March 21, 1968

Dr. David R. Howes
Mathematics Advisor to the Chief
Department of the Army
U. S. Army Strategy and Tactics Analysis Group
8120 Woodmont Avenue
Bethesda, Maryland 20014

Dear Dr. Howes,

I have asked one of the statisticians on the staff of MRC to look at the material you sent on March 6, 1968. He says that if his understanding of the problem is correct, he has been able to devise a technique which provides estimators of P for any of the models in question; he can also devise "goodness of fit" tests for determining which model best fits a given set of data. He tried these out on one simple example in which he could compare with a specific solution and found satisfactory agreement.

He has questions about some points in the material. In particular some aspects of the experiments to be studied are not made altogether clear. Before he is prepared to say for sure that he can provide estimators and goodness of fit tests, he would need to have his questions resolved.

It would seem worthwhile to arrange for a visit by personnel of U. S. Army STAG. This should provide for quick resolution of his questions. If, after such resolution, his techniques will indeed be of use to your people, he could proceed to an explanation forthwith. Within reasonable limits, one time is as satisfactory as another for such a visit, though it would be a bit preferable to avoid Tuesday's, Wadnesday's, and Thursday's. If this seems suitable, please let me know your preferences and we will set up a visit.

Sincerely,

J. Barkley Rosser Director

bcc: Mr. Fred Frishman



## DEPARTMENT OF THE ARMY

U.S. ARMY STRATEGY AND TACTICS ANALYSIS GROUP 8120 WOODMONT AVENUE BETHESDA, MARYLAND 20014

IN REPLY REFER TO

6 March 1968

Dr. Barkley Rosser Director Mathematics Research Center, US Army The University of Wisconsin Madison, Wisconsin 53700

Dear Dr. Rosser:

At the suggestion of Fred Frishman, I am addressing to you directly a problem, or problem area, in mathematics and mathematical statistics which is of great interest to US Army STAG, as well as to other military agencies. The problem lies in the area of measures of effectiveness. Recent developments in this area have progressed to the point where it is possible to visualize a worthwhile index. However, a number of unsolved questions remain toward which perhaps the MRC may contribute.

I am inclosing a copy of a report written by David G. Smith, a copy of a paper I presented at the recent Design of Experiments Conference, and a problem statement. This appears to be a problem amenable to immediate solution. The problem as described here is, however, only one of many investigations that might be usefully made to advance our capabilities in this area. If there is sufficient interest at your center, a visit between personnel of your Center and of US Army STAG might best serve to set out lines of investigation.

I am hoping that MRC can help in this question.

3 Incls As stated DAVID R. HOWES
Mathematics Advisor
to the Chief

I have on more than one occasion encountered an unremitting skepticism when I gave such a description of the activities of the MRC. Over the past few years, various student groups have prepared a list of goals, or demands, which included the dissolution of the MRC, or its expulsion from the U. W. campus. For example, a group of students from the History Department, a group of students from the English Department, and the SDS are among the groups which have prepared such lists. Occasionally, some ambitious student from such a group has "researched" the MRC. He has visited us and inquired searchingly into our actions, motives, private lives, etc. It was clear that such a student hoped to be able to establish that members of the MRC are engaged in various sorts of nefarious military activities, such as devising a more pervasive nerve gas or drawing secret blueprints for the ABM. The more I would try to explain that we are only doing research of our own choosing in fundamental areas of mathematics, the more persistently the student would try to find out what we are "really doing."

Sometimes the student would finally resort to trying to explain why he was so sure I was merely pulling the wool over his eyes. Since the Army is supporting the MRC, he would say, it certainly must be that the MRC is doing something of value for the Army. I always replied that certainly the MRC is doing research of value to the Army; indeed it is my responsibility as Director to assure that it does. Moreover, as a taxpayer, I would object if the Army were expending funds for the MRC without getting an adequate return. This would bring forth again the question of what the MRC is "really doing" for the Army. I would reiterate that the members of the MRC are doing fundamental mathematical research of their own choosing in important areas of applied mathematics.

The barrier to understanding seems to be that a person who has not had considerable acquaintance with applications of mathematics cannot really believe that carrying out fundamental research in mathematics in topics of the researcher's choosing is of any actual value. At least, not of enough value to be worth paying MONEY for! Thus it seems obvious to such a person that, despite my repeated assurances, what must really be happening is that the Army is presenting specific questions, of high urgency, to the MRC for quick solution. Attempts to convince this person that it is not so are construed as devious attempts at concealment.

In most of the six enclosed descriptions of what the MRC does, efforts have been made to explain that carrying on basic mathematical research of one's own choice can indeed lead to results of monetary value. In fact, many results are of value in all areas of technology. Since the Army uses much advanced

technology, the results are of value to it also. I will cite a couple of specific cases from the enclosed descriptions. In "Military Support of Research" it is noted that Professor Rall of the MRC was able to supply an efficient solution to an Army problem because he had been doing fundamental research in Newton's method. No one in the Army had told Professor Rall to work on Newton's method. He chose this topic himself because he was interested in it and was quite sure that research in it would produce results that would be of value in a wide variety of enterprises. And indeed, shortly thereafter, one of his results was quite useful to a mathematician at Frankford Arsenal.

