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FEDERAL BUREAU OF INVESTIGATION

Reporting Office NEW HAVEN	Office of Origin NEW HAVEN	Date 10/6/81	Investigative Period 11/15/80 - 9/17/81
Title of Case BRUCE IVAN PAUL; NATIONAL CSS, INC. - VICTIM		Report made by SA [redacted]	Typed By: sab
		Character of Case FRAUD BY WIRE - COMPUTER FRAUD	

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PROSECUTIVE

REFERENCES: None

- P -

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FEDERAL BUREAU OF INVESTIGATION

PROSECUTIVE REPORT OF INVESTIGATION CONCERNING

BRUCE IVAN PAUL
NATIONAL CSS, INC. - VICTIM
FRAUD BY WIRE - COMPUTER FRAUD

T A B L E O F C O N T E N T S

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Copy to: 1 - United States Attorney, New Haven, Connecticut

Report of: SA [redacted]
Date:

Office: NEW HAVEN

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Field Office File #: NH 196A-397

Bureau File #:

Narrative of Offense:

NARRATIVE OF OFFENSE

PART I

OVERVIEW

PAGES B2-B4

PART II

DETAIL EXPLANATION

PAGES B5-B10

B1

NARRATIVE OF OFFENSE

PART I

OVERVIEW

In November 1980, National CSS, Inc. (NCSS), one of the nations three largest time-sharing computer companies became aware of an incident involving unauthorized access to customer password information.

Computerized files containing the information were found on a customer's computer (Mediametrics, Moraga, California) on a disk assigned to "The Guild", an independant computer Software Program Consulting Company.

Investigation determined that the password information had been taken during June 1980 and transmitted over the NCSS national telephone network. (See Photo #7). The transmission was from Stamford, Connecticut and Sunnyvale, California to the customer's computer at Moraga, California. The transmissions were performed using a customer identification code belonging to "The Guild" and also through unauthorized use of NCSS internal identification codes.

In addition to password information the files also contained software products known as "Nomad II" and a "Pascal Compiler" which "The Guild" was not authorized to use.

The value of the password information cannot be estimated. Its potential value in the industry is enormous. The Nomad II product is normally licensed for a one time \$85,000 fee, but only if a customer purchases computer equipment worth about \$350,000. The Pascal Compiler is leased by NCSS from IBM for a fee of approximately \$500.00 per month.

"The Guild" is an NCSS customer with full normal access to the nationwide communications system.

Bruce Ivan Paul was a NCSS employee from August 1977 to July 1979 and October 1979 through April 1980. From April 1980 until August 1980 he did consulting work in the computer field. He has been employed by The Guild, Inc., since August 1980 as a full time employee. While an NCSS employee he had extensive knowledge about the NCSS password information including where it was located and how to extract it.

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The diagram titled "Access to Aims 3200" which follows shows graphically how the information was transmitted across the country. Codes used on the diagram are explained as follows:

- NCSI Main computers at Stamford, Connecticut
& Part of the Password Information is stored here
EAST (See Photo #3).
- SUNY Another major computer at Sunnyvale, California. Part
of the password information is stored here (See Photo
#4).
- AIMS The designation for the computer located at Mediamatrics
in Moraga, California (See Photos 5 & 6)

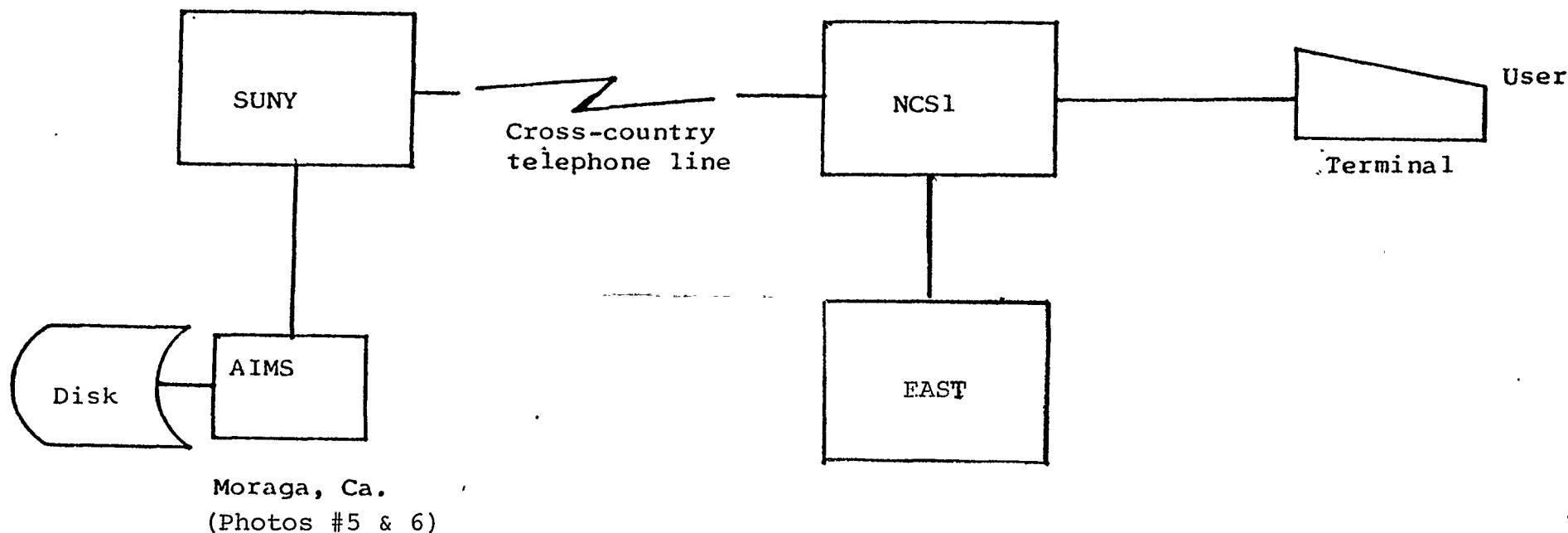
Photographs referenced above depicting the type of equipment represented by the diagram can be found in Photograph Section of this report.

Access To AIMS 3200

(Photo #4)
Sunnyvale, Ca.

(Photo #3)
Stamford, Ct.

(Photo #9)
Danbury, Ct.



NARRATIVE OF OFFENSE

PART II

DETAIL EXPLANATION

The victim, National CSS, Inc. (NCSS) is an internationally known computer services firm with headquarters located at 187 Danbury Road, Wilton, Connecticut. (See Photo #1). NCSS provides sales and service of its own software, mainframe and peripheral equipment, as well as access to a National Telecommunications Network. (See photos 2 - 8).

At the present time NCSS has approximately 3,100 customers in the following industries:

Banking	Telephone
Government	Petroleum
Engineering	Real Estate
Finance	Utilities

Manufacturing

These customers utilize in excess of approximately 14,000 user identification passwords (Userids).

The Computer Hardware, Operating System, and Telecommunications Network are described by NCSS literature as follows:

The basic hardware that drives the system consists of two IBM System/370 Model 168's; one IBM System/370 Model 158; one Amdahl 470 V/6; one IBM System/360 Model 67, and 26 PDP 11/40's. This equipment is operated at five National CSS Data Centers in Los Angeles, and Sunnyvale, California, New York City, and Stamford, Connecticut. (Photo's two and seven). All data centers and NCSS offices are linked together by over 70,000 miles of network with local dialing facilities from over 80 locations.

The basic interconnecting links of the network are established through standard telephone communications facilities provided by the common carriers, thus making computer resources for information handling and problem solving accessible from practically every telephone in the world. Customers in Europe link to our network via transatlantic cable and communications satellite backup facilities.

NCSS maintains and creates daily a highly sensitive file called "CDIR Data" or directory data for users of each mainframe. The CDIR Data File contains:

- 1) User Identification Names
- 2) Log in Passwords
- 3) Account Number
- 4) List of Resources Available
- 5) Read Passwords
- 6) Write Passwords

If CDIR data files for all mainframes were combined, access to all customer information stored in an on-line basis in the network could be obtained. The code name and locations of significant NCSS mainframes follow:

<u>Code Name</u>	<u>Location</u>
HSYS	485 Summer Street Stamford, Connecticut
EAST	1351 Washington Boulevard Stamford, Connecticut
SUNY	530 Pastoria Boulevard Sunnyvale, California

The subject Bruce Ivan Paul worked for NCSS from August 1977 to July 1979 and October 1979 through April 1980. Paul's last position with NCSS was that of a programmer in the Nomad Support Unit - Relational Data Base Management System. During Paul's employment with NCSS, Paul worked on a system called "VERIFY". During Paul's work on this system he was permitted direct access to the VP Directory. Access was granted because the nature of the project called for a programmable way in which to check the validity of every disk attached to the computer system. The VP/CSS Computer System is designed in such a way that a Userid/Password combination is required in order to accomplish this. This information is stored in the Directory.

Paul had access to the Directory for the duration of that project. Paul acquired a great deal of information from [redacted]

[redacted] instructed Paul on the details of another system called "BACKUP", which was to serve as the model for the VERIFY system. Having been exposed to the BACKUP system and having developed a version of the VERIFY system, Paul had extensive knowledge about the programs and procedures used to extract information from the Directory and where this information resided.

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From April 1980 until August of 1980 Paul did consulting work in the computer field primarily for "The Guild, Inc." Paul has been employed as a full time employee of The Guild since August 1980.

The Guild maintains offices located at 590 Danbury Road, Ridgefield, Connecticut. The Guild was primarily established for the purpose of developing complex computer software programs. The Guild currently is an NCSS customer and as such has routine access to the NCSS computer network.

The Violation - Access and Transmission

[redacted] NCSS prepared a draft report dated August 6, 1981 describing various aspects of the Password incident which occurred during the Fall of 1980. The following is an excerpt which describes the access and transmission of Directory Data over the NCSS Network:

"The access was accomplished using userids known to Bruce Paul from his work at NCSS. The passwords for these userids may have remained unchanged since the time of his termination. Alternatively they may have been determined using the DIRPRINT facility; there were several suspicious instances of use of DIRPRINT to determine Backup-related passwords both before and after June. Although DIRPRINT was available only from privileged userids, the particular userids used in these instances were ones whose passwords are likely to have been known by someone who had worked in the Nomad group, and their passwords probably had not been changed since Bruce's termination."

"The Danbury dial-up ports are the ones most likely to be used by people associated with The Guild, as these were closest to both their offices and their residences". Also Guild userids were used both to transmit the files and to store them on AIMS.

"The Verify System, runs periodically to verify the integrity of CSS-format minidisks and Nomad databases. It accesses both internal and customer disks using a file of userids and passwords. Such information is extracted from the VP Directory ("DIRECTRY") each night by a Backup system, which also must access all internal and customer disks. The Backup system constructs a Nomad database called BACKTAPE on the disk BACKUP; in this database the passwords are encrypted."

"In the version of the Verify System developed by Bruce Paul, when he worked in the Nomad group, the necessary list of userids and passwords is extracted from the BACKTAPE database; a Nomad procedure decrypts the passwords and writes a workfile. This version of the Verify system was never put into production use, but the procedures which implemented it were kept on a disk called VERIFY from the time they were developed until July 1980, at which time they were replaced by a new Verify system. The new Verify system extracts the same kind of userid/password information, but does so independently of the Backup system and does not produce the same kind of workfile."

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"On June 23, 1980 at 20:04, the userid SUPPORTH logged into HSYS through a Danbury, Connecticut dial-up port. The userid SUPPORTH belongs to the DBMS Marketing Department."

"The user attached the disk BACKUP, which contained the BACK- TAPE database, and the disk VERIFY, which contained the Nomad program needed to extract and decrypt the passwords from the database. The user ran a Nomad program, presumably to extract the data, and logged out after less than three minutes. At 21:15 the userid GUILD logged into HSYS. The number of multiplexor I/O operations for the SUPPORTH session and The GUILD session were identical, indicating a transfer of a file through the spooling system!"

"On June 24, at 8:08, the userid SUPPORTH logged into EAST through the same Danbury port. The user attached BACKUP and VERIFY, ran a Nomad procedure, and sent a file through the spooling network to userid GUILD on HSYS."

"On June 27 at 8:35, the userid VERIFY logged into SUNY through a Danbury port. After running a Nomad procedure, VERIFY sent a file to userid GUILD on HSYS."

"On July 21, 1980, the userid GUILD on HSYS sent three files to GUILD on AIMS, the Mediametrics host. The sizes of these three files correspond exactly to the sizes of the three files created in June and transferred to GUILD; the sizes also correspond exactly to the sizes of the files later found on AIMS."

Discovery of Directory Data

[redacted] b6
Mediametrics, b7C
Inc. (MM), 1620 School Street, Moraga, California. MM is a computerized information service primarily subscribed to by various newspapers throughout the country. MM has been in business for approximately 4½ to 5 years and was known previously as Television Media Service (TMS). To support the service that MM provides a National CSS 3200 Series, Rev 5, mini-computer was purchased in September 1979 from National CSS. MM has been doing business with National CSS since April 1978 by using their time sharing system, communications network, and software products.

During 1980, MM's computer system was on-line 24 hours a day, except for routine and unexpected down time, and it could be accessed via the National CSS network whenever it was on-line. MM's facilities are not staffed 24 hours a day and employees are usually only on site during the regular day time hours.

On December 9, 1979, while doing business at TMS, MM entered into a verbal agreement with a firm called, "The Guild". The agreement called for The Guild to do software modifications to MM's computer system in exchange for free use of MM's system and certain disc storage space. The modifications were to be done by mid-October 1980, and work on the job started within about one week of the agreement.

Little work was done by The Guild on the modifications until Bruce Ival Paul arrived at MM late in September 1980. At that time Paul loaded a tape containing a Nomad update. Paul also attempted to load a second tape containing "Neat Things" but was unsuccessful.

[redacted] noticed that by mid-October 1980 The Guild was once again doing very little work on MM projects. However, on November 7, 1980, MM's system crashed as a result of The Guild doing other types of work.

[redacted] cut Guild off the system by changing key entry passwords. By November 11, 1980, Guild was back on MM's system. [redacted] was then determined to find out exactly what Guild was doing on the MM disk space.

On November 13, 1980, [redacted] called [redacted] National CSS, San Francisco. [redacted] asked her to help in getting access to The Guild's passwords and she complied. [redacted] did this by remote terminal from her office at National CSS.

During the PM of November 13, 1980, [redacted] had an inventory procedure installed on The Guild ID and also printed out the contents of some of the files thereon that looked suspicious to him. During the morning of the next day, [redacted] examined these printouts of The Guild files and was of the opinion that it contained some highly sensitive information as well as software products that were proprietary to National CSS. In particular, he noticed four files of significance; HSYS, EAST, SUNY, and BIPUSER. [redacted] went into these four files and examined their contents and was then of the opinion that all four of them were CDIR files containing user IDs, passwords and other data on customers of National CSS.

[redacted] reported his findings to NCSS at approximately 12:00 Noon on November 14, 1980. At that time, [redacted] informed [redacted] that he had found the files, and has tested the validity of the passwords by successfully logging into NCSS Customer Userids on HSYS. Several hours later, [redacted] told [redacted] that she wanted to get into The Guild ID in order to check the CDIR files. [redacted] did this by remote computer terminal from the National CSS Office and, simultaneously, continued to talk with [redacted]. As [redacted] was examining the contents of the CDIR files while on The Guild ID, [redacted] received word from an MM employee that Paul was on another line. [redacted] hung up from [redacted] and got on the line with Paul. Paul asked [redacted] who could be on "The Guild ID" logged in from SFR-1, [redacted] terminal location); [redacted] pretended not to know anything about it and told Paul that it was probably someone from

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National CSS Professional Software looking at the modifications that The Guild was making to the MM system. Paul seemed very curious indicating that he was going to call an NCSS employee to see if the person could find out who was using The Guild ID. This call lasted no longer than three minutes and Paul hung up.

Within minutes thereafter, [redacted] called [redacted] back and said that she had just been killed or involuntarily logged off of the MM computer system after getting the following message on a terminal "From Bipper/Guild: Who the hell is this!!!!!" [redacted] then told [redacted] about receiving the telephone call from Paul. [redacted] then logged back into The Guild ID and continued to look at the CDIR files.

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About one hour later "Guild/Bipper" logged into the MM System to do the following operations:

- 1) Encrypt the files containing password data
- 2) Change all Guild Passwords
- 3) Add additional security measures to new passwords

Hours later, Paul called [redacted] again. As there was the sound of a child crying in the background [redacted] believed Paul was calling from his home. Paul said that [redacted] at National CSS said that there was no way of finding out who was on The Guild ID. Paul did not seem too concerned about the matter and then talked to [redacted] about other topics related to MM's modification project. This call lasted about 15 minutes in total and Paul did not talk anymore about the user on The Guild ID.

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The following day copies of all pertinent data on The Guild disk space were made in both magnetic and hard copy (paper) mediums.

Subsequent investigation determined that the Bipuser and SUNY files were identical. In addition, the investigation uncovered additional unauthorized files on The Guild Disk including a pre-release copy of the Nomad II product valued at \$85,000, and a Pascal Compiler with a value of about \$500 per month. Upon interview Paul admitted using the Nomad II and Pascal Compiler. Paul denied transmitting and/or having any knowledge of the directory data.

Investigation at San Francisco also determined that an unauthorized entry was made to a NCSS 3200 computer delivered to Marsh and Mc Lennan, San Francisco, California. A review of all on-line data determined that no information was missing or altered. Further investigation of the incident was therefore discontinued.

NAME OF DEFENDANT

Name: Bruce Ivan Paul
AKA: Bipper
Sex: Male
Race: White
Date of Birth: June 20, 1954
Place of Birth: Brooklyn, New York
Height: 6'½" tall
Weight: 230
Build: Heavy
Hair: Brown
Eyes: Green
Scars: Right wrist - 3" long below thumb
left side neck approximately
1" long
Home Address: West View Trails
New Fairfield, Connecticut
Telephone: 746-2676
Occupation: Manager
Employer: Guild, Inc.
590 Danbury Road
Ridgefield, Connecticut
Education: Empire State College
Manhattan, New York - one year
Marital Status: Married

SSAN: 123-38-5496
Prior Arrest: None admitted

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Full text of interview pages 60 - 62 attached.

