. Under the present state of the law, this does not seem possible.

Nothing above is intended to indicate that a defense should not be bound by the CAC Code of Ethics. Rather, I feel that the ethics must be interpreted in light of the requirements of our legal system. In so doing, instance of actual conflict between the law and the CAC Code of. Ethics should be nonexistent, or at least extremely rare. In the event of a conflict, however, it would be absurd to bring ethics crarges against the crimalist merely for following the dictates of the law.

NOTES

- 1. CAC Newsletter March, 1980, June, 1980
- 2. Rule 7-102, Business and Professions Code, Section 6076.
- 3. Rule 7-105, <u>Business and Professions Code</u>, Section 6076.
- 4. Rule 7-107, Business and Professions Code, Section 6076.
- 5. Evidence Code, Section 952
- 6. 93 Cal.App.3d 325 (1979).
- 7. 98 Cal.App.3d 925 (1979).
- 8. 329 U.S. 495, 67 S.Ct. 385, 91 L.Ed. 451 (1947).
- 10. 422 U.S. 225, 95 S.Ct. 2160 (1975). Cf. People v. Thornton 88 Cal.App.3d 795, 152 Cal.Rptr.77 (1979), in which it was held to be a violation of defendants' Fifth Amendment right to compel the defense investigator to disclose his notes.
 - 11. People v. Boehm, 270 Cal.App.2d 13, 75 Cal.Rptr. 590 (1969).
- 12. Shepherd v. Superior Court, 17 Cal.3d 107, 130 Cal.Rptr. 257 (1976). See also People v. Williams, 93 Cal.App.3d 40, 155 Cal.Rptr. 414 (1979), which appears to uphold non-disclosure of work product, but excludes notes of interviews conducted by the district attorney from "work product."
 - 13. 263 F.Supp. 360 (E.P. Va.), aff'd 381 F.2d 713 (4th Cir. 1967).
- See also, 54 Virginia Law Review 145 (1968).
 - 14. 64 Wash.2d 828, 394 P.2d 681, 16 A.L.R.3d 1021.
 - 15. 261 S.W.2d (Tex.) 339 (1953).
 - 16. 3 Cal.App.3d 514, 83 Cal.Rptr. 715 (1970).
 - 17. 575 P.2d (alaska) 1200 (1978).
 - 18. Gouled v. United States, 255 U.S. 298
 - 19. Warden v. Hayden, 387 U.S. 294 (1966).
- 20. People v. Thayer, 63 Cal.2d 635, 47 Cal.Rptr. 780, 408 P.2d 108 (1965).

EVALUATION OF THE NANOMETRICS 10

MICROSPECTROPHOTOMETER AND THE LEITZ

ULTROPAK

by

DUANE L. MAUZEY SANTA BARBARA LABORATORY

(Reprinted by Permission from the DOJ Tieline)

The Home Office Central Research Establishment has conducted several studies on the use of microspectrophotometry in the analysis of fibers and paint. HOCRE has also conducted an evaluation of the Nanometrics Nanospec 10. The results of these studies can be found in HOCRE Reports numbers 214, 224, 306 and 329, available from John DeHaan in TSU. As a direct consequence of these studies, the Home Office laboratory system acquired eight Nanometrics Nanospec 10 microspectrophotometers in 1979. These instruments are used in conjunction with laboratory microscopes for the rapid, non destructive analysis of fibers and paint chips.

The instrument has several advantages: Only minimal sample preparation is necessary - simply put the item to be examined on a microscope slide, then on the stage of the microscope. The analysis is non-destructive, and demonstrates a greater than 0.95 discrimination power. That is, the microspectro-photometer is capable of discriminating between 97 of 100 fibers of the same apparent color but of different origins. The analysis is rapid, requiring only a few minutes. The instrument can be adapted to fit nearly any trinocular microscope such as the Leitz Orthoplan which is in each of our regional labs.

The Nanospec 10 will record scanned spectra over the visible range by transmitted light for fibers, by reflected light for paint, and by fluorescence for some types of glass, paper finishes, and fabric finishes. The Home Office has acquired an accessory microcomputer for each of their microspectrophotometers. It was this system that I recently challenged with several paint samples at McBain Instruments in Chatsworth. The paint samples consisted of three knowns and three unknowns.