Had Professor Rall earlier asked people at Frankford Arsenal what he should work on, no one would have suggested Newton's method. Probably they would have asked him to work on the same allocation problem that he was able to solve easily a year later by using the results of his research on Newton's method. Without the benefit of his research on Newton's method, he would doubtless have found an inefficient and expensive solution. At least, that is what happened when some people at MIT, who had not heard of the Newton's method research, were asked by Frankford Arsenal to work independently on the same allocation problem.

For another example, consider the research in spline functions. This was initiated about four years ago by Professors Greville and Schoenberg of the MRC. Since then some of the outstanding work in the world in spline functions has been done at the MRC. (See the Capital Times article dated October 7, 1968, and the MRC release dated May 3, 1969.) This is turning out to be of great value for a wide variety of technological problems (see the two documents just cited). At the Advanced Seminar on Spline Functions held last fall, about a third of the 83 persons attending were from the Army (representing 25 different Army installations). Since then word of the usefulness of spline functions is spreading through the Army. So many requests have come in for the mimeographed notes on spline functions that were prepared last fall that the supply has been exhausted. An improved set is now being prepared.

The point again is that no one from the Army would have suggested working on spline functions. Had Professors Greville and Schoenberg spent the last four years simply answering questions specifically put to them by Army personnel, they would never have obtained their very penetrating results in spline functions. Those Army mathematicians who are now solving problems efficiently by means of these results would either be solving them inefficiently or not at all. Thus the development of spline functions is now resulting in a large pay off for the Army, much more than the benefit that would have resulted had Professors Greville and Schoenberg spent the four years working only on specific problems instead of being encouraged to pursue their chosen research on spline functions. In addition, engineering and science generally has benefitted greatly, and not merely the Army.

You ask about the genesis of the project. In 1955 the Army solicited numerous universities to set up a contract for a Mathematics Research Center. A proposal by U. W. was accepted over proposals by other universities.

You ask who thought of the ideas for the research? In the enclosed documents, it is stated that the mathematicians at the MRC choose their own topics for research. Note particularly the statement, on the second page of the enclosed Army release, that the function of the MRC is "... to initiate and carry on research where present knowledge seems to be inadequate." This answers your specific question, "... did you and your research group think of the ideas for doing the research you are now doing?" Not only is the answer affirmative, but it is stated unequivocally that our research group should continue "to initiate" its research. Incidentally, with regard to your question about the history of the project, this is how the MRC has operated for the more than 13 years of its existence. Nor is there any suggestion of proceeding differently.

Let me make a further point about the stipulation in the enclosed Army release which enjoins the MRC "to initiate" its research. The Army appreciates fully the value of entrusting to the capable staff of the MRC the choice of areas of research which will produce results of practical value. This is the point which has proved such a stumbling block in interviews with student "researchers."

At the same time that the MRC is generating new mathematical principles of widespread value, and hence of value to the Army, it is undertaking to see that Army mathematicians learn of these, and learn how they may be used. The primary means of communicating these results to scientists generally, and to the Army specifically, is by writing them up in Technical Summary Reports. These are given wide distribution; naturally care is taken to see that this includes those Army installations where the results are liable to find applications. I am enclosing a document entitled "Publications" and dated January 1969 which lists all the official publications of work at the MRC up to January 1, 1969. It lists 955 Technical Summary Reports and 22 books. Another means of communicating results obtained at the MRC is by means of Seminars and Symposia conducted at the MRC. Most of the 22 books listed in the "Publications" volume are Proceedings of such Seminars and Symposia. The Seminars and Symposia are open to all scientists, and they attract the leading scientists from this country and abroad. Special efforts are made to publicize these Seminars and Symposia throughout Army installations, and to encourage those Army personnel who will benefit to attend. Another means of communication is for members of the MRC to consult with scientists around the world (for example, three of the MRC staff were sent to the International Mathematical Congress in Moscow in 1966) and to discuss mathematical problems with them. Liaison is maintained with Army installations, to insure that Army personnel with mathematical problems needing

exceptional competence can consult with a member of the MRC who has that competence. Finally, some visiting scientists, in addition to those who are on the MRC payroll, are allowed to work at the MRC. A fair number do come, for periods ranging from a few weeks to a year. Those who are from the Army are called Research Residents, and the others are called Honorary Fellows. The MRC Summary Report for the fiscal year 1968, which I have enclosed, lists two Honorary Fellows and no Research Resident. The MRC Summary Report for the fiscal year 1969 will list two Honorary Fellows and one Research Resident. There are also intermediate cases, such as Dr. Pierre Jamet, a visitor from France, who had part of his salary paid by the French version of the Atomic Energy Commission, and the rest paid by the MRC.