PROSECUTIVE STATUS

On November 18, 1980 , AUSA [REDACTED], New Haven, Connecticut, was advised of the facts as determined by investigation to date. [REDACTED] advised that the theft of data which was transmitted across telephone lines could constitute a violation of the Federal Fraud by Wire Statute. [REDACTED] therefore, requested that additional investigation be conducted.

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WITNESSES

1)

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He can provide little if any pertinent testimony in regard to a telephone call placed to him by Bruce Paul on November 14, 1980.

Full text of interviews pages 11 - 13 attached.

2)

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Can provide general background of National CSS, Inc. as well as value of Nomad II and Pascal Compiler. Also provided computerized event report prepared as of January 21, 1981, 08:45:30.

Full text of interviews pages 14 - 26 attached.

3)

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Can furnish information regarding events of November 14 and 15, 1980, involving [REDACTED] He also obtained an original disk pack and original backup tapes as well as the logs and printouts from Mediametrics, Inc., which constitute significant evidence. He can identify subscriber to telephone number 415-989-3930 as the Remote Computer Services Division on NCSS, Inc.

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Full text of interviews pages 27 - 33 attached.

4)

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Can provide expert testimony regarding assembly and sending "CDIR" files to Mediametrics over NCSS System.

Full text of interview pages 10 attached.

5)

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Can provide information regarding the unauthorized penetration of Marsh and McLennan NCSS Computer System on November 11, 1980, by use of "VPSYSMGR" identification. Also provided evidence consisting of console log which illustrates the unauthorized entry.

Full text of interviews pages 34 - 36 attached.

6)

Special Agent
FBI
New Haven, Connecticut

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Was present during interview of Bruce Ivan Paul on December 16, 1980 during which Paul made various admissions.

7)

Special Agent
FBI
New Haven, Connecticut

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Was present during interview of Bruce Ivan Paul on December 16, 1980 during which Paul made various admissions.

Custody of all evidence at New Haven, Connecticut.

FGJ.

Reviewed and compiled [REDACTED] subpoenaed by

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Worksheet located at pages 37 - 41 attached.

8)



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Can provide information relating to Bruce Paul's trip to Mediometrics, Moraga, California in September, 1980. Can also provide details involving the discovery of NCSS proprietary data known as files "HSYS", "EAST", "SUNY" AND "BIPUSER". He is extremely familiar with Mediometrics Computer during critical time periods.

Full text of interviews pages 42 - 45 attached.

9)



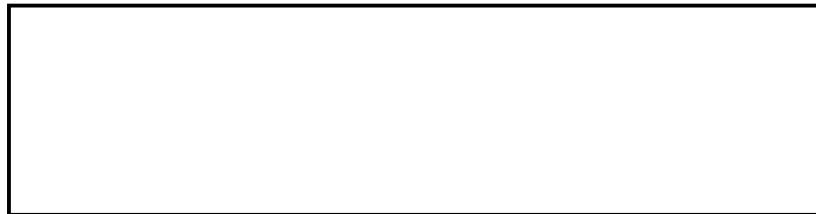
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Assisted in copying of various evidence which was in the custody and control of SA [redacted]

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Full text of interview pages 46 - 48 attached.

10)



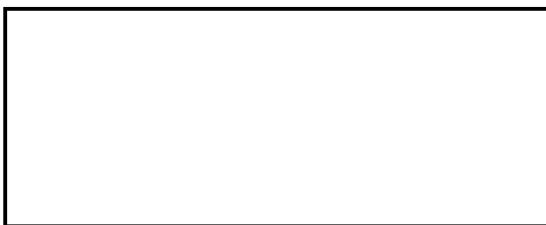
b6
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Can provide no pertinent information.

Full text of interview page 49 attached.

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11)



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Can provide information relating to the organization structure of The Guild prior to July 18, 1980. He and [redacted] [redacted] recognized data that [redacted] described to them as belonging to NCSS.

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Full text of interview pages 50 - 51 attached.

12)



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Can provide no relevant information.

Full text of interview pages 52 attached.

13)

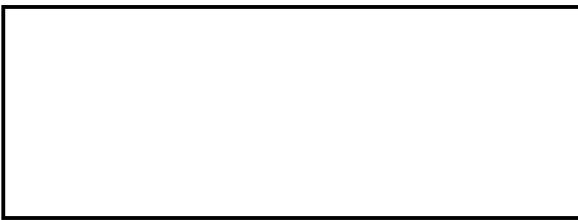


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Can provide informational data regarding NCSS customers and user identifications. Can explain in detail how Bruce Ivan Paul used information obtained during the course of employment at NCSS to obtain directory data.

Full text of interview pages 53 attached,
with attachments located at 54 - 58 attached.

14)



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Can provide information regarding the hiring and employment of Bruce Ivan Paul. His opinion is that nobody employed at The Guild had the high level of knowledge regarding the NCSS System that Bruce Paul did.

Full text of interview pages 59 attached.

15) Bruce Ivan Paul
Westview Trails
New Fairfield, Connecticut
Telephone: 746-2676

Made various admissions and denials prior to advising that he wanted to speak to an attorney:

Admissions:

- A) Employed by NCSS-Nomad Support Unit
- B) Employed by Guild, Inc. since August 1980
- C) Maintains a portable C.D.I. Teleterm Terminal at his home
- D) Travelled to Mediametrics at Moraga, California between September 29, 1980 and October 10, 1980.
 - 1. Brought magnetic tape containing Nomad Module and Pascal Compiler with him.
- E) Sent cross country message to NCSS stating "From Bipper/Guild: Who the hell is this!"
- F) Called [redacted] in California, November 14, 1980.

Denials: A) Transfer of "CDIR DATA" files to California
B) Encrypting data on November 15, 1980

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Full text of interview pages 60 - 62 attached.

16) [redacted]
Special Agent
FBI
New Haven, Connecticut

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b3

17) [redacted]

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Can provide extensive information regarding all phases of the discovery of NCSS proprietary data on the Mediametrics Computer System. He also provided various evidence.

Full text of interview pages 63 - 70 attached.

18)

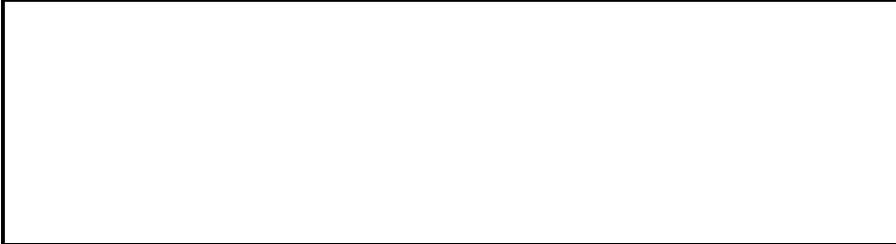


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Can provide information relating to the organization structure of The Guild prior to July 18, 1980. He and [redacted] [redacted] recognized data that [redacted] described to them as belonging to NCSS.

Full text of interview pages 71 - 73 attached.

19)



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Can provide extensive information regarding all phases of the discovery of NCSS proprietary data on the Mediometrics Computer System. She also can explain various items of evidence which she provided.

Full text of interview pages 74 - 83 attached.

20)

[redacted]
Special Agent
FBI
Oakland, California

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Picked up all pertinent evidence and conducted all investigation at Oakland/San Francisco, California.

11

EVIDENCE

Evidence located at New Haven FBI Office.

- 1) Memorex brand disk pack, serial number 7008291, labeled "TMSPKI".
- 2) BASF brand magnetic tape #02 164 0 X304 A3 25, labeled "DIRECTORY BACKUP 000 117 ENTIRE PACK".
- 3) BASF brand magnetic tape #12 276 0 A483 A2 07, labeled "TP DUMP GUILD" and "9018".
- 4) One continuous printout from Mediametrics printer of 55 items starting at 17:33:26, 11/15/80 to approximately 18:10:06, 11/15/80.
- 5) One continuous printout measuring approximately 4 and one quarter inch high from Mediametrics printer of 242 items starting at 18:05:45, 11/15/80 to 18:17:55, 11/15/80.
- 6) One continuous printout representing Mediametrics system console log for the period from 5:28 PM, 9/20/80, to 11:49 AM, 9/27/80.
- 7) Terminal log created by [redacted] for period 2:58 PM - 3:23 PM, 11/14/80. b6 b7c
- 8) Terminal Log for period 3:27 PM - 3:47 PM, 11/14/80, of activity between terminal using the Guild ID and Mediametrics computer.
- 9) Terminal Log for period 4:15 PM - 4:51 PM, 11/14/80, of activity between terminal using the Guild ID and Mediametrics computer.
- 10) Terminal Log for period 4:44 PM - 4:52 PM, 11/14/80, of activity between terminal using the Guild ID and Mediametrics computer.
- 11) Terminal Log for period 4:57 PM - 5:00 PM, 11/14/80, of activity between terminal using the Guild ID and Mediametrics computer.
- 12) Printout entitled "Inventory Guild" created 4:46 PM, 11/13/80.
- 13) Printout entitled "Inventory Guild" created 4:07 PM, 11/13/80.
- 14) Printout entitled "DIRDATA" created 5:26 PM, 11/20/80.
- 15) Printout entitled "DIRDATA" created 4:35 PM, 11/20/80.
- 16) Printout entitled "DIRDATA" created 5:35 PM, 11/20/80.

- 17) Terminal Log created starting 6:16 PM, 11/20/80, between terminal and National CSS computer SFR-1.
- 18) Two page portion of "DIRDATA" printout created 8:03 AM, 11/15/80.
- 19) One continuous printout containing (a) 95 page listing of NCSS IDs, passwords, and other data created at 5:35 PM, 11/13/80, (b), terminal log for period 4:54 PM - 5:39 PM, 11/13/80, of activity between terminal using the Guild ID and Mediometrics computer, and (c) terminal log for period 5:40 PM (no ending time), 11/13/80, for same activity.
- 20) Mediometrics system console logs for period 11:58 AM, 11/10/80 to 3:32 PM, 11/19/80.
- 21) Interview notes of [redacted] and Evidence List of items obtained from her dated 1/6/81.
- 22) Interview notes of [redacted] and Evidence List of items obtained from him dated 1/12/81.
- 23) Copy of receipt signed by [redacted] and copy of six pages of notes made by [redacted] dated 1/12/81.
- 24) Copy of four pages of computerized notes and copy of three pages of handwritten notes by [redacted] dated 1/13/81.
- 25) Evidence List of items from [redacted] dated 1/13/81.
- 26) Interview notes of [redacted] dated 1/19/81. b6
b7C
- 27) Interview notes of [redacted] and Evidence List of items obtained from him dated 1/21/81.
- 28) Copy of nine page National CSS Technical Bulletin on "DASD DUMP RESTORE" program obtained from [redacted] dated 1/21/81.
- 29) Original console log from National CSS computer "SFR-1" for period 9:52 AM, 1/21/81 to 11:41 AM, 1/21/81 and obtained from [redacted] dated 1/21/81.
- 30) Interview notes of [redacted] dated 2/9/81.
- 31) Interview notes of [redacted] dated 5/11/81.
- 32) Original console log from Marsh-McLennan NCSS 3200 series minicomputer for period 7:42 PM, 11/10/80 to 4:54 AM, 11/11/80, obtained from [redacted] dated 5/11/81.

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33) Interview notes of [redacted] for period 12/11/80-
through 5/26/81.

b6
b7c

34) Interview notes of [redacted] dated 6/2/81.

35) Interview Notes of [redacted] dated 6/15/81.

36) Miscellaneous investigative notes of SA [redacted]
[redacted] for period 12/11/80-6/18/81.

37)

[redacted]
b3

38) Original worksheets of SA [redacted] on compilation of
[redacted]

b3
b6
b7c

39) Original notes on interview of Bruce Ivan Paul 12/16/80.

40) Original notes on description of 490 Danbury Road, Ridge-
field, Connecticut.

41) Original notes regarding interview of [redacted]

b6
b7c

42) Original notes regarding interview of [redacted]

Evidence located at San Francisco FBI Office:

1) IBM brand magnetic tape labeled "DDR" and "R2189".

2) IBM brand magnetic tape labeled "DDR T1".

3) Memorex brand magnetic tape labeled "TP2".

4) IBM brand magnetic tape labeled "TP3".

5) IBM brand magnetic tape labeled "TP4".

6) Memorex brand magnetic tape labeled as "COPY OF AIMS DUMP
FOR SJM".

- 7) Memorex brand magnetic tape labeled as "PACK TMSPK1 DDR DUMP 1 OF 5".
- 8) Memorex brand magnetic tape labeled as "PACK TMSPK1 DDR DUMP 2 OF 5".
- 9) Memorex brand magnetic tape labeled as "PACK TMSPK1 DDR DUMP 3 OF 5".
- 10) Memorex brand magnetic tape labeled as "PACK TMSPK1 DDR DUMP 4 OF 5".
- 11) Memorex brand magnetic tape labeled as "PACK TMSPK1 DDR DUMP 5 OF 5".
- 12) IBM brand magnetic tape labeled "DDR 1.1 STAND ALONE 1/21/81".
- 13) Memorex brand magnetic tape labeled as "COPY OF DIRECTORY BACKUP TAPE 000117".
- 14) Memorex brand magnetic tape labeled "COPY OF TP DUMP GUILD".

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COPY OF SALES BROCHURE ENTITLED

"NATIONAL CSS A RESOURCE"

CONTAINING

- 1) A summary of NCSS capabilities, components and style.
- 2) Branch office locations
- 3) The hardware, operating system and network
- 4) Information Management System
 - A. Nomad
 - B. Mark IV
 - C. Ramis and Ramis II
- 5) Languages
- 6) Business controls and planning
- 7) Engineering

National CSS

A Resource

A Resource

Pick up the phone, dial a local number, connect the phone to a television-like terminal, and identify yourself with a password. You have just increased your business facilities and capabilities to include multiple computer installations, a nationwide communications network, and a unique spectrum of capabilities which can be brought to bear on the problems of business and industry.

What does this mean to you? It means you have a resource which can help you quantify the future or analyze the past; track your inventory or your annual operating plan; design an electronic circuit or a pipeline; balance your books or unbalance your competitors; control your cash flow or your gas flow; produce your goods or sell them. This brochure describes National CSS's corporate capability and what it means to you. And if you want to know how it's done, that's here too.

National CSS
more than a service
a resource.

The Capability

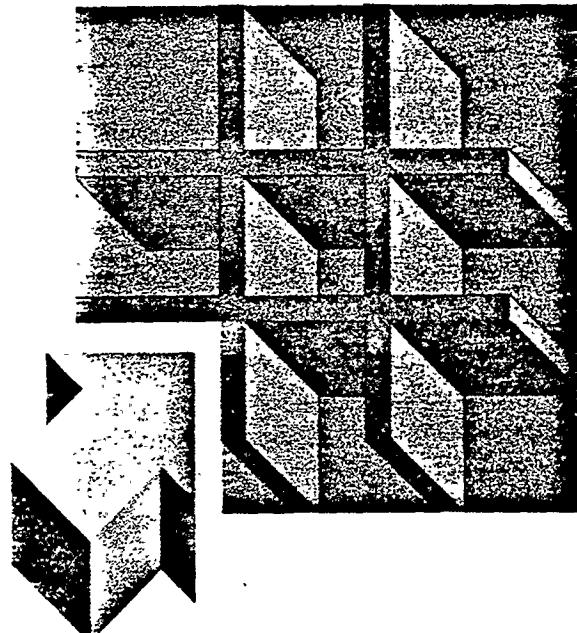
What appears to be one type of problem often, upon examination, falls into an entirely different problem category — An apparent personnel shortage may actually be a scheduling problem — An inventory control problem may be due to bad planning — Failure to meet deadlines may be caused by a "hurry up and wait" bottleneck in the data processing department.

Most Business Problems Are Information Problems

What these problems have in common is summed up in one word — INFORMATION. Most problems in business and industry are information problems but all too often such problems are misread, resulting in attacks on effect rather than on cause. National CSS is in the problem solution business. We not only help you identify the causes of problems; we bring all the artillery of the computer age to bear on these causes and produce results in a timely, economical manner.

Solutions

Problem solving capabilities which address specific areas of the business, scientific, and engineering communities are available. These programs are a result of computer techniques applied to specific problems. And in most cases, these user-oriented techniques can be operated without a data processing background.



Capabilities: Four General Categories

■ *Business Control and Planning*

Business Control and Planning is rapidly becoming a science; a science which turns accumulated data into information and information into answers on which intelligent decisions can be based. Corporate Planners, Financial Analysts, Sales Analysts, Market Researchers, and Economists have long realized that sound information is the critical ingredient underlying the decision making and planning processes; information concerning past performance and present activities; information from all corners of the corporate structure; industry-wide information. But it doesn't stop there. Coordinating facts and figures, bringing them into focus and getting a precise answer from the variety of data is the real job. That's where National CSS comes into the picture.

We at National CSS have recognized the needs of the business planning process, identified the critical components of this process, and assembled a collection of capabilities which address those needs.

The collection includes capabilities for: Financial Analysis • Forecasting • Market Research • Statistical Analysis • Simulation.

Within each of these areas, we have invested time, people, and dollars to assemble and develop the resource that will deliver the results you need.

■ *Information Management Systems*

The question today is not "where can I find information?" but rather, "How do I organize the massive amounts of information that are so easily accumulated?" National CSS recognized that the information explosion created a vast, potential resource. Unfortunately, however, information has become so readily available and abundant that businessmen get bogged down in data



collection and organization. Further, they find it difficult to isolate and extract a specific piece of information when needed.

By creating new and unique information management systems we are filling the gap between an accumulation of data and the production of meaningful, intelligent information. With the human element in mind, systems were designed which require no data processing background. The systems utilize the English language, making them easy to learn and use.

Our goal was to create a method to organize data for storage and make it readily accessible for generating meaningful reports. And this goal has been realized in the information management resources of NCSS.

■ *Engineering*

The disciplines of electrical, mechanical, fluid, and optical engineering can no longer be successfully practiced without the assistance of computer-aided design capabilities. These capabilities help shape design concepts and turn them into realities. The capabilities offered to engineers are controlled through language the engineer is already familiar with rather than through a data processing language. Further, the immediate response provided by the system allows for speed and continuity of design. The man-hour/dollar economy of computer-aided design makes it feasible for each engineer or each engineering team within a company to have system access.