From other work in the case, it was clear which known belonged to which unknown, and that they all shared a common origin. The case was a two way vehicle paint transfer involving three different colors of paint. Each sample was scanned from 400nm to 700 nm in one minute. Also, each sample was scanned at three different spots in order to determine the variation within each sample. The total analysis of sample preparation, 18 measurements, and data evaluation took less than one half hour.

In this case, visible spectra were not recorded, although they could have been. Instead, the instrument and its microcomputer were used to generate quantitative

colorimetric data for each sample at three different spots. In colorimetry, tristimulus values of X, Y, and Z (equivalent to hue, value, and chroma of the Munsell system) are derived by multiplying, at each wavelength in the visible spectrum, the radiant power $S(\lambda)$ reaching the microspectrophotometer from the sample by a number $\bar{x}(\lambda)$, $\bar{y}(\lambda)$, or $\bar{z}(\lambda)$ representing the color matching response of the instrument to that radiant power, and then summing the products over the wavelength range where the colormatching functions are finite.

Thus: $X = k \int s (\lambda) \vec{x} (\lambda) d\lambda$ $Y = k \int s (\lambda) \vec{y} (\lambda) d\lambda$ $Z = k \int s (\lambda) \vec{z} (\lambda) d\lambda$

The constant k is a normalizing factor. The numerical data reported, which included the average of three tests plus the standard deviation, could be directly compared to determine if the unknown and known were similar or not. As indicated above, this procedure has a very high discrimination value. It can be used to quickly sort out dissimilar items from similar items, as well as provide useful data to use when establishing whether or not two samples could have had a common origin.

I enthusiastically endorse the opinion of HOCRE that the Nanometrics system is a very useful instrument in the analysis of paint and fibers.

The Nanometrics system is also available in the wavelength range 800 to 2700mm for scanning in the near infrared. IBM in San Jose uses this instrument in the quality control of polymer products that they produce in that plant. The individual in charge of that program is Max Vogel (408) 256-1660. The near infrared detector is only 1/100 as sensitive as the visible detector. As a consequence, the accessory microcomputer is an absolute requirement for use in the near ir in order to perform ordinate expansions and curve smoothing operations that make the near ir spectra readily useable. Nanometrics has made several applications studies showing the utility of their instrument in the near ir for making polymer identifications. Thus, the combined visible/near ir instrument plus microcomputer can be used for the rapid and non-destructive colorimetric comparison of pigments and the identification of polymer type. The microcomputer will also give transmission as well as absorbance values, will do background subtractions, smoothing and normalization of curves, and difference and overlay spectra.

The cost, of course, is a consideration. The microspectrophotometer starts at \$8,000.00 for the 220-900nm model, and \$9,000.00 for the 400-2000nm model. There is also an 800-2700nm model, and combination systems are available. The spectral data processor microcomputer is about \$12,000.00. If a decision for acquisition is made, and funding permits, I would recommend that a combination system covering the range 220 to 2700nm with microcomputer be given additional evaluation, followed by purchase if found satisfactory.

There is, of course, the consideration of the microscope to be used with the microspectrophotometer. The Leitz Orthoplan that each regional lab has can be used as is for microspectrophotometry in the transmitted light mode. However, if one wishes to extend his microspectrophotometry into the uv range, then it becomes necessary to add at least one objective and eyepiece with quartz lens elements in order to transmit the uv light. For the reflected light mode, necessary for opaque specimens, it is essential to have episcopic illumination

and episcopic objectives. This is in order to cut down on the specular reflectance from the specimen which would interfere with the quality of the spectra one would obtain from the instrument. The episcope system for Leitz microscopes is called the Ultropak.

Recently, I was able to obtain a Leitz Ultropak for evaluation in this laboratory. The Ultropak consists of a special nosepiece which replaces the standard nosepiece on the microscope, and special objectives that go on the nosepiece one at a time. The Ultropak requires that the microscope's light source be moved to the upper port on the microscope stand, or that a second light source be put on the microscope. A second light source would cost about \$750.00, and would be advantageous if one expected to use the Ultropak on a regular basis. The Ultropak, with two objectives, costs about \$2,000.00.

The Ultropak provides for reflected light observation by brightfield, darkfield (ideal for microspectrophotometry), and polarized light illumination. Briefly, the Ultropak delivers what Leitz promises. The image of opaque specimens that one observes with the Ultropak, at magnifications beyond those of a stereo microscope, are clear, sharp, and with a depth of field consistent with the magnifications employed. In conclusion, the Ultropak would be a valuable and necessary accessory for microspectrophotometry.