One might ask if it is proper for the Army to support an installation such as the MRC for the benefit of such visitors. The Army would not be able to get the help it needs with exceptionally difficult mathematical problems unless the staff of the MRC were of such high caliber as to attract such visitors, even from abroad. The visitors are themselves first class mathematicians who turn out useful research while at the MRC. Thus they make an extra contribution to the technological community, which includes the Army, at no extra cost to the Army.

People sometimes inquire what fraction of the time of the MRC staff is spent in various activities. From Section II of the MRC Summary Report for the fiscal year 1968, one sees that for fiscal 1968 the technical staff was the equivalent of 33.48 full time mathematicians. Leaving out vacation time, this gave a total of 8035 working man-days for fiscal 1968. It is hard to break this up into clear cut categories. Thus suppose a Research Resident from the Army does some research during his stay at the MRC jointly with a member of the regular MRC staff, and they publish a joint paper. Probably the Research Resident would never have done this research except for his association with the regular MRC member. In view of this, should the regular MRC member count his own cooperating activity as research, consulting, or education? Similarly, the Advanced Seminars are primarily educational, but partly research. The Symposia are partly educational, but primarily research. Adjudicating these questions as best I can, I would say that for fiscal 1968 about 2% of the time of the staff was devoted to education, about 2% to straight consulting or giving advice, and the remaining 96% to research.

In accordance with the Army's guidelines, the topics of this research were chosen by the members of the MRC staff themselves. This does not mean that none of the research is directed toward specific Army questions. Sometimes, when an MRC member is asked about a mathematical question by the Army, he may decide to do some research on this specific question. Let me make it clear that

You ask about the funding of the MRC. When I came to the MRC in 1963, the Army had already been funding it for seven years. The question of a change has never been brought up. It looks very unlikely that some other satisfactory source of funding could be found. The annual budget of the MRC is a very appreciable fraction of the total annual NSF budget for the support of mathematics. If the NSF budget were expanding rapidly, the NSF might be able to work up to giving full support to the MRC in two or three years. In fact, the NSF budget for support of mathematics was cut back last year, and prospects for the coming year are not bright. To hope for more than a small fraction of support from NSF is unrealistic.

Since the results of MRC research are widely applicable, one might try to enlist partial support from each of a number of users of applied mathematics. A major entrepreneurial effort would be required. Worse, many prospective customers would not (like the Army) be looking for an exceptionally capable research group to supplement an already competent internal staff in mathematics. They would wish what so many people think the MRC is, a group of journeymen mathematicians to whom they could bring urgent questions for quick solution. This would require a complete change in the character of MRC, and in its new aspect it would be far less suitable as a constituent of a university.

Your query about finding other funding for MRC seems to assume implicitly a popular superstition that thereby the Army would be denied the results of MRC research. As this superstition has no basis in fact, I cannot let this implicit assumption pass unchallenged.

Consider MRC Technical Summary Reports #832 and #853. They present a solution of the problem of noisy duels. The Army has been extremely pleased to have this solution, and feels that it will be very useful in various strategical and tactical decisions. Would these results have not become available to the Army had someone else been funding the MRC? Let me say again that members of the MRC work on problems of their own choosing. Reports #832 and #853 were not prepared as a result of any sort of pressure, or even suggestion, from the Army. The problem of noisy duels had been a conspicuous unsolved problem in the theory of games for some years. Fox and Kimeldorf came as visitors to the MRC in 1967-68, got interested in the problem, and solved it. They would have done so whether MRC were supported by the NSF, the Red Cross, or public subscription. All that was required was that MRC should be supported by someone, so that they were brought together, and that whoever was supporting MRC would give them the freedom to work on whatever they wished. Needless to say, the Army would have access to the solution as soon as the reports were published.



#### DEPARTMENT OF THE ARMY

# OFFICE OF THE CHIEF OF RESEARCH AND DEVELOPMENT WASHINGTON, D.C. 20310

1 September 1966

### MATHEMATICS RESEARCH CENTER, UNITED STATES ARMY

University of Wisconsin, Madison, Wisconsin

The Mathematics Research Center, United States Army (MRC) is an Army-wide activity located on the campus of the University of Wisconsin. It is operated by the University for the Army with funds furnished by this office under contract number DA-31-124-ARO-D-462. The MRC technically dates from the signing of its original contract, namely from 25 April 1956. It took occupancy in temporary quarters on 1 January 1957 and functioned in them until 1 April 1959. Since then it has occupied its present facility in a newly constructed building.

Some of the purposes of the MRC are:

To carry on mathematical research which has relevance to problems that exist or are inherent in Army operations;

To provide for the Army a source of advice and assistance with respect to the solution of mathematical problems;

To make technical studies, when requested, of the use of mathematics by Army activities and to make recommendations as to the implementation of the conclusion of such studies;

To cooperate with Army activities in their recruitment of scientific personnel;

To provide a facility for stimulating scientific contacts between Army scientific personnel and other scientists;

To offer opportunities for extended periods of training or research to such military or civilian personnel of Army activities as approved by the Army Mathematics Steering Committee;

To spread acquaintance of the Army's problems among civilian mathematicians, to the end of increasing their capabilities for assisting the Government in the event of a national emergency.