In total, the capabilities CSS brings to bear on the engineering disciplines represent an indispensable resource. And, as is true with most resources, this one is not a luxury, it's a necessity.

■ *Programming Languages*

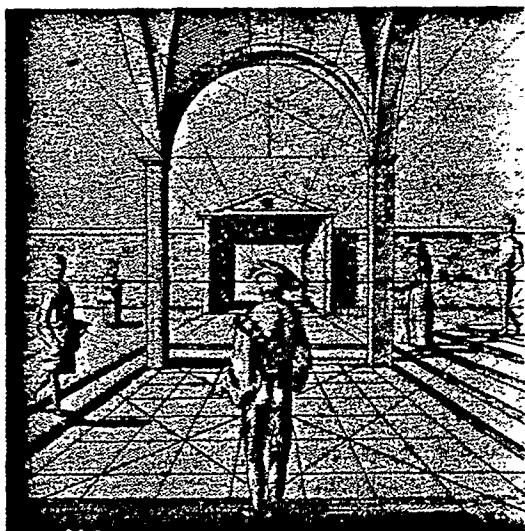
National CSS provides a veritable gold mine of resources for those who are computer programmers by profession, and those who program incidentally to their jobs. Because speed is important, National CSS offers immediate turnaround; because flexibility in input and output methods are important, we offer a full spectrum of peripheral devices; and because full computer power is required, we provide APL, BASIC, COBOL, FORTRAN, and PL/I language processors and debugging aids.

■ **Behind the Scenes**

Computers — Operating System — Applications — Peripherals — Communications Network — Business, Scientific, and Computer Expertise — These components have been forged together to produce a powerful capability greater than the sum of the parts. In effect, National CSS is a resource which meets problems with solutions; molds data into meaningful information; and provides solid facts on which to base meaningful decisions.

■ **\$ And Sense**

National CSS's financial policy is that of growth through internal development. According to *BusinessWeek*, we rank 8th among all public companies in the United States in dollars per employee spent on research and development. It is this policy which is responsible for our rapid growth since our inception in 1967. And because of this policy, we have been transformed from being just another service company into a valuable asset to business and industry.



What The Resource Means To You

Problem

A major aircraft manufacturer was awarded a new contract that required a sharply expanded production capability to successfully fulfill orders.

Result

Total information control.

Scheduling was the problem. A production scheduling system was installed which maximized efficiency and negated the need for expanded facilities.

Problem

A 50 million dollar-a-year corporation found that their long-range plans were continually going awry. Their historic approach to planning had been the "finger in the wind" method.

Result

"Human-engineered" planning resource.

A planning/forecasting capability was set up. The system could not, of course, predict the future, however, it could quantify information and subject it to a mathematical analysis which yielded high percentage probabilities. The result was a realistic approach for predicting trends and long-range corporate planning.

Problem

Losing out on contracts at competitive bidding sessions was the consistent problem of a large hardware manufacturer. The firm's bids were always far enough off to throw them out of contention.

Result

Dynamic analytical power.

A system was developed which allowed relevant information to be organized, accessed, and analyzed rapidly enough to get in competitive bids. The number of contracts awarded the manufacturer tripled.

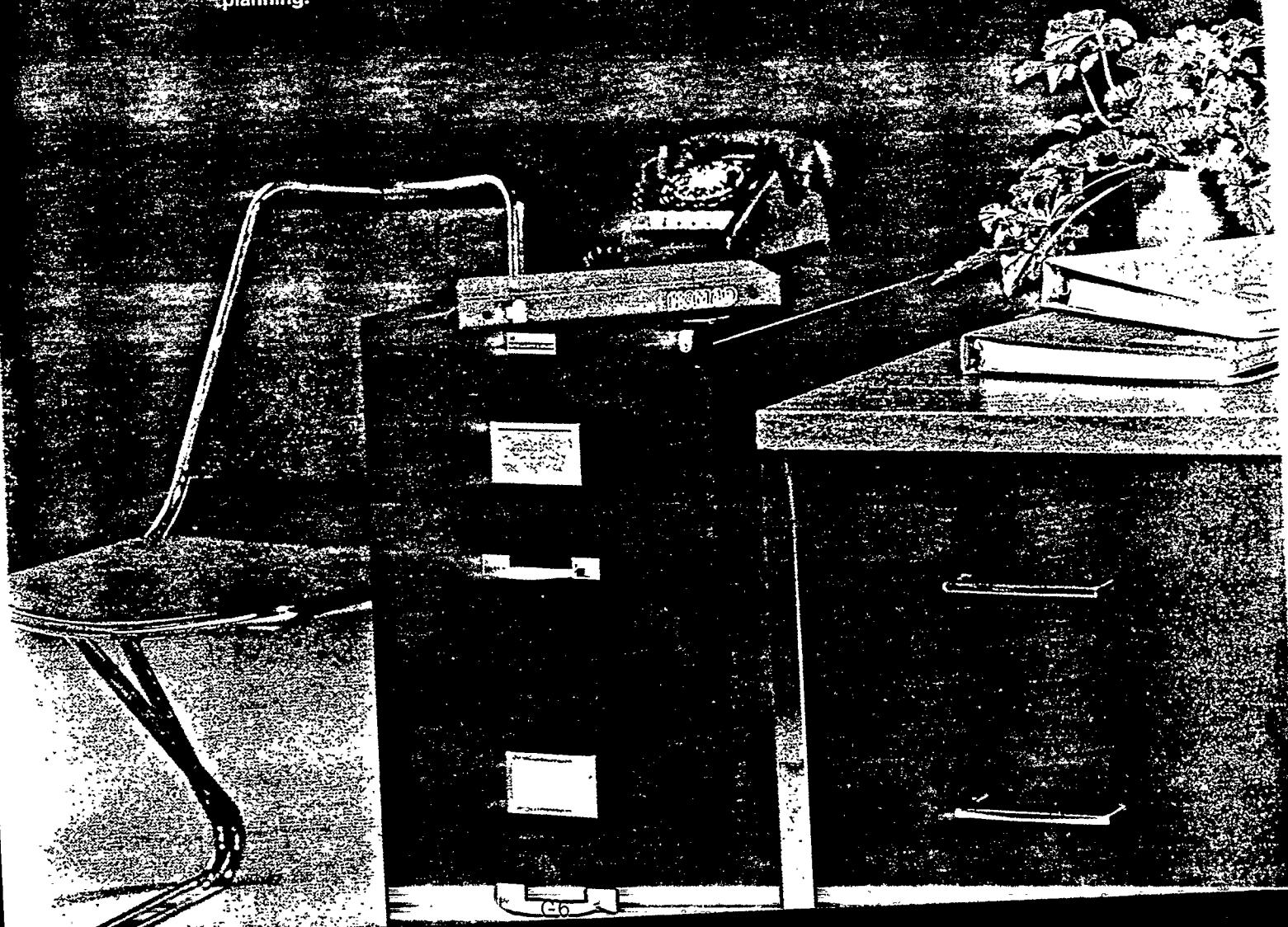
Problem

Design engineers, working for a manufacturer of electronic systems, were having trouble meeting schedules. They were using computer-aided design systems but they had to wait their turn for access to the in-house facility.

Result

Instant resource availability.

National CSS provided a terminal for each engineering team and immediate access to the computer-aided design systems they required. This allowed them to not only meet deadlines but actually increase work-loads.





Problem

Food spoilage in some geographic regions and insufficient supplies in other regions were the problems which faced a national fast food chain.

Result

Nationwide communications network.

A system was installed which allowed usage to be tracked on a regional and seasonal basis. The result was the proper supplies in the right region when needed.

Problem

A hospital, already faced with soaring costs, required an increase in the nursing staff to properly respond to patient needs.

Result

Freedom from routine tasks.

The nurses' clerical duties were infringing on their professional functions. A capability was installed which negated the need for a staff expansion. The cost of the system was less than the average yearly income of 2 nurses.

Communications

Problem solving is our business, but the information which represents solutions is useless unless it can be delivered where needed. Our communications network extends throughout the United States, England, and France and local dial-up service is available in most regions. The network enables communications not only to and from NCSS processing centers but allows customers with more than one site to distribute or consolidate information.

Hardware

Our processing centers, built around IBM 370 and AMDAHL 470 computers, are acknowledged to be among the largest commercial installations in the world. Our capacity is always ahead of requirements ensuring that each customer receives immediate response and the specific resources which fit his needs.

Operating System

The VP/CSS operating system is the primary interface between you and the computer. The design criteria of the operating system was to produce a sophisticated internal program to oversee the functioning of all hardware and client usage, and to ensure that all information is transmitted properly throughout the system. In effect, the operating system relieves you of all computer "housekeeping" chores and frees you to accomplish the objectives that originally brought you to us.

Dual Expertise

National CSS retains a staff of professionals with collective expertise in a broad range of business and industry disciplines. The duality comes in the fact that they are also experts at translating your business problems into computerized solutions.

Components Of The Resource



Applications

Applications are programs which have been prepared to fulfill a specific purpose. An application for an electrical engineer, for instance, would be one which would help him to design a circuit. An application for an accountant would be one which could deal with ledgers and accounts payable and receivable. A data base application would be for anyone who must deal with vast quantities of information.

Almost all applications have been designed for use by the non-data processing person. Applications available through NCSS fall into three general categories: business control and planning — engineering — data base systems for information management. Most applications are not rigidly pre-packaged. They may be tailored to meet varying and specialized requirements. Additionally, programmers are given a full range of compilers and debuggers, and an excellent environment for program development and production runs.

Batch Processing

An additional convenience is made available by one of our subsidiary companies, TBS. The service TBS provides is batch processing, a method of utilizing computer resources without direct contact. To use this service, a customer prepares and organizes information for processing and then sends it to a local TBS office. Personnel at the office process the information and return the results to the client.

Peripherals

Most customers access CSS through a terminal; either a television-like terminal which is often referred to as a CRT, or one which produces a paper printout. Any other peripheral device required is available at local NCSS offices, or if a customer so desires at his own site. Peripherals include card readers, tape punches, and high-speed printers.



Our Style

We've told you about ourselves but we haven't told you what makes us unique. Imagination; computer know-how coupled with creative audacity; enthusiasm coupled with sound and tested fiscal policies; and a sense of mission which is applied to the needs of business and industry: these are the ingredients that enhance our service and transform it into an invaluable resource.

Detailed descriptions of the individual offerings and a list of our branch offices can be found in the adjacent pocket. And if you don't see what you want, it's because we're in the process of building it.

Branch Office Locations



Corporate Headquarters

National CSS, Inc.
187 Danbury Road
Wilton, Connecticut 06897
(203) 762-2511

NCSS Locations

Atlanta
Atlanta Center
Suite 1002
250 Piedmont Avenue N.E.
Atlanta, Georgia 30308
(404) 659-1600

Cambridge
1033 Massachusetts Avenue
Cambridge, Massachusetts 02138
(617) 868-2950

Chicago
625 N. Michigan Avenue
Chicago, Illinois 60611
(312) 751-2200

Cleveland
1100 Superior Avenue
Cleveland, Ohio 44114
(216) 771-5550

Dallas
Heritage Square
4835 LBJ Freeway
Dallas, Texas 75234
(214) 661-3688

Denver
Prudential Plaza
1050 17th Street, Suite 1930
Denver, Colorado 80265
(303) 534-2720

Detroit
23777 Greenfield Road
Southfield, Michigan 48075
(313) 559-7766

Elizabeth
27 Prince Street
Elizabeth, New Jersey 07208
(201) 965-2250

Hartford
65 La Salle Road
Suite 304
West Hartford, Connecticut 06107
(203) 561-3730

Houston
4600 Post Oak Place Drive
Houston, Texas 77027
(713) 621-9231

London, England
CSS International (U.K.) Ltd.
232-242 Vauxhall Bridge Road
London, SW1, V1AU, England
01-834-2223

Los Angeles
1888 Century Park East
Los Angeles, California 90067
(213) 277-7511

RTW Division
2718 Carrier Avenue
Los Angeles, California 90040
(213) 685-5505

Minneapolis
IDS Tower
Suite 1616
Minneapolis, Minnesota 55402
(612) 339-4801

Newport Beach
3919 Westerley Place
Suite 109
Newport Beach, California 92660
(714) 833-8370

New York
485 Madison Avenue
New York, New York 10022
(212) 754-1700

RTW Division
1212 Avenue of the Americas
New York, New York 10036
(212) 246-5200

TBS Division
1212 Avenue of the Americas
New York, New York 10036
(212) 581-2345

Norwalk
542 Westport Avenue
Norwalk, Connecticut 06851
(203) 853-7200

Paris, France (CSS France)
30 Rue Notre Dame des Victoires
75002 Paris, France
261-56-35

Philadelphia
Three Penn Center
Philadelphia, Pennsylvania 19102
(215) 665-1566

Phoenix
5150 N. 16th Street, B130
Phoenix, Arizona 85016
(602) 264-5490

Pittsburgh
Two Oliver Plaza
Pittsburgh, Pennsylvania 15222
(412) 281-6111

Portland
Riviera Plaza, Suite 403
1618 S.W. First Ave.
Portland, Oregon 97201
(503) 223-7255

St. Louis
One Mercantile Center
Suite 3601
St. Louis, Missouri 63101
(314) 621-8400

San Diego
591 Camino De La Reina, Suite 217
San Diego, California 92108
(714) 297-5870

San Francisco
One California Street
San Francisco, California 94111
(415) 989-3930

Santa Clara
Marina Playa Executive Park
1333 Lawrence Expressway
Suite 350
Santa Clara, California 95051
(408) 739-6271

Stamford
2777 Summer Street
Stamford, Connecticut 06905
(203) 327-9100

Washington, D.C.
1500 Wilson Boulevard
Arlington, Virginia 22209
(703) 524-1500

**The Hardware
The Operating System
The Network**



The basic hardware that drives the system consists of two IBM System/370 Model 168's; one IBM System/370 Model 158; one Amdahl 470 V/6; one IBM System/360 Model 67, and 26 PDP 11/40's. This equipment is operated at our five National CSS Data Centers in Los Angeles, and Sunnyvale, California, New York City, and Stamford, Connecticut. All data centers and NCSS offices are linked together by over 70,000 miles of network with local dialing facilities from over 80 locations.

The basic interconnecting links of the network are established through standard telephone communications facilities provided by the common carriers, thus making our computer resources for information handling and problem solving accessible from practically every telephone in the world. Our customers in Europe link to our network via transatlantic cable and communications satellite backup facilities.

Our staff experts in telecommunications techniques select the optimum mix of leased lines and other communications features to provide our customers with rapid access to our computer facilities in the most economic manner possible, without involvement in the daily maintenance routines associated with large computer systems.

This effort has been significantly advanced by the implementation of packet switched software and minicomputers as part of our network. These minicomputers oversee the communications of data within the network freeing our interactive computers for problem solving. The "minis" provide increased communications efficiency by gathering data for bulk transmission from a branch office location, and by checking data for transmission errors. In addition, they are connected with facilities in our data centers and branch offices so that a single user may access our computer resources through the local mini. The high-volume and efficiency of transmission possible through a minicomputer link substantially increases reliability while reducing communications costs.

While all of these facilities are available on demand, the user only pays for the reports or information he needs. We call this fee an Application Resource Unit (ARU). It represents collective processing and the I/O (input/output) resources used to solve a problem. In this way the customer knows the charge associated with each report before he accesses it. We feel that our customers are not just buying time on a computer system, but are purchasing valuable information; information with solutions for problems and this attitude is reflected throughout our entire system, including pricing methods.

VP/CSS

Our VP/CSS system is a superior operating system, both in its performance and capabilities, and in the number of tasks it can support.

The VP/CSS system consists of two distinct parts: the virtual control program (VP) and the conversational software system (CSS). VP is a "virtual machine" control program that shares the resources of the hardware system among the tasks running on the system. The tasks may involve time-sharing information retrieval, batch processing, other operating systems, or remote batch jobs. All the tasks may coexist with simultaneous operation at one data center.

The maximum number of tasks the system can support simultaneously depends upon the hardware configuration. Our total network capability today can support 750 simultaneous users. This performance capability, provided by the VP system, is also responsible for overall system reliability and device support. CSS is a conversational operating system which is largely compatible with IBM's OS/360. It is an extremely efficient tool for all types of interactive work - program development, program debugging, execution testing, interactive problem solving, and information retrieval.

MINIMUM CONFIGURATION REQUIRED

- The programs required to operate VP/CSS and the languages and applications described here reside on the VP/CSS system disks and are shared by all system users. There is no charge to the user for these basic facilities.
- The minimum disk space required for any software package is 120,000 characters, referred to in the VP/CSS system as one disk cylinder. As many cylinders as are required by a program or application can be made available to a user. This space is used for work space and/or permanent file space.
- Disk "spooling" space is used in buffering input and output files being processed by card or print facilities. VP/CSS disk space is used for this purpose; no user space is required.
- No tapes are required for compilers or applications, with the exception of those utilities that either dump or restore files. These utilities are also a part of the basic VP/CSS system.
- Each user is assigned a minimum of 256K of virtual memory (one K = 1024 bytes or 8,192 bits of storage). Each customer appears to have a wholly dedicated computer with a minimum of 256K into which he can load a compiler, applications, and other programs. The paging among real core, drum, and disk is completely invisible to the user.
- Each user is required to have a remote terminal to access the NCSS computer network. We support an extensive range of terminals, which allows virtually any type of peripheral equipment manufactured to be used.

Information Management Systems



NOMAD

NOMAD is a comprehensive Data Base Management System designed for the efficient and timely conversion of business data into information for more effective executive decision making.

NOMAD can support multiple path hierarchical/relational databases and external file descriptions in any combination. Multiple application files are also allowed in a single database.

NOMAD allows complete flexibility in the data description. Among the options, the user can specify that incoming data be checked automatically for integrity and consistency.

NOMAD gives the database administrator complete control over database access authorization. An unlimited number of alternate views of the database with varied security requirements and access rights can be specified.

NOMAD databases can be maintained either interactively or by means of a catalogued procedure using NOMAD's natural language.

NOMAD's exceptionally powerful report writer allows reports to be created in any output format required. Because the report writer is not constrained by the data storage technique, it offers a combination of simplicity of utilization and extremely comprehensive display techniques.