To conform with these purposes the MRC functions as a research center in which the effort and interest are directed primarily toward the more

applied fields of mathematics. The fields in which it is specifically commissioned to do research are:

- (1) Numerical analysis, including the extension of the scientific usefulness of high-speed computers.
- (2) Statistics and probability.
- (3) Analysis and applied mathematics.
- (4) Operations research.

Since the MRC is funded separately, its services are available to any Army activity at no cost to that activity.

The scientific staff of the MRC is in large measure a changing one. While it is made up to a cortain extent of members who hold continuing appointments, and who give continuity to the research effort, it also consists in considerable part of mathematicians who are connected with it only for specific periods, while they are on leave of absence from other institutions. A number of members of the faculty of the University of Wisconsin are given part-time appointments in the MRC, and are thus brought into participation in its research effort. The rotating staff operates to keep the scientific interests of the MRC fluid and responsive to changing trends. In the course of time, its erstwhile members, returning to their bases over the country, may be expected to comprise a substantial segment of the country's mathematical potential, which will be cordially inclined to the Army and the Army's interests.

The MRC is not intended to replace, or to do the mathematical work of, any other Army activity. Its function is to consult and advise, and to initiate and carry on research where present knowledge seems to be inadequate. Army activities are invited to have their staff members in mathematics discuss their perplexities with the MRC. This is often most effectively accomplished by a visit or series of visits to the MRC by the personnel concerned. Upon request, the MRC will send appropriate members of its staff to any Army activity for consultation on the ground, or for other desirable purposes.

The MRC has a small staff of programmers for electronic computation on its technical assisting staff. It presently rents computer time on a CDC 3600 configuration. It welcomes exchanges of computer experience with other Army personnel.

From time to time the MRC conducts a General Conference or Symposium on some topic of wide current interest. Lecturers of international reputations are secured for these occasions to give presentations of developments in research. Announcements of these and invitations to attend are sent to Army personnel, and to personnel of other Government agencies and contractors. Attached is a listing of the symposiums that have been held.

## LISTING OF PROSPECTIVE MRC STAFF FOR THE ACADEMIC YEAR 1968-69

George H. Andrews, Graduation and Interpolation Krishna B. Athreya, Branching Processes, Probability Theory Javad Behboodian, Statistics Fred G. Brauer, Differential Equations R. Creighton Buck, Analysis Hermann Burchard, Approximation Theory James H. Case, Differential Games Howard E. Conner, Analysis Colin W. Cryer, Numerical Solution of Partial Differential Equations George Eason, Elasticity David R. Ferguson, Approximation Theory H. Reynold Fiege, Jr., Applications of Operations Research and Computers to Medical Problems \*Thomas N. E. Greville, Approximation Theory and Actuarial Mathematics John H. Halton, Stochastic Processes-Monte Carlo Methods \*Bernard Harris, Statistics \*Te Chiang Hu, Integer Programming and Network Flows R. R. Huilgol, Rheology Samuel Karlin, Statistics and Probability \*Herman F. Karreman, Stochastic Optimization and Control George S. Kimeldorf, Bayesian Inference and Actuarial Mathematics \*Jerome H. Klotz, Non-parametric Statistical Methods Charles H. Kraft, Non-parametric Statistics Arthur S. Lodge, Rheology Ralph London, Theory of Programming and Artifical Intelligence Dahlard L. Lukes, Control Theory and Differential Equations and Games O. L. Mangasarian, Mathematical Programming and Optimal Control \*Henry B. Mann, Number Theory and Statistics (On Leave) \*Ben Noble (On Leave) Integral Equations and Numerical Analysis Pedro Nowosad, Applied Functional Analysis Elmor L. Peterson, Geometric Programming \*Louis B. Rall, Numerical Analysis, Integral Equations and Functional Analysis \*J. Ben Rosen (On Leave) Nonlinear Programming and Optimal Control Theory \*J. Barkley Rosser, Logic and Numerical Analysis Duane Sather, Partial Differential Equations \*Isaac J. Schoenberg, Analysis and Approximation Theory Aaron S. Strauss, Global Existence, O.D.E., and Optimal Control Theory Richard Tapia, Newton's Method Dietrich A. Uhlenbrock, Plasma Physics Constance Van Eeden, Bio-statistics James M. Varah, Numerical Analysis, Especially Theory of Matrices Peter Werner, Wave Theory Harvey J. Wertz, Electrical Engineering, Numerical Analysis J. Michael Yohe (On Leave) Computer Programming and Topology E. H. Zarantonello, Hydrodynamics and Functional Analysis Zvi Ziegler, Generalized Convex Inequalities

<sup>\*</sup> Permanent Member

STATE OF WISCONSIN

CIRCUIT COURT BRANCH IV DANE COUNTY

X

STATE OF WISCONSIN,

Plaintiff, :

STATEMENT OF FACTS

IN SUPPORT OF SUBMISSION OF GUILTY PLEA

-vs-

•

Case No. CR7-258

DAVID SYLVAN FINE,

Defendant. :

Had this matter gone to trial, the State was prepared to prove that the defendant, David Sylvan Fine, engaged in a conspiracy with co-conspirators Karleton Armstrong, Dwight Armstrong and Leo Burt, to violate the provisions of Wisconsin Statutes Section 943.01(1)(3), under the provisions of Section 939.05--Felony Criminal Damage to Property; and during the course of said conspiracy violated the provisions of Section 940.03--First Degree Murder.