NOMAD has proven to be an invaluable tool for quickly implementing solutions in areas as diverse as:

- Finance and Accounting
- Personnel
- Sales Marketing and Analysis
- Manufacturing and Production
- Research and Engineering

MARK IV

MARK IV is a well-known file management and information retrieval system which can effect a 60 to 90 percent cost and time reduction compared to other programming methods. MARK IV is used most effectively for medium to large sequential and indexed sequential file systems.

RAMIS and RAMIS II

The Rapid Access Management Information System (RAMIS) provides a highly-adaptable file management facility and very flexible report generation facility. The English-like information retrieval language requires no previous programming experience and allows very sophisticated graphic or tabular reports to be easily prepared.

National CSS, Inc.
187 Danbury Road
Wilton, Connecticut 06897
(203) 762-2511

The Languages



APL/CSS

APL is a powerful programming language that gives you the power to conceptualize computer applications in a fraction of the time over other programming languages. APL/CSS offers IBM's latest VS APL processor plus a complete working environment. It includes such enhancements as: a sophisticated formatter, adjustable workspace, support for a variety of I/O devices and a wide selection of library routines.

BASIC/CSS

BASIC/CSS provides a simple, efficient method for obtaining a solution to your problem. The IBM VS BASIC processor produces efficient machine code and provides extensive language debugging capabilities. From the BASIC/CSS environment, you can access the powerful CSS line number editor, a number of programming aids, and three libraries of more than 100 prewritten mathematical, statistical, and business analysis programs.

COBOL/CSS

COBOL/CSS offers a total package of program development facilities as well as a flexible environment for running production systems.

Three IBM compilers (ANS VS, OS, and level F) provide complete IBM compatibility. They are available with a simple CSS command to compile programs, and produce error diagnostics directly at the terminal.

Coding, debugging, and language conversion aids provide a cost-effective method for program development and maintenance. The CDEBUG symbolic debugging facility, for instance, allows the user to display or change core storage by data-name, set breakpoints at paragraph-names or at line numbers, turn traces on or off, and test the logic of a program.

Finally, the CSS system provides a powerful EXEC language, large core and file sizes, flexible I/O facilities, a network or printers, etc., creating a complete environment for developing production systems.

FORTRAN/CSS

The FORTRAN/CSS programming environment offers three Fortran compilers each meeting different design objectives. Using any one of these facilities, FORTRAN programs may be compiled or executed with a simple command. Files may be assigned to the user's terminal, disk, or other I/O devices.

WATFIV The University of Waterloo fast FORTRAN compile-and-go system is available for

extremely fast compilation, extensive error monitoring, and comprehensive, understandable diagnostic messages.

IBM OS FORTRAN IV(G1) The standard for some time, this compiler has been enhanced by NCSS to provide useful extensions, improved performance, and the ability to generate information required by the FORTRAN debugging facility.

IBM OS FORTRAN IV (H-Extended) For use by production programs, this compiler produces code which executes substantially faster than any other compiler available on an IBM system.

An integral part of the FORTRAN/CSS programming environment is the FDEBUG facility which allows a program to be monitored and controlled during execution. By means of simple commands, the user can set breakpoints, display, alter and trace variables, trace program flow, and construct complex commands which can be conditionally performed at breakpoints.

PL/I/CSS

To suit unique needs of the PL/I programmer, the PL/I/CSS environment couples a choice of IBM compilers with the NCSS instant response system. Both programmer-time and machine-time are optimized making a cost-effective, efficient approach to program development.

The IBM PL/I Checkout Compiler creates an interactive environment for the debugging and testing of PL/I programs. The VP/CSS version of the Checker is unique in that it supports the PL/I internal sort.

The PL/I Optimizing Compiler is designed to improve execution time while offering such enhancements as better interlanguage communications and facilities for additional program control.

The PL/I Compiler, while no longer supported by IBM, is available for use on VP/CSS with all features offered in the last IBM release.

ASSEMBLERS

The full language versions of the IBM F-level and H-level Assemblers are available on VP/CSS. These processors, when invoked by means of a simple command, provide rapid program assembly and online diagnostics.

The H-level Assembler provides extended macro-processing and cross-referencing of literals.

The ADEBUG facility allows complete and comprehensive symbolic debugging of programs. It has been designed specifically for programmers who need access to machine

instruction debugging. Use ADEBUG requires no modification to the program yet allows the user to reference labels symbolically and trace SVC's and/or individual machine instructions.

GRAPHICS/CSS

GRAPHICS/CSS offers the facilities to produce meaningful, publication-quality graphs on a wide choice of graphic output devices including microfilm. Two software systems are available: TELL-A-GRAF and DISS-PLA, each designed to meet the specific needs of different users.

TELL-A-GRAF is designed for the non-programmer. It is an interactive environment which uses simple English sentences to interface with DISSPLA routines, allowing the user to easily develop, online, a variety of graphs, including bar charts and pie charts.

DISSPLA is designed for FORTRAN users, but is accessible through any language that supports subroutine calls, including PL/I, COBOL, and Assembler. It is a fully integrated software system which meets the most sophisticated needs. Virtually any graph from simple bar charts to complex, 3-dimensional functions may be generated.

CONVERT

The CONVERT facility provides a library of conversion programs that can be used to convert from one dialect of a language to another. Output from CONVERT is converted source code or reformatted data files.

SCRIPT

The SCRIPT facility is a text-processing system with powerful editing features which permits full page make-up including the positioning of text, page numbers, and headings on an output page.

SYSTEM FEATURES

All programming language capabilities are supported by a system dedicated to the science of information handling. This system creates an ideal environment for any programming activity. Of particular importance:

File Management: Data files, whether for testing or production runs, may be on disk, tape, or cards. Output may be directed to any of the above devices or to printers located at NCSS data centers, branch offices, or at the user's own installation. Maximum CSS file size is 16 million records.

Access Methods: A broad range of access methods are supported including QSAM, BSAM, BDAM, QISAM, BISAM, BPAM, and

VSAM. Utility programs for the creation and maintenance of ISAM and VSAM files are available on the system.

Sorting: The IBM OS Sort/Merge program can be accessed from user programs written in Assembler, COBOL, or PL/I, or directly from the CSS command level.

Additional sorting capabilities are available with the interactive SORT command and a program-callable in-core sort.

Libraries: Available to language users are a large number of system library routines plus the facilities to create user-designed libraries.

The system library provides useful subroutines that can be used to: provide information that may influence program flow; streamline execution (e.g., in-core sorts); ensure file validity during a long program run; and issue other CSS commands during program execution.

The MACLIB facility, which is available to Assembler, COBOL, FORTRAN, and PL/I, provides all the functions necessary to generate and maintain a library of source code that can be copied or included in the program at assembly or compile time.

In addition there are extensive prewritten libraries available for APL and BASIC, plus the IBM Scientific Subroutine Package for FORTRAN and PL/I.

CSSBATCH: The VP/CSS Batch Control System enables the user to utilize all functions performed by the VP/CSS system which do not require user interaction. The CSSBATCH means program compilations or jobs can be run under VP/CSS overnight at substantially reduced rates. Requests to execute a batch job may be made online or offline.

EXEC: CSS users who frequently find themselves issuing repetitive series of commands can use the CSS EXEC language to easily execute files of commands. EXEC also supports such advanced features as conditional transfers, terminal I-O, looping, parameter substitution, and recursion.

EDITOR: A complete file creation and alteration capability with contextual or line number modes supplies a convenient and efficient method for working with all files.

LINKAGE EDITOR: Although most program execution on the VP/CSS system is accomplished by means of a loader, an OS-compatible linkage editor is available for both planned and dynamic overlay structures. Additionally, a LNKLIB utility program provides for adding or deleting members of a link-edited library as well as compacting, listing, or changing member names.

Business Control and Planning



Financial Planning and Forecasting

EMS

EMS is an application program which is used to perform the full range of business analysis tasks from cash flow analysis to financial modeling and projections. Analysis capabilities available through EMS include: a full range of statistical, financial, and regression techniques. Easy-to-use data management capabilities and a finely tuned report writing capability makes EMS a powerful, user-oriented capability for solving business planning problems.

MLE

Merrill Lynch Economics on the National CSS system makes comprehensive economic services readily available. This service provides easy and direct access to current economic, financial, industrial, and demographic data for use in economic and corporate research and in the development of economic and financial models. In addition, economic models of various industries and a national model are available. Analysts, planners, and researchers will find MLE a valuable economic planning tool.

CSS/INFOTAB

Budget, marketing, and pro-forma financial reports are prepared easily and inexpensively with this business reporting tool. CSS/INFOTAB provides extensive consolidation and data handling capabilities, automating the business reporting process.

LAS

The Lease Analysis System is an interactive program used to analyze simple and complex leveraged leasing transactions. Options available in LAS include the analysis of book income accounting under the finance or the operating method, complete termination and casualty value schedules, and complete statement of investment analysis, cash flows, taxes, and book income on a monthly, quarterly, or annual basis.

LVB

The Lease Versus Buy analysis system is used to effectively compare alternative methods of financing the acquisition of an asset. LVB's flexibility easily allows for the comparison of changing assumptions so that financial decisions can be made with confidence. Additionally, LVB can determine residual floor values in order to evaluate if buying is more attractive than leasing. LVB also calculates the interest rate ceiling which makes a purchase financed by borrowing more attractive than leasing.

Market Research

ONSITE

For any given area in the U.S., Onsite retrieves demographic reports according to site and study area specifications identified by geographic coordinates. In addition to thousands of 1970 census items, updated information includes:

- Current year population and household counts
- Current year aggregate, household, family and per capita income
- Current year consumer expenditure patterns

Onsite study area definitions can consist of geometric shapes, ZIP Code areas, census tracts, cities, townships, counties, standard metropolitan statistical areas (SMSA's) and/or other census classifications.

On a continuing basis, Onsite incorporates special census, local, county, and regional estimates into annual updates.

Also included in Onsite is current bank data with deposits and market shares by service area for California and New York, as well as S & L data for California.

ZIP MARKETBASE

ZIP MARKETBASE is a database operating in a flexible reporting environment and containing demographics on numerous Zip Code areas within the United States. This information has wide spread application in direct marketing where it may be necessary to identify geographic units to determine market potential, market penetration and advertising effectiveness.

CENSAC

CENSAC is an interactive system that accesses the 1970 Census of Housing and Population. It provides access to block group, enumeration district, and census tract summary statistics generated by the Bureau of the Census. This data includes family income, educational attainment, mobility, social and ethnic characteristics, employment, consumption patterns, population and housing counts, housing values and monthly contract rent, family relationships, and housing conditions. CENSAC generates a variety of printed reports or a binary file of census data for any selection of census geography and census tabulations.

CSS/TAB

Presenting accumulated raw data in the right format is easy with CSS/TAB. CSS/TAB is a complete cross tabulation system for presenting data in a clear and concise format. With CSS/TAB vast amounts of questionnaire data can be turned into a table of any type of size including:

- an infinite number of rows
- up to 30 banner points
- weighting
- ranking
- means, standard error
- percentile
- and more

And tables can be reformatted instantly, giving a variety of perspectives on the collected data.

Forecasting

SPX/TIME

SPX/TIME is a sophisticated technique for time series analysis. SPX/TIME provides three analyses techniques:

- Box-Jenkins Univariate Analysis
- Box-Jenkins Transfer Functions
- The U.S. Bureau of the Census X-11 and X-11Q Seasonal Adjustment programs

The comprehensive Box-Jenkins technique provides forecasts of values of a time series based on past observations of that time series alone (univariate stochastic forecasts) and forecasts of values of a time series based on past observations of both that time series and up to three other series on which it may be partially dependent (transfer function forecasts).

The X-11 and X-11Q programs are used to analyze the seasonal, trend, cyclical, trading-day, and irregular fluctuations of an economic time series.

Statistical Analysis

SPX

SPX is an interactive statistical package. The statistical capabilities provided include basic statistics, analysis of variance, regression, factor and discriminant analysis, and various nonparametric statistical tests. SPX also includes plots, scattergrams, and histograms. Data can be stored and updated using the SPX data management facility. SPX also provides a monitor which controls the sequence of operations to be performed, and numerous statistical routines.

SPSS

Market Survey, Sales Analysis, and Opinion Polls are some of a variety of projects that can be addressed with the Statistical Package for Social Sciences. SPSS is a statistical system providing data management and analysis capabilities that can be used in projects requiring basic descriptive statistics to more complex ones requiring multivariate analysis. Widely recognized for its extensive variable labeling capabilities and easy to read output, the online version of SPSS helps the user solve problems quickly, without requiring computer expertise.

BMD

The Biomedical Computer Programs, developed by the University of California, offer a variety of sophisticated statistical analysis routines including several which perform univariate and multivariate analysis. Two series of programs, BMD and BMD-P, are available; NCSS offers both.

SSP

Scientific Subroutine Package is a package of statistical subroutines which can be incorporated in user's programs written in PL/I or FORTRAN. This package, developed by IBM, can be accessed by users directly or used with their own modifications.

TELSTAT

Daily information on stocks traded on New York and American Stock Exchanges and over the counter, on bonds traded on New York and American Stock Exchanges, and on options traded on C.B.O.E. and American Stock Exchange is available through the Telprice/70 data base supplied by the TELSTAT Systems, Inc. In addition to providing this information, TELSTAT includes routines to allow users access to this information from within their own program and to display it, online, using Ticker symbol, CUSIP, or S.I.C. code.

Simulation

DYNAMO

The Dynamic Modeling System (DYNAMO) is an interactive program which compiles and executes continuous simulation models. It has been used to study many different systems, including: business, social, economic, biological, psychological, and engineering systems. Continuous models are useful when the behavior of the system being examined depends more on aggregate flow than upon the occurrence of discrete events. DYNAMO on NCSS includes the latest version of DYNAMO II and Gaming DYNAMO.

GPSS V

GPSS V is the foremost language for discrete system simulation. A greatly expanded, interactive version of GPSS V (General Purpose Simulation System V), NGPSS V can be used for modeling stochastic systems involving the processing of hundreds of discrete entity transactions such as management and industrial engineering studies. Among the features which have been added to NGPSS V are online debugging aids, a disk data base capability, and an easy-to-use report writer.

SIMSCRIPT 2.5

SIMSCRIPT 2.5 is a versatile programming language which has been designed for the simulation of complex systems. SIMSCRIPT 2.5 assists the analyst greatly in the conceptualization and design of simulation models through its powerful modeling capabilities, founded on the basic concepts of Entities, Attributes, and Sets. Compared to FORTRAN, it significantly reduces simulation programming time and cost. Compared to interpretive simulation techniques such as GPSS V, it is more efficient and flexible.

MPS III/OL

The Mathematical Programming System III/Online is a sophisticated system for solving problems involving complex linear programming models with data bases. Widely used in operations planning, financial planning, investment analysis, and resource allocation, MPSIII/OL is applicable in a variety of areas from the food and beverage industry to the financial community.

PAUS

With PAUS, Program to Analyze Uncertain Situations, management can gain new information concerning the economic risks inherent in their decisions and the probabilities of achieving certain results. PAUS is a computer program which utilizes Monte Carlo simulation techniques to evaluate the economic impact of the uncertainty or risk in a given situation. Some decisions areas where PAUS can be used are: Investment Evaluation, Marketing Studies, Inventory Control, R & D, Project Evaluation, and Bidding Strategy.

Accounting

BAS

Developed according to standard accounting principles, Business Accounting Systems, (BAS), is a collection of programs which are customized to suit individual accounting procedures. These programs are grouped into 3 modules: General Ledger, Accounts Payable, and Accounts Receivable, which can be used collectively or as independent systems. When installed, BAS provides complete audit trails, user-controlled accounting periods, and data manipulation capabilities to meet a company's operating and reporting requirements.

BAS was designed by our Professional Services staff to address one customer's information problem. Our Professional Services staff combines extensive experience with the problems of the business and commercial world with a comprehensive knowledge of our total system capabilities and data processing techniques. Through consultation, analysis, design, implementation, and testing, this group has developed customized solutions in business and accounting systems, financial analysis, manufacturing and product support systems, inventory and control, and a broad spectrum of specialized industrialized applications.

National CSS, Inc.

187 Danbury Road
Wilton, Connecticut 06897
(203) 762-2511

Engineering



**Electronic
Fluid Flow
Mechanical
Optics**

ELECTRONIC

ISPICE

A circuit analysis tool reflecting the state-of-the-art in electronics, ISPICE simulates and analyzes circuits of unlimited size and complexity. Built in the program are models for the latest bipolar and field-effect devices which accurately reflect device performance in the DC, including temperature; AC; and transient simulation modes. Sensitivity and noise analysis may be used to pinpoint critical areas. To assess circuit performance under production conditions, Worst Case and Monte Carlo analyses are available, and faulting analysis is available to observe failure conditions. The interactive structure of ISPICE allows the designer to specify element and device values as algebraic functions of user parameters; employ his own device descriptions and topologies as building blocks; or combine those with data in public libraries.

All operating point data or circuit values and topology may be interactively examined at any time. All data developed during a simulation may be saved and the simulation continued or reexamined without repeating the entire simulation process.

LOGCAP

A complete logic network design and analysis program, LOGCAP combines advanced analysis techniques with four state simulation, macro models of complex logic elements including RAMs and ROMs, and libraries of commercially available parts including the AMD 2900 logic family. Timing considerations may be modeled and faults may be identified and analyzed for networks of virtually unlimited size. Analysis results can be translated directly into input for automated logic testers or in SENTRY source programs for use with the FACTOR Cross Compiler (FXC).

PROPHESY

An Automatic failure-rate prediction program, PROPHESY produces detailed equipment failure rates and MTBF's within moments after the parts list has been entered. Alternative cases of environment, operating temperature, and screening level are easily computed. Trade-off data is computed automatically. PROPHESY can perform a reliability analysis using part characteristics for non-military and special purpose parts contained in the user's data base, in addition to using military part characteristics contained in an extensive data base already built into the program. The reliability methods employed are a direct implementation of MIL-HDBK-217B.

MICROPROCESSOR PROGRAM DEVELOPMENT SUPPORT SOFTWARE

To help realize the true potential of microprocessors, NCSS offers program development and diagnostic software tools to speed the development of and eliminate errors in program designs. These tools include high-level languages, COMPILERS, ASSEMBLERS, SIMULATORS, LOADERS, and UTILITY programs. Support software is available for:

Manufacturer	Chip Type
American Microsystems, Inc.	6800
Fairchild Semiconductor, Inc.	F-8
INTEL Corp.	4004, 4040, 8008, 8080, 8085, 8048
Monolithic Memories	6700
MOS Technology/Rockwell	6500 series
National Semiconductor, Inc.	PACE, IMP-16, SC/MP
Raytheon	2901
RCA	CDP1802
Rockwell	PPS-8, PPS-4, PPS-4/1
Scientific Micro Systems	Microcontroller
Signetics, Inc.	2650, 8X300
Texas Instruments	1000, 8080, 9900
Zilog	Z-80

High-level languages area are available from:

Intermetrics	PL/M 6800
Signetics	PLUS
Texas Instruments	TIML
Zilog	8080 PL/M Z-80 PL/M

COMPACT

COMPACT is a frequency domain simulation program used to evaluate the performance of high frequency and microwave active and passive networks. Frequency, noise figure and sensitivity analyses, as well as circuit optimization can be performed. Additionally, complex conjugate pair problems can be solved and Monte Carlo Worst Case Analysis performed with timeliness and accuracy.

COMPACT is straight forward and easy-to-use. A library of active devices is provided. COMPACT accepts both multiport and nodal configurations as well as microstrip data in dimensional form to provide an almost endless range of high frequency applications.

AMPSYN

AMPSYN is a direct synthesis computer-aided design program used in designing high frequency and/or microwave matching networks, including input, output, amplifier, and interstage circuits. The AMPSYN program synthesizes lumped element matching networks and provides for transformation of the lumped design to approximate transmission line equivalents. AMPSYN allows the user to select the necessary topology to absorb the parasitic elements. Impedance transformations are implemented by the program to provide the proper networks for the specified terminating impedance levels. By use of direct synthesis techniques, input, output, amplifier, and interstage networks can be obtained to meet the user-specified bandwidth, ripple, and gain slope.

FILSYN

FILSYN is a general purpose, FILter SYNthesis program for the design of all types of passive, active, and digital-filters. The conversational interactive operation enables the user to design the ultimate in filter structures and does not require previous theoretical knowledge or the use of filter tables. The type of filter designs available with the FILSYN program include lowpass, linear-phase lowpass, highpass, and bandpass. All of these can be designed with various options including maximally flat or equal ripple-type passband; monotonic, equal minima, or arbitrary stopband; or arbitrary terminations. For more general cases, functional input is also available.

FLUID FLOW

GASSS

The Gas Steady-State Piping System Simulator (GASSS) is used to determine the balanced steady-state pressure-flow relationship for a gas network system composed of pipelines, compressors, and regulators.

GASUS

The Gas Unsteady-State Piping System Simulator (GASUS) performs a time-dependent analysis of a gas network composed of pipelines, compressors, and regulators.

LIQSS

The Liquid Steady-State Piping System Simulator (LIQSS) is used to determine the balanced steady-state head-flow relationship for a liquid network system composed of pipelines, pumps, and valves.

LIQT

The Liquid Transient Piping System Simulator (LIQT) performs a time-dependent analysis of liquid systems composed of pipelines, pumps, valves, surge tanks, water-boxes, accumulators, etc. Pump failures and other waterhammer inducing situations can be simulated.

MECHANICAL

STRUPAK

STRUPAK is a collection of 31 separate programs which are used to solve a wide variety of structural analysis/design problems commonly occurring in structural mechanics. Programs address areas including: section properties, beam and column problems, frame/truss structural analysis and modal/dynamic response analysis.

OPTICS

ACCOS V

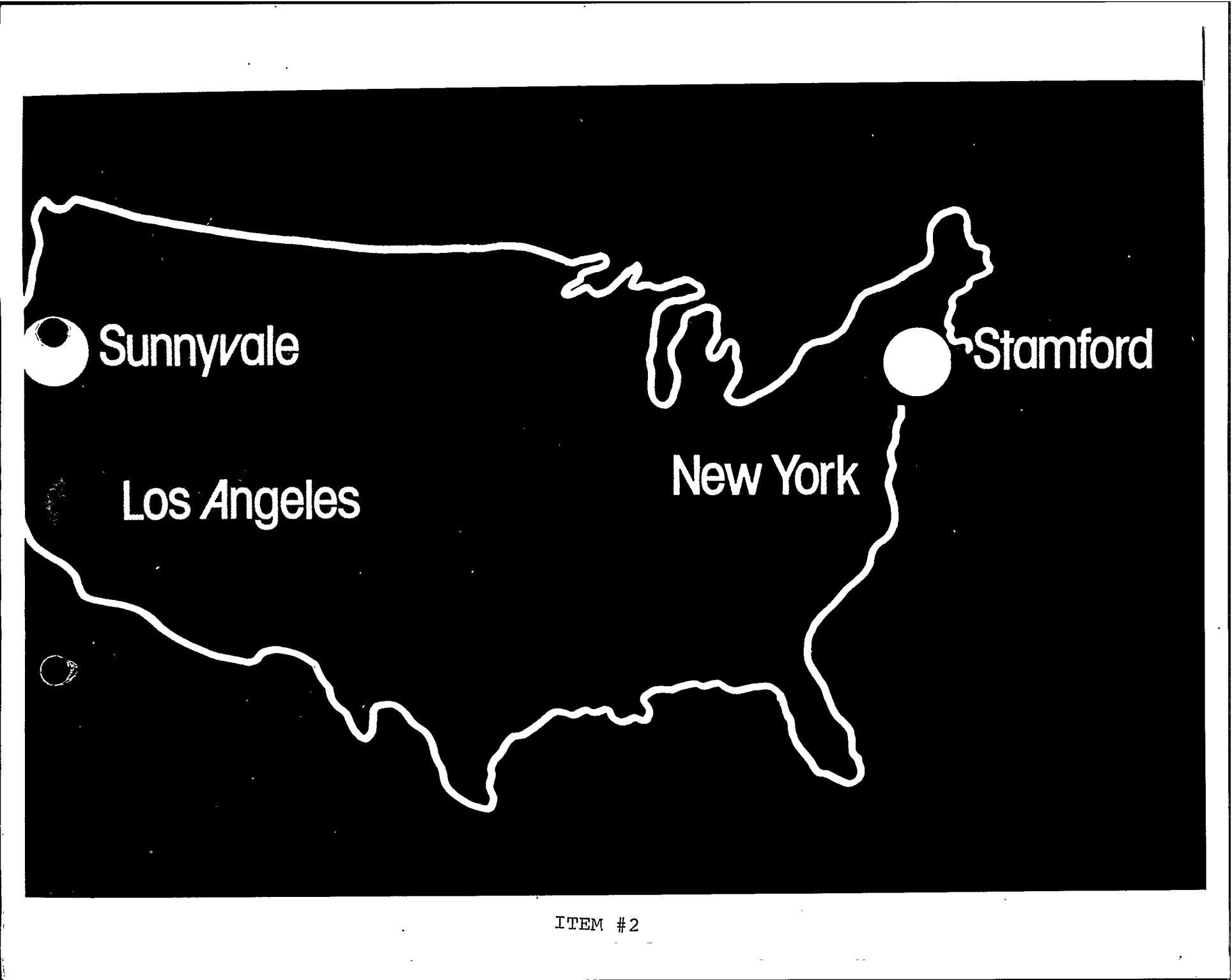
ACCOS V is a set of interactive programs which are used for lens design and image evaluation. Among the functions which can be performed using ACCOS V are automatic optimization with modified orthonormalization algorithm; image evaluation by spot diagrams and radial energy distributions and knife edge; ray trace, third and fifth order aberrations.

PHOTOGRAPHS AND CHARTS

- 1) National CSS, Inc., Corporate Headquarters, Wilton, Connecticut
- 2) NCSS Major installations
- 3) EAST - Stamford, Connecticut, also known as NCS-1.
- 4) SUNY - Similar to Computer installation known as SUNY, Sunnyvale, California
- 5) AIMS - Similar to computer installation known as AIMS located at Mediametrics, Moraga, California (Full equipment installation).
- 6) NCSS 3200 - Similar to Computer installation known as AIMS located at Mediametrics, Moraga, California (Partial Equipment Installation).
- 7) NCSS Telecommunications Network Map, Continental United States.
- 8) NCSS Telecommunications Network Control Center
- 9) CRT (Cathode Ray Tube) Terminal with telephone connection
- 10) CRT Terminal - closeup photo
- 11) Telephone interconnect device - closeup photo
- 12) Conventional terminal with paper (hard copy) display.



ITEM #1



Sunnyvale

Los Angeles

New York

Stamford



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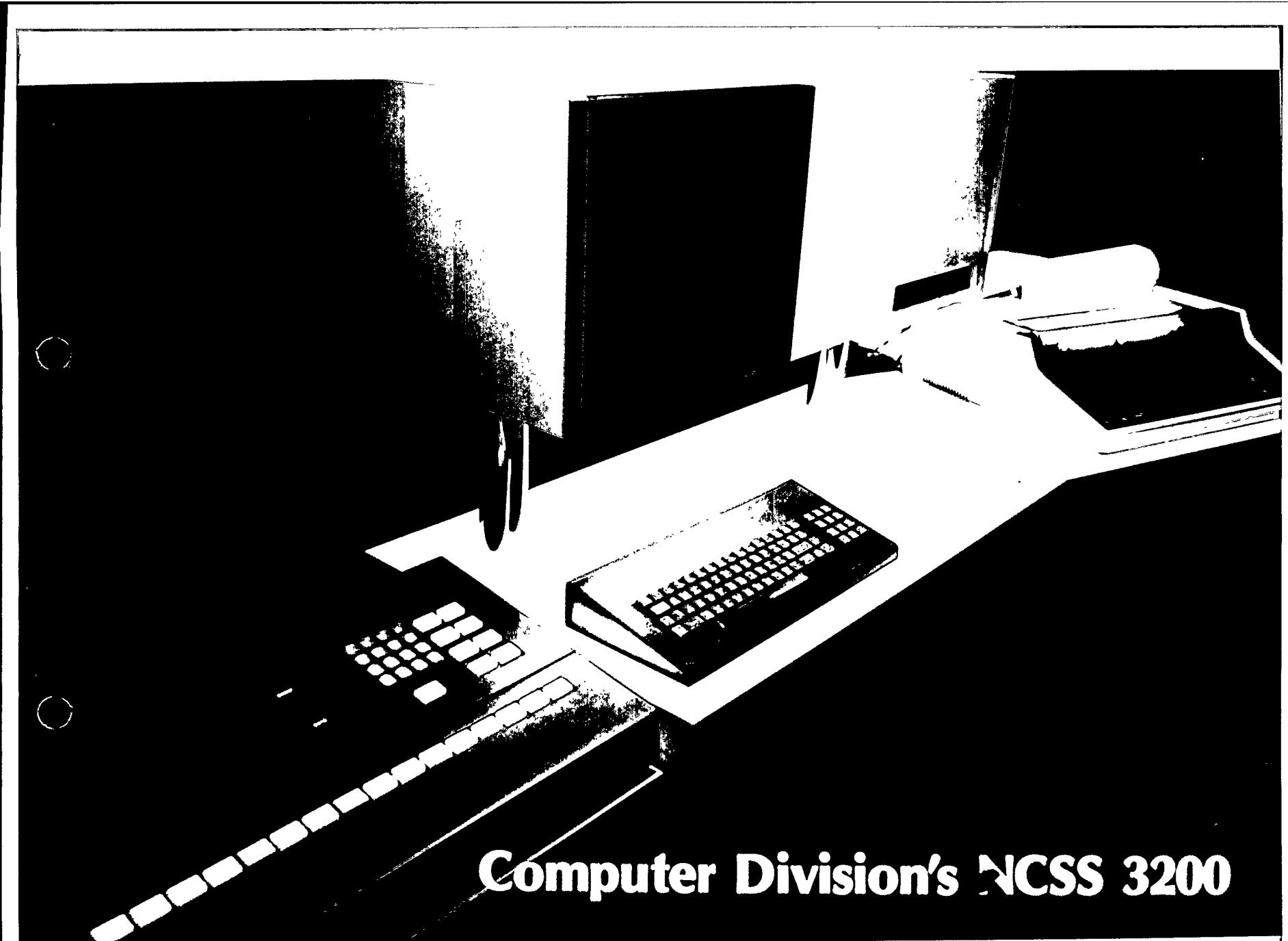
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ITEM #4

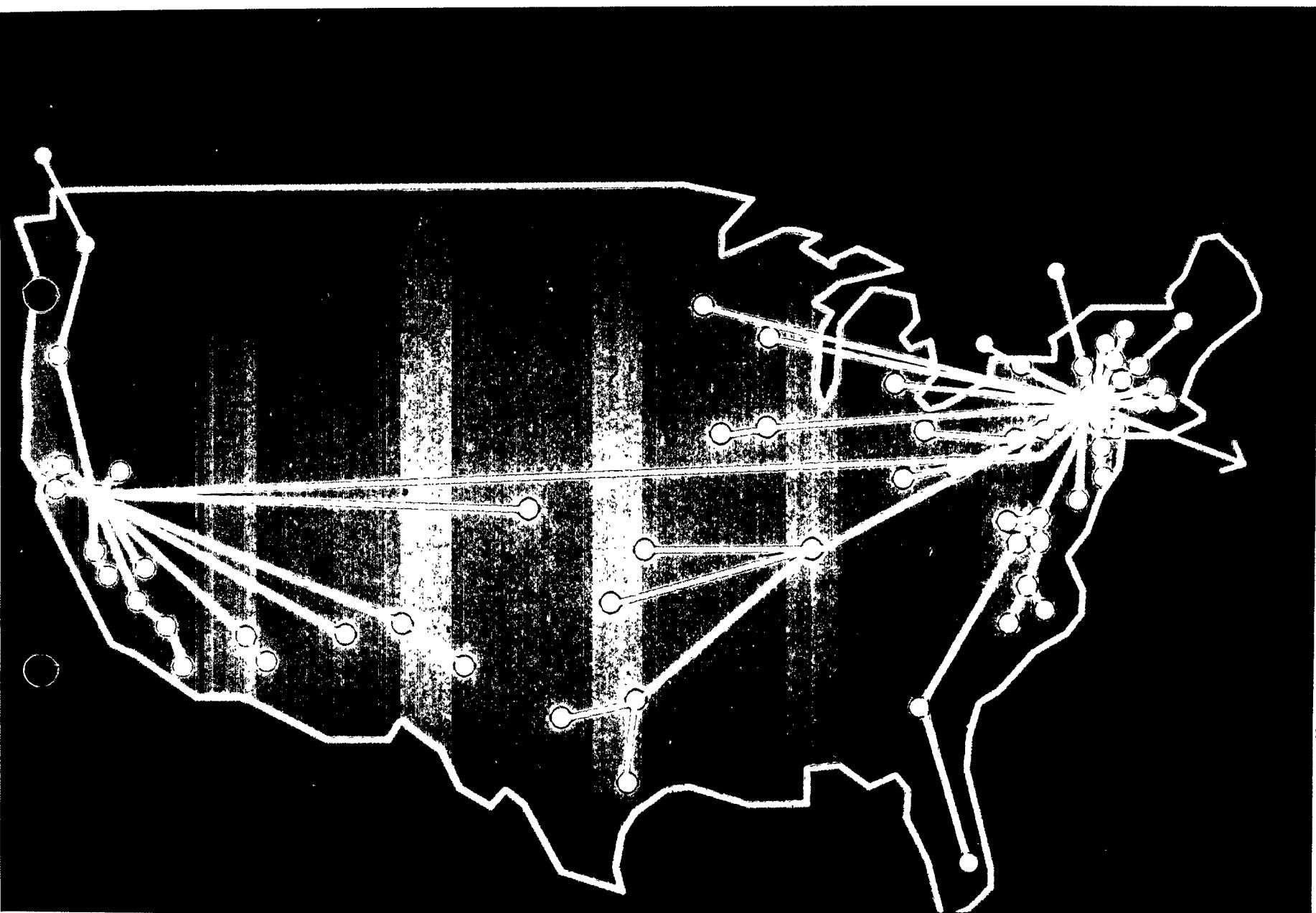


ITEM #5



Computer Division's NCSS 3200

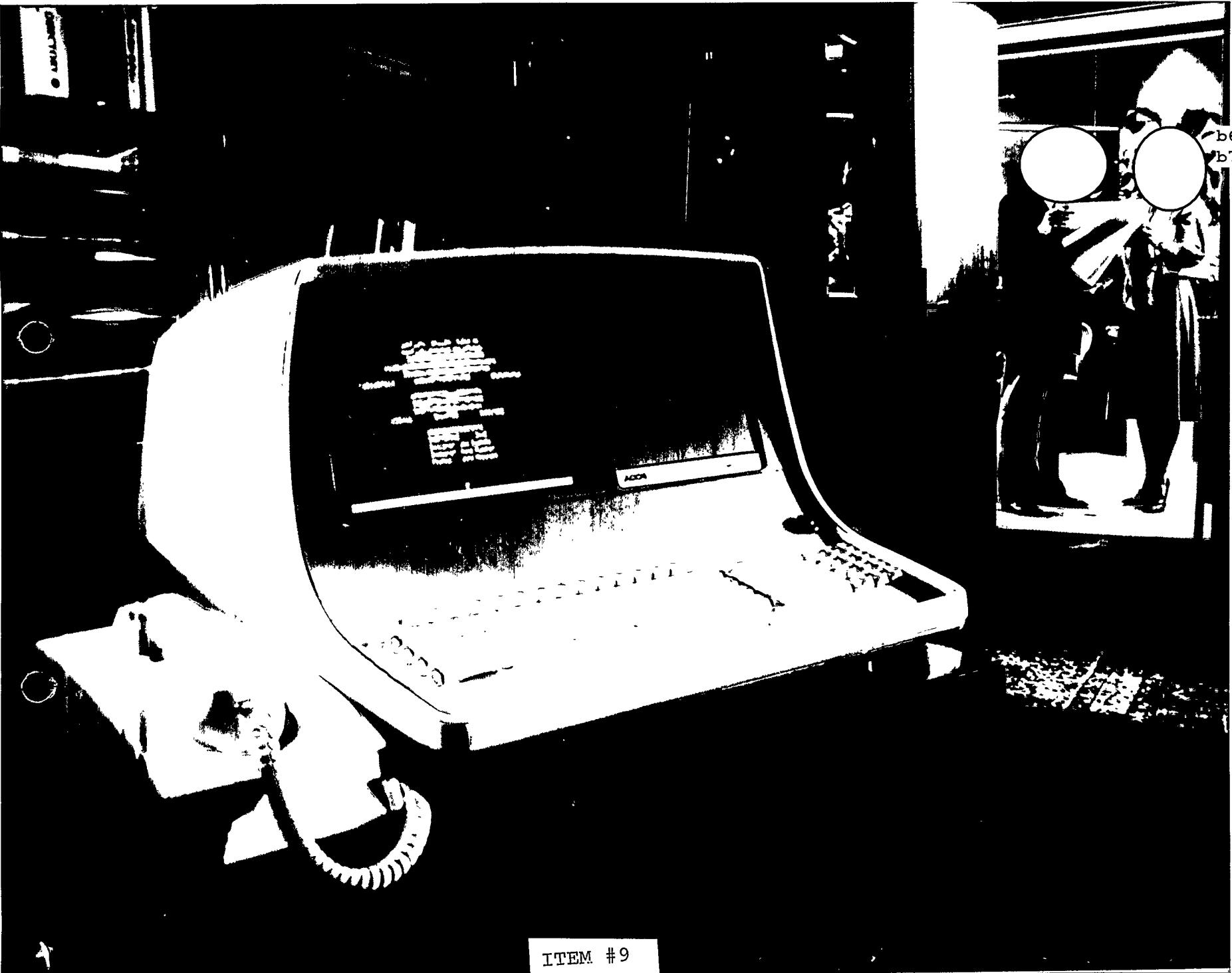
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ITEM #8