On or about July 13, 1970, two persons who identified themselves as David Sylvan Fine and Leo Burt, visited the Department of Industry, Labor and Human Relations and consulted an explosives expert and attempted to gather information regarding the use of ammonium nitrate and fuel oil as an explosive. An ammonium nitrate and fuel oil explosive mixture is commonly referred to as an ANFO bomb. The evidence will show that those two persons stated they intended to write an article for the Daily Cardinal on this subject when in fact no such article was ever written.

On August 16, 1970, conspirators Karleton Armstrong and Leo Burt rented a U-Haul trailer from the Forest Harbor Enco Station at 6130 University Avenue, Madison, Wisconsin. Witnesses would be produced to show that Leo Burt was present with Karleton Armstrong, who was the person who rented this trailer and official

records of the Motor Vehicle Department would substantiate the fact that Karleton Armstrong's drivers license was used as identification to procure the trailer. Furthermore, a handwriting expert would testify that Karleton Armstrong signed the U-Haul contract. The yellow 1966 Corvair which Karleton Armstrong was driving, left this service station with the U-Haul trailer at approximately 9:30 p.m. Karleton Armstrong then went to the Cepek Construction Company, which was at that time located in Truax Park. Karleton Armstrong took approximately six 55-gallon drums which he had examined earlier and placed them in the U-Haul trailer. Karleton Armstrong then proceeded back to the city of Middleton where he and Leo Burt purchased from the Owens Service Station 46.2 gallons of fuel oil. Karleton Armstrong asked that a specified amount be placed in each of approximately four of the 55-gallon drums. Karleton Armstrong was driving a yellow 1966 Chevrolet Corvair to which was attached a U-Haul trailer.

On August 17, 1970, Karleton Armstrong returned the U-Haul trailer to the Forest Harbor Enco Service Station. A witness would testify to this fact as well as to the fact that the trailer had a strong odor of fuel oil in it. The evidence would show that these 55-gallon drums together with the fuel oil were placed at an area where the destructive device was to be constructed in Greenfield Township, Sauk County, approximately 100 yards north of Neuman Road, hereafter referred to as the staging area.

On August 19, 1970, Karleton Armstrong and Leo Burt along with two other individuals, arrived at Nelson's Texaco Service Station, 2037 Sherman Avenue, Madison, in a 1966 yellow Corvair. Karleton Armstrong rented a U-Haul trailer showing a Wisconsin drivers license for identification purposes. Evidence would be introduced to show that it was Karleton Armstrong who

rented this trailer through eyewitness identification, Motor Vehicle Department records and a handwriting expert from the F.B.I.

At approximately 1:00 p.m. on August 19, 1970, Karleton Armstrong and Leo Burt drove to the Farmers Union Co-op, Baraboo, Wisconsin, and purchased 1700 lbs. of amonium nitrate fertilizer. Karleton Armstrong used the name "George Reed" as an alias for purchasing this fertilizer. Karleton Lewis Armstrong, would be identified by two eyewitnesses as being the George Reed who was driving a 1966 yellow Corvair and pulling a U-Haul trailer when he purchased this fertilizer. Karleton Armstrong told the manager of the co-op that he was working for a truck farm and needed the fertilizer for this reason. Evidence would be introduced to show that the U-Haul trailer doors were broken and kept swinging open. Because of this, there was danger that the fertilizer would spill out as it had been bulk loaded. The plant manager placed a piece of plywood which had been sawed off from a larger piece of plywood in the back of the U-Haul trailer in an effort to keep the doors closed. The evidence will show that Karleton Armstrong, along with Leo Burt, took this fertilizer to the same site where the fuel oil had been taken. Evidence would also be introduced to show that the U-Haul trailer was then returned with pellets of ammonium nitrate still in the trailer. These pellets were obtained by the F.B.I. and would be shown by expert testimony to be, in fact, ammonium nitrate.

Witnesses from the Greenfield Township area would be produced at trial to show that a 1966 yellow Corvair was seen along with a U-Haul trailer and some male individuals at the site where the State contends the destructive device was constructed during the third week of August, 1970.