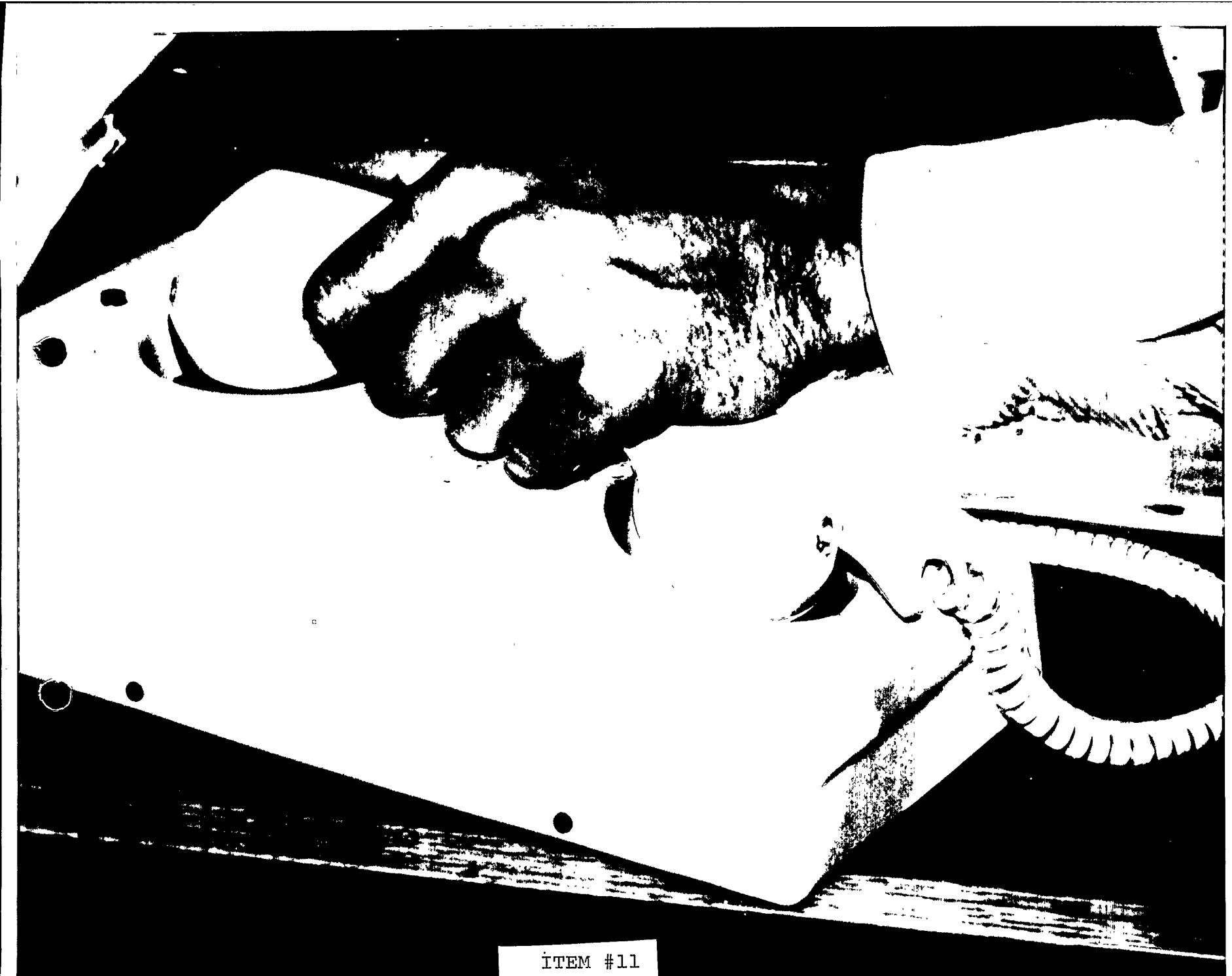


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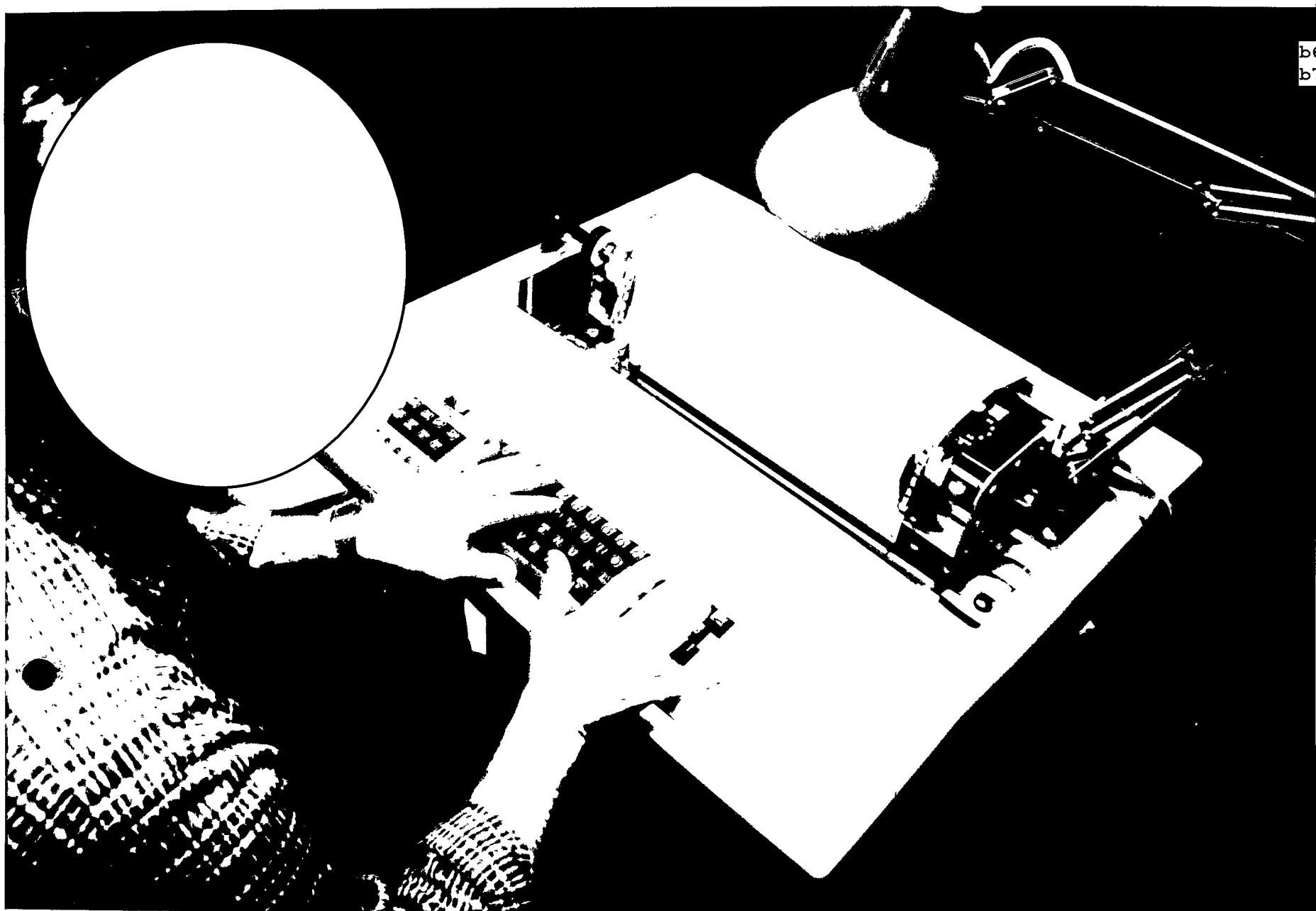


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ITEM #12

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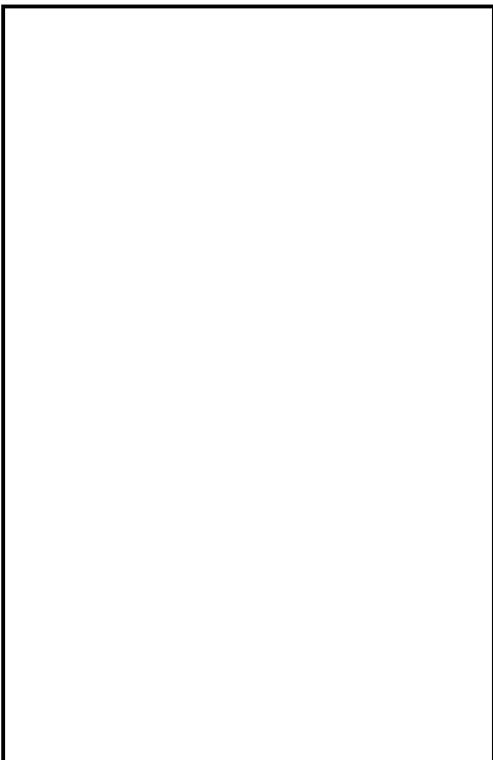


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Part II - Report Forms (FD-302's)



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NH 196A-397

REPORT FORMS

PART I - INVESTIGATIVE INSERTS

PART II - FD-302'S

NH 196A-397
DEF/sab

1.

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The following investigation was conducted at New Haven, Connecticut, by Special Agent [redacted]

On November 15, 1980, at 7:30 PM, [redacted] telephonically contacted the New Haven Office of the FBI in regard to what he believed to be a violation which involved unauthorized possession of computer entry codes. [redacted] provided the following information:

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[redacted] National CSS, Inc., (NCSS), 10 Middle Street, which has corporate offices in Wilton, Connecticut. NCSS is a computer sales and leasing company. They operate and have offices across the United States.

Some former employees of NCSS set up their own business called. Guild, Inc. This company also does the same type of business as NCSS.

Both companies are in good standing with each other.

According to [redacted] Guild Inc., rendered services to a firm in California, which later resulted in some disagreement. As a result of this disagreement, Guild, Inc. changed the computer access codes for this firms data. Thus they (the California firm) were unable to retrieve their own data. The California firm then hired National CSS to break the new code of Guild Inc. for the retrieval of the firms data. When NCSS did succeed in breaking the new code, they also inadvertently discovered that Guild Inc. had access to computer entry codes that only NCSS and the firms they represent had access to.

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[redacted] agreed to set up a meeting with various NCSS executives at Wilton, Connecticut on November 19, 1980 to discuss exact details of the incident.

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NH 196A-397

DEF/sab

1.

The following investigation was conducted at Wilton, Connecticut:

On November 19, 1980, Special Agents [REDACTED] and [REDACTED] met with the following individuals at National CSS, Inc. Corporate Headquarters, 187 Danbury Road, Wilton, Connecticut:

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As a result of the meeting the following information was obtained:

National CSS, Inc. (NCSS) is an internationally known computer services firm with headquarters located at 187 Danbury Road, Wilton, Connecticut. NCSS provides sales and service of its own software, mainframe and peripheral equipment, as well as access to a national telecommunications network which links two NCSS mainframe computers at Stamford, Connecticut to an NCSS mainframe in Sunnyvale, California.

NCSS maintains and creates daily a highly sensitive file called "CDIR DATA" for users of each mainframe. The CDIR data file for each location contains:

- 1) User Identification Names;
- 2) Log in Passwords;
- 3) Account Number
- 4) List of Resources Available;
- 5) Read Passwords;
- 6) Write Passwords

If the CDIR DATA files for all three mainframe locations were combined, access to any byte of information stored on-line in the network could be obtained. NCSS customers include several major banks and large corporations based in the United States and Europe. The code name and location for each NCSS mainframe follows:

<u>CODE NAME</u>	<u>LOCATION</u>
H-SYS	485 Summer Street Stamford, Connecticut
EAST	1351 Washington Boulevard Stamford, Connecticut
SUNY	530 Pastoria Boulevard Sunnyvale, California

Entry to the telecommunications network can be gained anywhere in the country simply by using a portable terminal with a telephone interface.

Bruce Ivan Paul worked for NCSS from approximately August 1977 to April 18, 1980, with one short break in service. Paul was a system programmer who had responsibility to develop software which checked the validity and integrity of all on-line data. The job required Paul to have access to all customer data.

Most recently Paul was working either for or with a software development group known as "The Guild Inc." (GUILD). Several months ago, the Guild signed a contract with Mediametrics, Inc. (MM), 1620 School Street, Moraga, California, to develop certain software packages. As part of the agreement, MM allotted certain disk storage space to Guild to aid in the software development. Access to the disk storage space could be gained from anywhere in the country as long as the MM system was on-line with the NCSS SUNY Unit. This was generally 7 AM to 12 midnight Pacific Time.

[redacted] of MM, became unsatisfied with the Guild's programming efforts approximately one month ago. [redacted] attempted to find out exactly what Guild was using the disk storage for. [redacted] found that he was unable to gain access to the disk storage space because Guild had applied additional security measures to the accessing routine. [redacted] then hired NCSS personnel to break into the disk storage space on the MM system allotted for the Guild's work.

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On the morning of November 14, 1980, NCSS [redacted] successfully penetrated the disk storage space allotted to the Guild. Elements of the three CDIR Data Files containing NCSS customer data was found in the storage area. A partial hard copy printout of the data was obtained at the time. A short time later, the data in the storage area was scrambled while the MM System was on-line with NCSS SUNY.

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NH 196A-397

3.

On approximately November 15, 1980, NCSS notified all of its customers of a problem involving a potential compromise of system access security. NCSS then urged all customers to immediately change all passwords used to access the NCSS network. (Copy of Notice attached)

It was not known at the time exactly how the CDIR information was transmitted to California. Additional information regarding the incident was still being received from California.

Two documents were obtained at the meeting. The documents, which are attached hereto are:

- A) Terms and conditions of employment signed by Bruce Paul;
- B) Draft of a letter which will be sent to all NCSS users.

Dear Customer:

National CSS has always worked to ensure the security of its customers' data and software.

It has come to our attention that a former employee may have obtained information that could potentially compromise system access security.

Although a breach of any customer's data security is highly unlikely, in line with our total commitment to maintain absolute security, we strongly urge that you immediately change all passwords which you use to access National CSS' systems.

To change passwords, issue one of the following CSS commands:

SET LOGPSWD to change the login password

SET READPSWD to change the disk read password

SET WRITEPSWD to change the disk write password

The system will prompt you for: (1) the current login password, (2) the new password, and (3) the new password a second time for validation purposes.

If read/write passwords are different from the login password they should be changed as well.

If you have any problems in implementing this procedure, you may get assistance in the U.S. by calling one of our toll-free numbers:

800-243-6119 (outside Connecticut)
800-882-5575 (Connecticut)

In Europe, call collect:

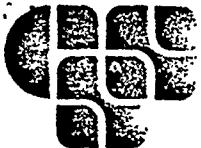
01-834-2223 (London)
261-56-35 (Paris)

We sincerely regret the inconvenience this will cause, but strongly feel that no other alternative will serve your interests better.

Sincerely,



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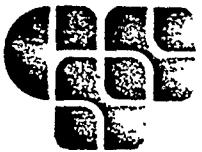


TERMS AND CONDITIONS OF EMPLOYMENT

Employee has recently entered or is about to enter into the employ of the Company. The parties acknowledge that the nature of the Employee's employment with the Company will give him access to and/or involve him in the development of much information of unique value, the use or disclosure of which, outside the business of the Company, could be very injurious to the Company. The parties desire to specify certain standards of conduct by Employee hereunder, so that both parties may know what the rights and duties of Employee are with respect to the use and disclosure of such information.

NOW THEREFORE, in consideration of the above and the covenants of the parties herein contained, the parties agree as follows:

1. It is understood that in entering the employ of NCSS, Employee has terminated employment with one or more prior employers, and Employee agrees that he will indemnify and hold harmless NCSS, its directors, officers and employees against any liabilities and expenses incurred including amounts paid in settlement, by any of them in connection with any claim by any of Employee's prior employers that the termination of Employee's employment with such employer, Employee's employment by NCSS, or utilization of Employee's skills and knowledge by NCSS is a violation of contract or law.
2. Employee will communicate to the Company, without charge, all copyrightable material and all inventions made or conceived by him from the time of entering employ of the Company until such time as his employment shall be terminated, along all lines of work or investigation of the Company, or resulting from, or suggested by, any work which he may do for the Company. He will assist the Company and its nominees and agents in every proper way (entirely at the Company's expense) to obtain for the Company's sole benefit copyrights or patents for the inventions or other work, in any and all countries, the copyrights and inventions to be and to remain the property of the Company or its nominees, whether patented, copyrighted or not, unless specifically released by written agreement.
3. Employee will regard and preserve as confidential all information pertaining to the Company's business that may be obtained by him from any source as a result of his employment hereunder and he will not, without written authority from the Company, disclose to any persons, or use for his own benefit, during his employment or for a period of two (2) years thereafter, any such information relating to methods, processes, apparatus, programs or other materials conceived, designed, created or heretofore or hereafter used or developed by the Company or any of its customers, customers' lists, pricing and pricing methods, agents, suppliers or contractors, all such information being considered to relate to trade secrets and to be confidential information of the Company; he will not solicit or in any manner encourage employees of the Company to leave the employ of the Company.
4. During his employment with the Company, Employee will devote his full time and services to the business of the Company. For a period of six (6) months after the termination of such employment, Employee will not, without written consent from the Company, perform for any business (regardless of his connection therewith) or enable (through the giving of information) anyone



to perform for any business, services similar to those performed by him for the Company, with respect to any customer of the Company, wherever located, that was a customer of the Company at the time of the termination of Employee's employment with the Company.