At trial the State would produce evidence to show that

this defendant, David Sylvan Fine, along with the other conspirators, carefully planned the bombing of Sterling Hall and the Mathematics Research Center. The State would produce at trial the fruits of a search conducted by the Federal Bureau of Investigation, pursuant to a search warrant, at an apartment at 947 Spaight Street in the city of Madison. During the search at this apartment, a notebook was found belonging to co-conspirator Leo Frederick Burt. In this notebook the F.B.I. laboratory found indented writings of the kind left on a page just under another page that someone would have written upon. The original page had been torn out, but the indented writing showed that a surveillance log was kept on traffic in the Sterling Hall area between the hours of 3:00 and 4:00 a.m. A witness would testify that conspirator Karleton Armstrong was in Sterling Hall approximately two weeks before the bombing even though he was not enrolled in school. There was also located in this notebook a diagram of Sterling Hall and the Mathematics Research Center. A rectangle was placed on the drawing depicting a concrete ramp which runs along side Sterling Hall and the Mathematics Research Center where the truck housing the destructive device was to be placed. The Mathematics Research Center was also indicated by an "X" on the drawing. Furthermore, the drawing showed a sketch of steam tunnels which ran from the site where the destructive device was to be placed, across Charter Street and up Linden Drive. These steam tunnels are large enough for an adult to easily walk through, and they have a number of exits by way of manhole covers and, in fact, are a part of a system which spans the entire University of Wisconsin campus. A fingerprint expert from the Federal Bureau of Investigation would testify that Karleton Lewis Armstrong's fingerprints are on this diagram.

The State would introduce further evidence to show that

on August 20, 1970, between the hours of 10:00 p.m. and 11:30 p.m. a white Ford Econoline van truck was stolen from a University of Wisconsin professor and his wife. This truck had been parked in the 1200 block of West Dayton Street at the time of the theft. truck had a number of "Peterson for Governor" signs on it, including one of a homemade variety and which would be readily identifiable to the owners of this truck. Witnesses would also be produced at trial who would testify that they saw a white panel truck with campaign signs on it at the staging area where the destructive device was assembled in the Greenfield Township in Sauk County. Further evidence would be introduced to show that co-conspirator Dwight Armstrong informed a witness who would be produced at trial that the defendant, along with his three coconspirators, intended to blow up the Army Math Research Center and that they were going to use ammonium nitrate and fuel oil as a bomb and place it in a truck which they had stolen and which they had hidden at a place where no one would ever find it. This same witness would testify that approximately one week to ten days prior to the bombing, co-conspirator Karleton Lewis Armstrong, drove to the Cepek Construction Company where he inspected some 55-gallon drums which were on the premises. Karleton Armstrong also admitted to this witness on or about August 14, 1970, that there was going to be some "heavy revolutionary activity" and that they were going to bomb the Army Math Research Center. This was stated in the presence of co-conspirator Leo Burt. This witness then left the city of Madison and returned on August 22, 1970. During the early morning hours of August 23, 1970, at the apartment of Leo Burt, located on Iota Court, in the city of Madison, Wisconsin, and in the presence of Leo Burt, David Fine and Dwight Armstrong, Karleton Armstrong once again reitereated the fact that they were going to bomb the Army Math Research Center and he, the

witness, had better get out of town if he did not want to be implicated in the bombing. This witness was also shown by defendant David Sylvan Fine and co-conspirator Leo Burt, a draft of a statement containing the reasons why they were going to blow up the Army Math Research Center. The witness would further testify that all four conspirators David Sylvan Fine, Karleton Armstrong, Leo Burt and Dwight Armstrong then engaged in a lengthy conversation regarding their intent and plans to blow up the Army Math Research Center in Madison, Wisconsin.

At approximately 2:00 to 2:30 a.m. on the morning of August 24, 1970, which was the morning of the bombing, a witness who would testify at trial observed a 1966 yellow Corvair and a white Ford Econoline van proceeding in an extremely slow and careful manner down Pennsylvania Avenue and onto Johnson Street in the city of Madison. The van slowed to almost a crawl as it crossed the railroad tracks near East Johnson Street and First Street.

The evidence would further show that at approximately 3:39 a.m. on August 24, 1970, the city of Madison Police Department dispatcher received the following message:

"Okay pig, listen and listen good. There is a bomb at the Army Math Research Center, University. It is going up in five minutes. Get everyone out of there, clear the area, warn the hospital. I am not bullshitting Mac, get everybody out of there now."

The State would offer evidence indicating that the voice of the caller of the above message was that of the defendant David Sylvan Fine.

This message was relayed to the University of Wisconsin Department of Protection and Security as well as to the city of Madison Police Department squad cars within a matter of seconds. The evidence will show that in less than three minutes an enormous explosion rocked the Sterling Hall area. This will be proven

through the IBM clocks which stopped at the time of the explosion in the buildings effected by the blast. The evidence will show that squad cars as far away as University Avenue and Park Street were literally lifted off the ground and that bricks were strewn The Madison Fire Department, city of Madison Police Department, Dane County Traffic Department and University of Wisconsin Protection and Security Departments arrived at the scene. Large fires were raging, and over 28,000 gallons of water had to be sprayed on the scene to bring the fire under control. The evidence will show that a Dr. Robert Fassnacht, who was working in his laboratory, was found dead in a blown out portion of the The Deputy Coroner of Dane County, as well as a pathologist, will testify that the cause of his death was due to the explosion. In addition to Fassnacht, the evidence will show that there was a night watchman and four other researchers in the building at the time of the explosion, all of whom were injured.

The State would further prove that a total of 26 buildings on the University of Wisconsin Campus, including a building known as Sterling Hall, were damaged by the aforementioned blast; all buildings located in the county of Dane, state of Wisconsin, and that the total structural damage to all 26 buildings was in excess of 14 million dollars, and that further, the damage to the contents of said 26 buildings was in excess of 1.2 million dollars, and further that the specific structural damage to the building known as Sterling Hall was in excess of eight-hundred thousand dollars.

The State would further prove that said damage was done without the consent of the Chancellor of the University of Wisconsin, Edwin Young, and further that it was done without the consent of any member of the University of Wisconsin administration.

An on-the-scene investigation was conducted by various

law enforcement agencies and headed by the Federal Bureau of Investigation. The evidence would show that residues were recovered at the scene which would prove to be consistent with the detonation of an ammonium nitrate and fuel oil bomb. The debris at the scene also showed that a vehicle was involved in the explosion. It was determined that a Ford Econoline truck was used to house the destructive device and this was placed on a concrete ramp adjacent to Sterling Hall and approximately ten feet east of the laboratory in which Fassnacht was working.

This ramp was constructed of eight inches of reinforced concrete and the rear axel of the truck was driven three feet into the ground below the concrete as a result of the explosion. Furthermore, there was recovered from the blast area, a twisted piece of metal which contained the motor vehicle identification number of the truck used to house the explosives. This identification number is the same identification number as that belonging to the truck referred to previously which had been stolen on August 20, 1970, from the Dayton Street address and which had the "Peterson for Governor" signs.

Within minutes after the explosion on the morning of August 24, 1970, a Dane County Traffic officer will testify that he observed a 1966 yellow Corvair proceeding at a high rate of speed down Park Street. He immediately notified the local dispatchers of this information and an all-points bulletin was put out for this automobile. The evidence would show that approximately an hour and a half later in Sauk County, a 1966 yellow Corvair was stopped by Sauk County Deputy Sheriffs. Within this Corvair were the following individuals: Karleton Lewis Armstrong, Dwight Allen Armstrong, Leo Frederick Burt and the defendant, David Sylvan Fine. They informed the officers that they were going camping at the Devil's Lake area. Evidence would be introduced to show that these

individuals, while not having any camping gear, did in fact, go to Devil's Lake campgrounds where they conversed with several other campers and park personnel who can readily identify these individuals. At approximately 8:00 a.m. on August 24, 1970, Karleton Lewis Armstrong and defendant David Sylvan Fine left Leo Burt and Dwight Armstrong behind and drove in to Madison in the 1966 yellow Corvair. They left the Corvair at Armstrong's family's home in the city of Madison, and proceeded to another location within the city of Madison where the defendant David Fine obtained an automobile belonging to his friend, William Limbach. The automobile was a 1961 Plymouth bearing license number R97-777. The evidence would show that defendant Fine and Karleton Armstrong met Leo Burt and Dwight Armstrong and proceeded to Ann Arbor, Michigan, in this Plymouth. Sometime after Ann Arbor, Michigan, these four individuals arrived in New York City and split up, with Leo Burt and defendant David Fine going one place and Dwight and Karl Armstrong going another. The 1961 Plymouth automobile was recovered in New York City approximately one block away from the Western Union office where Karleton Armstrong received money from his family pursuant to telephone calls which he placed. The defendant David Sylvan Fine and Leo Burt then contacted friends, and after meeting these friends in New York City, they proceeded to Boston, Massachusetts. defendant Fine and Leo Burt then proceeded to Peterboro, Ontario, Canada where they registered at a rooming house on August 30, 1970 using fictitious names.

Shortly after the defendant Fine and his co-conspirators

left Wisconsin, evidence was obtained as a result of a search of
what the State would show to be the staging area for the construction
of the destructive device. F.B.I. agents searched that area and
recovered Peterson for Governor campaign signs, including one which

was described as being of the homemade variety and which the owners of the stolen truck which was used to house the destructive device would identify as being the sign which was on the side of their truck. Also recovered at the site was a 55-gallon drum which contained writing on the side and which would be identified by personnel of the Cepek Construction Company as having been one of the barrels stolen from their yard. Also recovered from this area were piles of what expert witnesses would testify to be ammonium nitrate fertilizer. Furthermore, a piece of plywood was recovered from the site which would be identified by the manager of the Farmers Union Co-op in Baraboo as being the piece of plywood that he placed in the back of a U-Haul trailer that contained ammonium nitrate fertilizer which was purchased by Karleton Armstrong. F.B.I expert on wood analysis would also testify that the piece of wood recovered from the bomb preparation area was at one time adjoining to the piece of plywood which the plant manager had retained at the Farmers Union Co-op.