5. Employee agrees to cooperate with the Company in obtaining a Government Security Clearance in accordance with the relevant provisions of Statutes made and provided, and agrees to abide by the appropriate provisions of said Statutes when handling such information.
6. It is understood that Employee may from time to time be assigned to perform various functions in one or another of the Company's subsidiaries. This assignment will in no way affect any of the privileges which are his as an employee of the Company, and Employee will always consider himself to be an employee of and under the direction and control of the Company.
7. In addition to any other rights or remedies available to the Company for the breach by Employee of his obligations hereunder, the Company shall be entitled to enforcement of such obligations by court injunction.
8. The provisions of this Agreement shall be severable, and if any provision shall be held unenforceable by the final decision of any court of competent jurisdiction, the remaining provisions shall, nevertheless, remain in full force and effect.
9. The Provisions hereof may not be extended, varied, modified or supplemented without the written consent of the parties.
10. The term 'Company' includes National CSS, INC., its successors and any of its subsidiaries of their successors.
11. This Agreement shall be binding upon, and inure to the benefit of, the parties hereto and their respective heirs, beneficiaries, successors and assigns.
12. This Agreement shall be governed by and interpreted under the laws of the State of Connecticut.

DATED AT WILTON, CT, THIS 5 DAY OF OCTOBER, 1979.

WITNESSED BY:



EMPLOYEE:


Bruce Paul

ACCEPTED AND APPROVED THIS 3 DAY OF OCTOBER, 1979.

NATIONAL CSS, INC.



b6
b7C

NH 196A-397

DEF/sab

1.

The following investigation was conducted by Special Agent [redacted]
[redacted] at Wilton, Connecticut on January 21, 1981.

[redacted] advised that he had written numerous computer programs looking for some reference to the following three essential words:

- 1) GUILD
- 2) AIMS
- 3) VERIFY

The programs were then run against magnetic tapes containing the billing records for June 1980 which are maintained by NCSS during the normal course of business. The resulting hard copy printouts were refined several times: The final printouts clearly show the access and transmission of HSYS, East and SUNY CRDATA.

b6

b7c

b6

b7c

FEDERAL BUREAU OF INVESTIGATION

Date of transcription August 17, 19811.

[redacted] National CSS,
 Inc., (NCSS), 187 Danbury Road, Wilton, Connecticut, telephone number
 [redacted] provided the following information:

b6
b7c

NCSS leases the NOMAD II Data Base Management System to customers who normally purchase computer hardware costing approximately \$350,000. The one time license fee is \$85,000. .

The PASCAL Compiler is leased by NCSS under a license agreement from IBM Corporation for approximately \$500.00 per month.

The NOMAD II package and the PASCAL Compiler are not sold to customers without some type of equipment purchase.

The layout of the directory information contained on the files located at Mediametrics indicates that not all of the data was taken. Only selected fields were transferred.

Investigation on 8/6/81 at Wilton, Connecticut File # NH 196A-397
 by SA [redacted] / sab Date dictated 8/12/81

b6
b7c

FEDERAL BUREAU OF INVESTIGATION

Date of transcription August 17, 19811.

[REDACTED], National
 CSS, Inc., 187 Danbury Road, Wilton, Connecticut 06897, telephone
 Number [REDACTED] provided the following documents: Copies
 of Items 1, 2, 3, 4 and 5 are attached hereto:

- 1) Memo of [REDACTED] dated August 1, 1981; b6
b7C
- 2) List of:
 - A. Industries Served by National CSS
 - B. Applications available to National CSS Customers
- 3) Memo of [REDACTED] dated February 10, 1981 describing work performed by Bruce Paul on the "Nomad 'Verify' System". b6
b7C
- 4) Memo of [REDACTED] expanding on information described in Item #3. b6
b7C
- 5) Diagram of "Access to Aims 3200"
- 6) Twelve photographs of NCSS Equipment, Locations, etc.
- 7) Sales brochure entitled, "National CSS A Resource".
- 8) Roughdraft report of incident.

Investigation on 8/6/81 at Wilton, Connecticut File # NH 196A-397

by SA [REDACTED] sab Date dictated 8/12/81

b6
b7Cb6
b7Cb6
b7Cb6
b7Cb6
b7C



8/1/81

At the present time, there are approximately 3100 NCSS customers.

At the present time, there are approximately 14,000 userids.

In addition to these, there are a large number of internal accounts and userids.



b6
b7C



INDUSTRIES SERVED BY NATIONAL CSS

Banking

Government

Engineering

Finance

Telephone

Petroleum

Real Estate

Utilities

Manufacturing

APPLICATIONS AVAILABLE TO NATIONAL CSS CUSTOMERS

Database Management : NOMAD

Computer programming : FORTRAN, COBOL, PL/I, PASCAL

Econometrics: EMS

Financial spread sheet: INFOTAB

Engineering design: ISPICE

Text processing: SCRIPT

Optics design: ACCOS

Personnel: RESPOND

Financial analysis: FINAL

Market Research: CSSTAB

Accounting

Statistical analysis

February 10, 1981

b6
b7C

This is in response to your question about Bruce Paul and the work he performed on the NOMAD 'Verify' system.

On January through August '79, Bruce worked on two NOMAD systems for me.

The first is the NOMAD Tracking System (NTS).

It collects information about NOMAD problems encountered by customers while executing NOMAD. The NOMAD product 'traps' interrupts and 'abnormal' NOMAD conditions, e.g. errors encountered during DBCHKs. This information is sent from all HOSTs to the 'collection id', NOMCLECT via the VP queue 'NOMTRQ'. Reports about this information are run weekly. The NTS system is documented in DTM-194.

The second is the NOMAD 'Verify System'. It performs a weekly validity check on all customer NOMAD databases on all CSS HOSTs. This system uses the facilities of the NTS system. Once a week an ID, VERIFY, ATTACHes the Directory to obtain a list of ID's on the HOST. Each ID is ATTACHED and NOMAD 'DBCHK's are performed on that ID's NOMAD databases. Information on 'bad' databases is transferred to the NOMCLECT ID by the NTS system. Reports on 'bad' databases are provided to the Marketing department once a week.

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[redacted] memo dated February 10, 1981 states that Bruce Paul worked on a system called "VERIFY". It was during Bruce's work on this system that he was permitted direct access to the VP Directory. Access was granted because the nature of the project called for a programmable way in which to check the validity of every disk attached to the computer system. The VP/CSS computer system is designed in such a way that a Userid/Password combination is required in order to accomplish this. This information is stored in the Directory.

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Bruce had access to the Directory for the duration of that project. He acquired a great deal of information from [redacted]

[redacted] instructed Bruce on the details of another system called "BACKUP", which was to serve as the model for the VERIFY system. Having been exposed to the BACKUP system and having developed a version of the VERIFY system, Bruce had extensive knowledge about the programs and procedures used to extract information from the Directory and where this information resided.

b6
b7C

The files found on the AIMS 3200 computer contained the same information as is normally found in intermediate files after the BACKUP system is run. The description of these files used the same nomenclature as is used in the BACKUP system. The data itself consisted of information about user-ids which had disks assigned to them, another indication that the data was obtained from the BACKUP system.

Note that the information mentioned above was collected by me as a result of conversations with [redacted]
[redacted]

b6
b7C

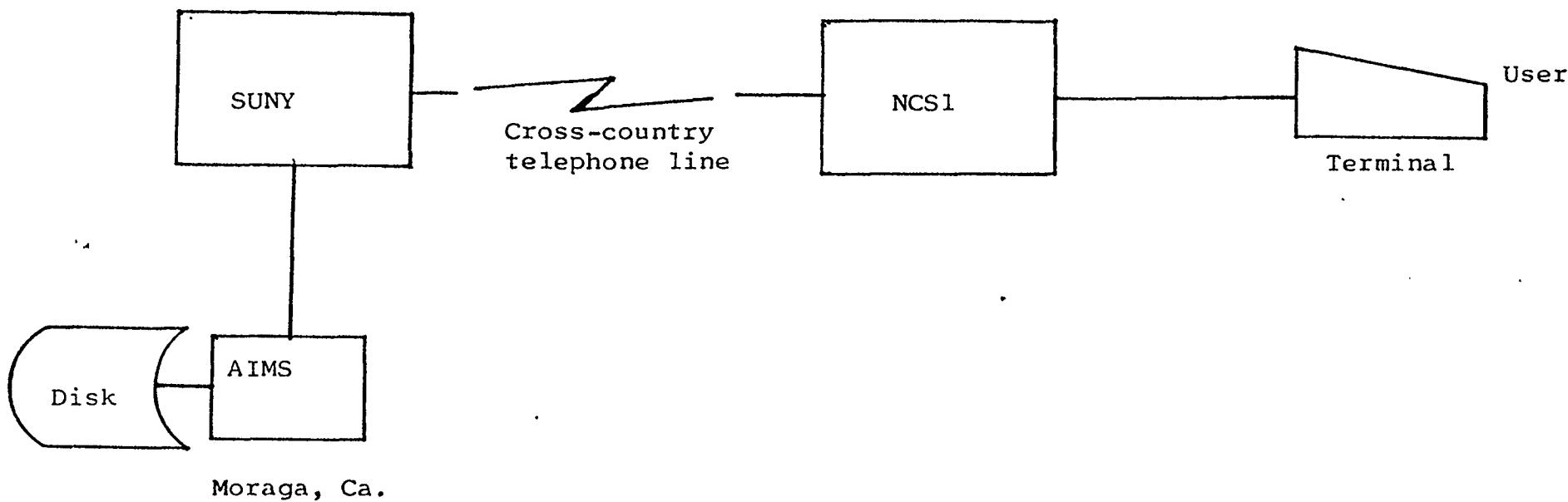
b6
b7C

Access To AIMS 3200

Sunnyvale, Ca.

Stamford, Ct.

Danbury, Ct.



196 A 397-39

SEARCHED.....	INDEXED.....
SERIALIZED.....	FILED.....
SEP 25 1981	
FBI - NEW HAVEN	

[Handwritten signature/initials over the stamp]

A Glossary

Automatic Data-Processing (ADP) — data-processing performed by system of machines interconnected to reduce need for human assistance to minimum.

BAL — basic assembly language of IBM 360 and 370.

Bit — smallest unit of information recognized by computer.

Bug — program defect or error.

Byte — sequence of bits acted on as unit and usually shorter than computer word.

Capacity, storage — amount of data that can be stored in computer storage system.

Cathode ray tube (CRT) terminal — television-like picture tube, along with keyboard, used as visual display terminals (VDT) on which images are produced. CRT allows batches or blocks of information to be instantly accessed, read and displayed on screen.

Central Processing Unit (CPU) — heart of general-purpose computer that controls interpretation and execution of instructions and input and output units.

Chips — microprocessors that are complete computers on a single chip of silicon.

COBOL — COmmon Business Oriented Language, a data-processing language for computer programming that uses English.

Code — to write a program.

Command — signal or group of signals that causes computer to execute operation.

Compatibility — characteristic of data-processing equipment by which one machine may accept and process data prepared by another machine without conversion or code modification.

Data Processing — execution of programmed sequence of operations upon data; generic term for computing in business situations and other applications with machines.

Display — representation of data visibly.

Electronic Data Processing (EDP) — all-inclusive term meaning overall science of converting data by electronic means into any desired form. Synonymous with ADP.

Format — predetermined arrangement of characters, fields, lines, page numbers and punctuation marks, usually on single sheet or file.

Garbage — unwanted or meaningless information stored within computer file.

Hard Copy — readable machine output on paper for humans.

Hardware — mechanical and electronic equipment combined with software to create an electronic information processing system.

Inquiry — request for stored information.

Integration — sharing of data or information among systems and subsystems.

Interface — common boundary between ADP systems or parts of single system.

Keyword — significant or informative word in a title or document that describes content.

Main-frame — central processor of computer system, containing main storage, arithmetic unit and special register groups.

Menu — list of alternative operator actions, supplied by system for operator selection.

Microcomputer — complete tiny computer, consisting of hardware and software, whose main processing blocks are made of semiconductor integrated circuits.

Networking — hooking geographically separated computers together over transmission lines, allowing computers to ship data to each other.

Packet — group of bits, including data and control elements, switched and transmitted as unit.

Processor — computer capable of receiving data, manipulating it and supplying results.

Program — set of instructions arranged for directing digital computer to perform desired operation.

Software — term coined to contrast with "iron" or hardware of a computer system. Programs that govern operation of computer; processor's systems library routines, manuals and other service programs.

Storage — computer-oriented medium in which data is retained.

System — organized collection of parts or procedures united by regulated interaction and interconnected to perform function.

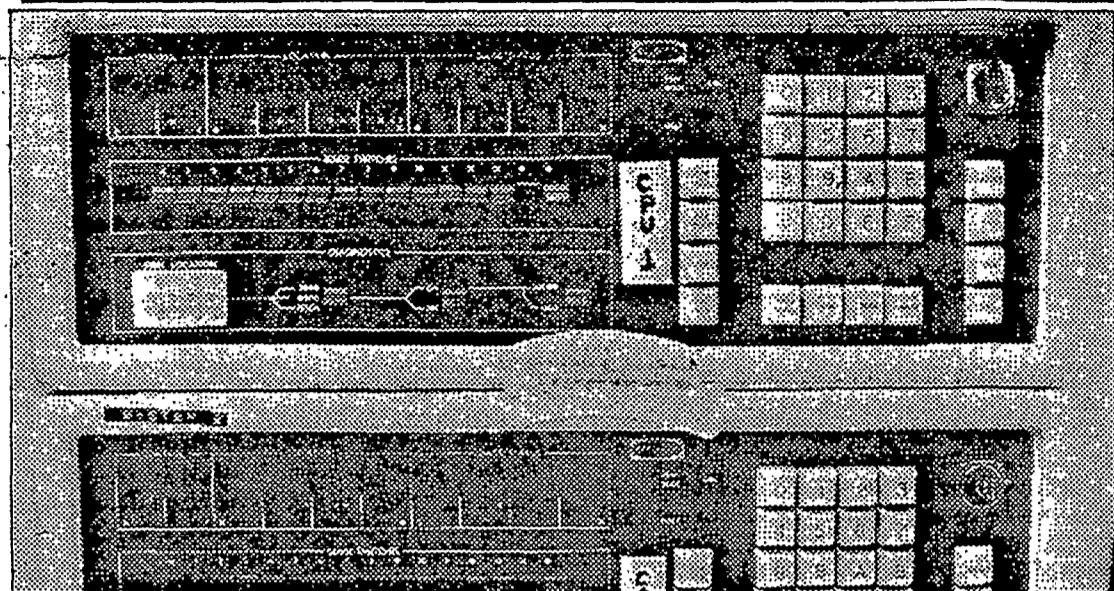
Terminal — point in a system or communication network at which data can either enter or leave; a CRT or VDT.

Time Sharing — sharing of power and cost of large computer facility among a number of users, each equipped with terminals.

Video Display Terminal — display screen that allows keyed or stored information to be viewed for manipulation or editing.

Word Processing — transition of written, verbal or recorded word to verbal, typewritten or printed form through storage medium that allows information to be conveniently manipulated before it is committed to final form.

Write — to record data in storage device, data medium or output display.



By Joe Richardson—The Washington Post

Even locks, keys and complicated codes haven't deterred some enterprising electronic thieves.

Crime Can Be Computerized, Too

By Stuart Meier
Washington Post Staff Writer

Over a long French holiday weekend five years ago, a skilled group of criminals sloshed their way through the sewers of Nice, tunneled and blasted their way into a bank's safe-deposit vault, and spent two full days rifling depositors' boxes for \$10 million in loot.

They did it the hard way.

Earlier this summer investigators alleged that Andre Prestes, veteran of a short course in computer programming, and his wife, Vera Campos, took Washington's First Variable Rate Fund for \$1.55 million.

The method can be alarmingly simple. With Prestes' programming experience and the knowledge Campos gained as a clerk in one of the investment fund's branches, the two allegedly evaded the computerized controls designed to guard against fraud.

Experts in the burgeoning business of computer security know well enough that computerized accounting systems offer at best an imperfect check on pilfering from those inside and outside an organization. And a

rapidly growing network of computers linked by advanced telecommunications offers grand new opportunities for theft.

"The manufacturers are putting the technology out there, but they're really not telling customers about the problems," says Robert Campbell, president of Advanced Information Management Inc., a computer security consulting firm based in Woodbridge, Va. In cases of crime involving a computer, Campbell says, "manufacturers are very insistent that it's not a computer crime, that it's all due to one bad apple."

A few of the better-known instances of breached computer security indicate what an easy operation computer crime might be.

- At New York City's exclusive Dalton secondary school, students using a computer terminal last year penetrated the computerized files of 21 Canadian companies, erasing one-fifth of the information in one company's system.

- In a scam uncovered last February, San Francisco's Wells Fargo Bank lost \$21 million over a year, allegedly to two boxing promoters who used a computer to make illegal money transfers.

- In an as-yet unsolved computer crime, someone obtained the passwords to 8,000 companies' computerized data bases by tapping into the computer of a Los Angeles consulting firm.

The mystery surrounding computer crime — and the ease with which an expert can cover all traces — mean that no one knows how much computer thieves siphon off each year. FBI agent Paul Nolan said that during 1980, the average bank embezzlement accomplished without a computer pulled in \$23,500; while the average embezzlement using a computer took more than \$400,000. Using various estimates of how much computer crime is reported and how much noticed, experts say the bill can top \$40 billion annually.

Those figures don't include a huge bill for illegal use of computer services. Last June, consultants at the Energy Department's Germantown, data processing center were found to be using government computers for homework, football pools and games such as Star Trek, hangman and blackjack. Of 128 individuals checked, 20 were misusing their equipment.