Evidence would be presented to show the fruits of other searches which were conducted by the F.B.I. One of these was a search of a 1966 yellow Corvair belonging to the family of Karleton Lewis Armstrong. Ammonium nitrate residue was obtained from the floor mats of this automobile. Furthermore, the same search at 947 Spaight Street which resulted in the notebook being found which has been heretofore described, also resulted in the discovery of a letter which the State would introduce into evidence. This letter contained a statement setting forth the reasons for the destruction of the Army Math Research Center along with a request to the addressee to turn it over to "Kaleidoscope" for publication. These directions were contained in a cover letter to the statement describing the motives behind the bombing of the Army Math Research Center. In that cover letter, it is stated that Dave and Leo are

ready to head for Canada with good contacts and that if Karl or Dwight call, the addressee should tell them that Leo left his checkbook in the car. The evidence will show that a checkbook beloning to one Leo Frederick Burt was recovered from the 1961 Plymouth belonging to William Limbach, which was abandoned in New York. This particular checkbook contained, among other items, a check payable to the order of David Fine in the amount of Seventy-five Dollars (\$75.00) and signed Leo Burt. When found in New York City, this Plymouth automobile also contained newspapers from Chicago, Toledo, and New York City, all with prominent articles describing the Sterling Hall bombing on August 24, 1970. Further evidence would be introduced to show that a letter was received by the father of Leo Burt from New York City and postmarked on the date when the State could show that Leo Burt was in New York City. An F.B.I. laboratory expert would testify at trial that the stamp on the letter from Leo Burt to his father was at one time adjoining to the stamp on the letter which was recovered from the search at the 947 Spaight Street address and which contained an admission of the bombing.

Expert witnesses would also be presented at trial who would testify that a mixture of 1700 lbs. of ammonium nitrate fertilizer and 46.2 gallons of fuel oil could cause the damage that was inflicted furing the course of the explosion of August 24, 1970, and that such a bomb and attached detonator, would be the equivalent in blast effect to 3400-3800 half pound sticks of dynamite.

The State would also be prepared to introduce at trial additional evidence of flight and concealment of identity as circumstantial evidence of the defendant's guilt.

On September 4, 1970, immediately preceding a search of a rooming house in Peterboro, Ontario, Canada where Fine and Burt

were staying, the defendant Fine and Leo Burt fled from that area, and defendant Fine was not seen or heard from again by authorities until he was apprehended in San Rafael, California on January 7, 1976.

The State would introduce testimony from the defendant's landlady in San Rafael, California to the effect that the defendant was renting and otherwise living under the fictitious name of William James Lewes. Furthermore, F.B.I. agents from California, would testify that at the time of his arrest on January 7, 1976, the defendant had in his control or possession various items of personal identification, including, but not limited to, the following, all bearing the name William James Lewes:

- A. A United States Selective Service registration card;
- B. A United States Social Security account card;
- C. A California voter's Affidavit of Registration;
- D. State of Oklahoma drivers license;
- E. Three college registration cards and five library cards.

Also found under the control or possession of the defendant at the time of his arrest were the following items of personal identification in the name of Ronald W. Gardner:

- A. A United States Social Security card;
- B. Notice of Classification and Registration Certificate from the United States Selective Service System.

At the time of his arrest the defendant falsely advised F.B.I agents that he was William Lewes and provided an extensive fictitious background for himself as William James Lewes. The defendant then subsequently identified himself as David Sylvan Fine.

The State would then offer evidence that the defendant acknowledged to F.B.I. agents that he had been stopped by law enforcement officers at the time he was leaving the scene of the bombing. Defendant Fine also stated to F.B.I. agents that he had

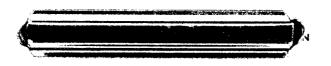
been stopped by the police since then on several occasions, but his identification had always held up.

All of the preceding acts of the defendant and the coconspirators occurred in the County of Dane, Wisconsin, unless otherwise specified.

Dated this 8th day of June, 1976.

District Attorney

Dane County, Wisconsin



Quarterly Reports

MATHEMATICS RESEARCH CENTER
J. BARKLEY ROSSER, DIRECTOR

610 WALNUT STREET TELEPHONE (608) 263-2696

1 May 1973

Commander
U.S. Army Research Office-Durham
Box CM, Duke Station
Durham, North Carolina 27706

Contract No. DA-31-124-ARO-D-462

### Dear Sir:

This is the Quarterly Report of the Mathematics Research Center for the period 1 January 1973 through 31 March 1973; it gives a statement of funds expended and committed, and of consultants' activities. The work performed is summarized in the semi-annual report covering the cited period.

## I. Funds Expended and Committed:

Α.	Summary of Total Disbursements:		•	
	Total disbursements as of 31 December 1972:		\$	8,481,836.01
	3d Quarter (FY 73) disbursements:			343,777.27
	Total disbursements as of 31 March 1973:		\$	8,825,613.28
В.	Itemization of 3d Quarter (FY 73) Disbursements	:		•
	Salaries and Wages Fringe Benefits Travel and Relocation Communications Materials, Services and Equipment Consultants Computing Services Overhead		\$	186, 373. 86 27, 869. 59 4, 294. 73 733. 49 21, 537. 99 401. 88 4, 592. 49 97, 973. 24
		TOTAL	\$	343,777.27
C.	Commitments:			
•	Commitments for FY 73 as of 31 March 1973 (salaries only)		\$	118, 878. 12