In the final analysis, Campbell says, the security of a computer system depends on people — the people who control access to a system and the people who control whether a crime can be detected. "The whole problem is one of control over access, both physically — to the terminal — and to the set of instructions that tell someone how to do whatever they want to do."

"The management problem is deciding how much security is enough," says Robert Jacobson, a New York computer security expert. "If you overdo it, you're going to waste money. But then a very unlikely event, if it occurred, could have a very serious impact on your organization."

AIRTEL

From: Director, FBI
Att: Photographic Operations Unit, Rm. 1B903

To: SAC, NEW HAVEN (196A-397)

Subject: BRUCE IVAN PAUL;
NATIONAL CSE, INC. - VICTIM;
PDT (A) - COMPUTER FRAUD
(OO: NEW HAVEN)

Date: 9/17/81
9/24/81

FBIHQ USE ONLY

Initials

Date

Received	
Developed	
Printed	
Enlargements	
Slides	
Copied	
Other	

1. ENCLOSED PHOTOGRAPHIC WORK RELATES TO:

Current Investigation Mug Shot Program Other

2. ENCLOSURE(S)

Film To Be Processed

Size	Color	B&W	Quantity
4 X 5	X		16
135			
126			
120			
Slides			

Movie Film or Microfilm

Size	Color	B&W	Quantity
16mm			
35mm			
8(super)			
70 mm AHU			

Negatives To Be Printed

Size	Color	B&W	Quantity
8 X 10			
4 X 5			
135			
120			
126			
220			
110			

Other

Item	Quantity

3. WORK REQUESTED

Processing

- Process only
- Process & make print
- Process & make contact print
- Slides to be processed
- Slides to be duplicated
- _____
- _____

Prints To Be Made

- (From 135, 126, and 110)
- 3½ X 5 5 X 7
_____ # prints from each frame
 - Color B&W
 - (From 120 and 4 X 5)
 - 4 X 5 8 X 10
16 # prints from each frame
 - Color B&W

Prints To Be Made

- (Prints from slides)
- Cibachrome
 - 3½ X 5
 - 5 X 7
 - 8 X 10

Custom Prints

(From any size negative or slide)

Quantity _____

Size _____

 Color B&W

4. PROCESSING CENTER

REMARKS

196A-397-40

SEARCHED	INDEXED
SERIALIZED	FILED
SEP 28 1981	
FBI - NEW YORK	

dy

The above is attached

being sent under separate cover, via registered mail
 air freight

Enclosure

b6
b7C

Memorandum



To : SAC, NEW HAVEN (196A-397)

Date 1/12/82

From ~~SAC~~, SAN FRANCISCO (196A-795)(RUC)(EBMRA)

Subject : BRUCE IVAN PAUL;
NATIONAL CSS, INC. - VICTIM
FBW (A) - COMPUTER FRAUD
OO: NEW HAMPSHIRE

Re San Francisco airtel to New Haven, dated 6/24/81.

As set out in referenced airtel, which RUC'd San Francisco's case, San Francisco is retaining 14 magnetic tapes which represent a complete backup copy of the original computerized evidence in this case. These are being maintained as 1 bulky exhibit at San Francisco. New Haven should insure that San Francisco is advised when these tapes can be returned to National CSS at San Francisco. Until such notification, San Francisco will continue to maintain the bulky exhibit without further notification to office of origin.

② - New Haven (196A-397)
1 - San Francisco
FTW/bav
(3)

196-397-46

SEARCHED	INDEXED
SERIALIZED	FILED
JAN 19 1982	
FBI — NEW HAVEN	

[Handwritten signature/initials over stamp]

b6
b7C

Memorandum



To : SAC, NEW HAVEN (196A-397) (P)

Date 1/22/82

From : SUPV. [redacted]

b6
b7C

Subject : BRUCE IVAN PAUL
NATIONAL CSS - VICTIM
FBW
(OO: NEW HAVEN)

On 1/21/82, writer telephonically contacted AUSA [redacted]
[redacted] regarding captioned matter expressing concern

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AUSA [redacted] indicated that he is hopeful of visiting the National CSS facilities within the next few days at which time he hopes to have further discussions with [redacted]. In the meantime, he has requested that we recontact subject Paul, ascertain if he has retained an attorney and if so the attorney's identity; and if not, to ask Paul if he will consider reinterview by Buagents. AUSA [redacted]

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In subsequent discussions with case agent [redacted]
[redacted] it was decided that one additional course of action to be taken is to narrow the field of people who had the access and capabilities to engineer the theft in this case.

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b7C

2 - New Haven

1 - Supv. [redacted]

WRI/sab

(3)

sab

196-397-47

SEARCHED	INDEXED
SERIALIZED <i>JD</i>	FILED <i>JF</i>
JAN 2 1982	
FBI - NEW HAVEN	

[redacted] *djf* [redacted]

b6
b7C

NH 196A-397

It was decided that there was only one other person that works in The Guild, besides Paul, that could have possibly been in a position to do such. This person is to be interviewed and further facts developed to eliminate making him a subject.

This matter will continue to receive close coordination
with AUSA [redacted]

b6
b7C

FBI

TRANSMIT VIA:

Teletype
 Facsimile

PRECEDENCE:
 Immediate
 Priority
 Routine

CLASSIFICATION:

TOP SECRET
 SECRET
 CONFIDENTIAL
 UNCLAS E F T O
 UNCLAS

Date 2/16/82

FM NEW HAVEN (196A-397) (P)

TO BROOKLYN-QUEENS MRA ROUTINE

BT

UNCLAS

BRUCE IVAN PAUL; NATIONAL CSS, INC. - VICTIM; FBW - COMPUTER
FRAUD; OO:NHA LENGTHLY PROSECUTIVE REPORT DATED OCT. 6, 1981, RE
CAPTIONED MATTER WAS PREPARED AND FORWARDED TO AUSA [redacted][redacted] AT NEW HAVEN, CT. SUBJECT, BRUCE IVAN PAUL, WAS
INTERVIEWED ON DEC. 16, 1980, BY BUAGENTS. DURING INTER-
VIEW, PAUL INDICATED THAT HE WANTED TO CONSULT WITH AN
ATTORNEY. INTERVIEW WAS THEN TERMINATED.AUSA [redacted] HAS REQUESTED THAT PAUL BE RECONTACTED TO
ASCERTAIN IF HE HAS RETAINED AN ATTORNEY AND IF SO, THE
ATTORNEY'S IDENTITY. IF PAUL HAS NOT RETAINED AN ATTORNEY,
HE SHOULD BE ASKED IF HE WILL CONSIDER RE-INTERVIEW BY
BUAGENTS.b6
b7cb6
b7c

VIA ENCRYPTED TELETYPE

(1) New Haven
DEF:cah C:ah[redacted] d/c
b6
b7cApproved: [Signature]Transmitted 001 0535Z
(Number) (Time)Per [Signature]

★ U.S. GOVERNMENT PRINTING OFFICE: 1980-305-75075402 ***

196A-397-48

FBI

TRANSMIT VIA:

- Teletype
 Facsimile

PRECEDENCE:

- Immediate
 Priority
 Routine

CLASSIFICATION:

- TOP SECRET
 SECRET
 CONFIDENTIAL
 UNCLAS E F T O
 UNCLAS

Date _____

PAGE TWO NH 196A-397 UNCLAS

PAUL HAD PREVIOUSLY LIVED AT WEST VIEW TRAILS, NEW FAIRFIELD, CT. PAUL WAS PREVIOUSLY EMPLOYED BY THE GUILD, INC., 590 DANBURY RD., RIDGEFIELD, CT.

ON JAN. 27, 1982, U.S. POSTAL AUTHORITIES INDICATED THAT PAUL FILED A CHANGE OF ADDRESS ON SEPT. 25, 1981, TO 1014 EAST 84TH ST., BROOKLYN, NY 11236.

PAUL IS NO LONGER EMPLOYED AT THE GUILD, INC.

LEAD: BROOKLYN QUEENS AT BROOKLYN, NY: WILL CONTACT BRUCE IVAN PAUL AT 1014 EAST 84TH ST., BROOKLYN, NY, AND DETERMINE:

- A. IF PAUL HAS RETAINED AN ATTORNEY.
- B. IDENTITY OF ATTORNEY, IF RETAINED.
- C. IF PAUL WILL CONSIDER RE-INTERVIEW WITH BUAGENTS.

NEW HAVEN AT RIDGEFIELD, CT: WILL CONTACT AND INTERVIEW [REDACTED] AT THE GUILD, INC., 590 DANBURY RD., RIDGEFIELD, CT.

BT

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b7c

Approved: _____

Transmitted _____

(Number) (Time)

Per _____

★ U. S. GOVERNMENT PRINTING OFFICE: 1980-305-750/5402

FBI

TRANSMIT VIA:

- Teletype
 Facsimile

PRECEDENCE:

- Immediate
 Priority
 Routine

CLASSIFICATION:

- TOP SECRET
 SECRET
 CONFIDENTIAL
 UNCLAS E F T O
 UNCLAS

Date 2/18/82

FM NEW HAVEN (196A-397) (P)

TO BOSTON ROUTINE

BT

UNCLAS

BRUCE IVAN PAUL; NATIONAL CSS, INC. - VICTIM; FBW - COMPUTER FRAUD; OO:NH

DURING APPROXIMATELY DEC., 1979, A COMPUTER SOFTWARE FIRM KNOWN AS "THE GUILD" (GUILD), 590 DANBURY RD., RIDGEFIELD, CT, ENTERED INTO A VERBAL AGREEMENT WITH MEDIA METRICS, INC (MM), 1620 SCHOOL ST., MORAGA, CA. ACCORDING TO THE AGREEMENT, GUILD WAS TO MODIFY AND IMPROVE SOFTWARE APPLICATIONS FOR MM'S COMPUTER SYSTEM IN EXCHANGE FOR CERTAIN DISC STORAGE SPACE.

[REDACTED] OF GUILD WAS PRIMARILY IN CHARGE DEVELOPING THE SOFTWARE MODIFICATIONS FOR THE MM PROJECT. [REDACTED] WITH THE APPROVAL OF [REDACTED]

[REDACTED] HIRED BRUCE IVAN PAUL TO WORK ON THE SOFTWARE

(1) - New Haven
 DEF/kjw/gw
 (1)

VIA ENCIPIERED TELETYPE
 196-397-49

b6
b7cb6
b7cApproved: All/WASTransmitted 004 1935Z Per BPM
 (Number) (Time)

FBI

TRANSMIT VIA:

- Teletype
- Facsimile
- _____

- PRECEDENCE:
- Immediate
 - Priority
 - Routine

- CLASSIFICATION:
- TOP SECRET
 - SECRET
 - CONFIDENTIAL
 - UNCLAS E F T O
 - UNCLAS

Date _____

PAGE TWO NH 196A-397

PROGRAMMING PACKAGES. PAUL BEGAN WORKING ON THE PROJECT SOME TIME AFTER LEAVING NATIONAL CSS, INC. (NCSS) IN APRIL, 1980. (PAUL WAS EMPLOYED BY NCSS FROM AUG. 1977 TO APRIL 1980.)

DURING JUNE AND JULY, 1980, DIRECTORY DATA STORED ON-LINE IN THREE SEPARATE LOCATIONS IN THE NCSS COMPUTER SYSTEM (LINKED NATIONWIDE THROUGH A TELECOMMUNICATIONS SYSTEM) WAS SENT IN AN UNAUTHORIZED MANNER TO CERTAIN DISC STORAGE SPACE ALLOCATED TO GUILD ON THE MM SYSTEM. THESE FILES REMAINED ON THE SYSTEM UNTIL NOV., 1980 WHEN THEY WERE INADVERTENTLY DISCOVERED BY MM SYSTEMS PERSONNEL.

THE DIRECTORY FILES CONTAINED APPROXIMATELY 14,000 PASSWORD I.D.'S OF 3,100 NCSS CUSTOMERS. IN ADDITION, TWO SOFTWARE PRODUCTS KNOWN AS "NOMAD II" AND "PASCAL COMPILER" WERE ALSO FOUND.

NH AND SAN FRANCISCO HAVE CONDUCTED EXTENSIVE INVESTIGATION. BASED ON INVESTIGATION, IT APPEARS THAT PAUL ALONE HAD BOTH ACCESS AND SUFFICIENT TECHNICAL KNOWLEDGE

Approved: _____ Transmitted _____ Per _____
(Number) (Time)

FBI

TRANSMIT VIA:

- Teletype
 Facsimile

- PRECEDENCE:
 Immediate
 Priority
 Routine

- CLASSIFICATION:
 TOP SECRET
 SECRET
 CONFIDENTIAL
 UNCLAS E F T O
 UNCLAS

Date _____

PAGE THREE NH 196A-397

TO OBTAIN DIRECTORY DATA. AUSA [REDACTED] HAS REVIEWED
 PROSECUTIVE REPORT PREPARED IN OCT., 1980. AUSA [REDACTED]
 HAS REQUESTED ADDITIONAL INVESTIGATION PRIOR TO TAKING
 FURTHER PROSECUTIVE ACTION.

IT IS THEREFORE REQUESTED THAT LEAD SET FORTH BE
 HANDLED IN AN EXPEDITIOUS MANNER.

LEADS: BOSTON AT WOLFBOROUGH, NEW HAMPSHIRE:
 WILL CONTACT AND INTERVIEW [REDACTED]

AND DETERMINE:

- A. KNOWLEDGE AND BACKGROUND IN COMPUTER SYSTEMS
 AND PROGRAMMING.
- B. CIRCUMSTANCES INVOLVING HIRING OF BRUCE PAUL IN
 APRIL, 1980.
- C. KNOWLEDGE OF ANY PROBLEMS INVOLVING MM PROJECT.
- D. OPINION AS TO TECHNICAL QUALIFICATIONS OF PAUL.
- E. KNOWLEDGE OF EXISTENCE OF DIRECTORY DATA ON NCSS
 SYSTEM (INCLUDING EXISTENCE ON MM SYSTEM).
- F. KNOWLEDGE OF INTERNAL PASSWORDS OF NCSS.

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b7cb6
b7c

Approved: _____ Transmitted _____ Per _____
 (Number) (Time)

FBI

TRANSMIT VIA:

- Teletype
- Facsimile
- _____

PRECEDENCE:

- Immediate
- Priority
- Routine

CLASSIFICATION:

- TOP SECRET
- SECRET
- CONFIDENTIAL
- UNCLAS E F T O
- UNCLAS

Date _____

PAGE FOUR NH 196A-397

G. KNOWLEDGE OF ANY CONVERSATIONS WITH PAUL REGARDING
EXISTENCE OF DIRECTORY INFO OR AVAILABILITY OF SAME.

H. KNOWLEDGE OF TECHNICAL EXPERTISE OF OTHER PROGRAMMERS WORKING FOR GUILD (JAN. 1980 - DEC. 1980).

I. IDENTITY OF ALL GUILD EMPLOYEES HAVING ACCESS
TO DISC STORAGE AVAILABLE AT MM.

BT

Approved: _____ Transmitted _____ Per _____
(Number) (Time)

#

FEDERAL BUREAU OF INVESTIGATION

Date of transcription February 23, 1982

1.

[redacted]

[redacted] was advised of the official identity of the interviewing agents and the nature of the interview. He provided the following information:

[redacted]

[redacted] NCSS, he [redacted] He first worked on developing a "help" program which would provide system documentation at a terminal. He later worked on a systems review problem which involved reviewing procedures used to open, read and write files.

[redacted]

After arriving at The Guild in June 1980 he began using the NCSS equipment to develop and modify programs used by the NCSS "Nomad" System. He kept track of all of his own programs which were stored on disc space at Media Metrics (MM) in Moraga, California. He was not aware of the existance of a complete inventory of all files kept at MM by Guild.

He was not involved in any of the programming work being done by Guild for MM. Although [redacted] was in charge of the MM project, [redacted] was working on a bank project at the same time. Therefore, all of the programming work for MM was done by Bruce Paul.

He denied using or having knowledge of how to use the NCSS "VPSYSMGR" I. D. code. It was his opinion that the only employees at Guild having a very high level of technical knowledge about the NCSS System were Bruce Paul and [redacted]

Investigation on 2/17/82 at Ridgefield, Connecticut File # NH 196-397-50
 by SA [redacted] SA [redacted] DEF / sab Date dictated 2/22/82
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NH 196-397

2.

He did not know about the existance of NCSS Directory information on MM disc space. He had assumed that directory information was well protected by NCSS and, therefore, not easily obtainable.

He learned of the directory files being located at MM by some employee (name unrecalled) at MM in late November 1980 after the files were discovered.

He would be willing to take a polygraph test in regard to the information which he has submitted. He would like to consult with The Guild's corporate attorney prior to taking the test.

UNITED STATES DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION

AIRTEL

DATE: MAR 4 1982

TO : SAC, NEW HAVEN (196A-397) (P)

FROM : BQMRA (196A-1697) (RUC) (BQ-7)

SUBJECT: BRUCE IVAN PAUL;
NATIONAL CSS, INC. - VICTIM
FBW (A) - COMPUTER FRAUD
(OO:NH)

ReNHtel to BQ, dated 2/17/82.

For information of New Haven, BRUCE IVAN PAUL was contacted at his residence, 1014 East 84th Street, Brooklyn, NY, telephone number 241-1555, on 3/1/82 by Buagents regarding this matter. At this time, PAUL advised that because of the length of time, he has not retained an attorney because he felt that the FBI found out what had happened and that the matter had been cleared up. PAUL advised that he is willing to clear up the matter and if need be, retain an attorney to follow it through.

Brooklyn-Queens is considering this matter RUC.

- ② - New Haven (196A-397)
1 - Brooklyn-Queens (196A-1697)

RKE:mlh
(4)

196-397-51

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3/8/82
3/9/82 will set off.

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FEDERAL BUREAU OF INVESTIGATION

3/1/82
Date of transcription _____

[redacted] was advised of the identity of the interviewing Agent and the nature of the interview. [redacted] provided the following information:

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[redacted]
 [redacted] first met Bruce Paul in approximately 1978, [redacted] at NCSS. Paul was employed in the area of development. In approximately April, 1980, [redacted] mentioned to Paul that Guild was looking for someone with a background and capabilities comparable to those of Paul. Paul expressed an interest in that position. Paul had already done some satisfactory contract work for Guild on a moonlighting basis.

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[redacted] Paul was hired primarily to do programming on an unrelated Guild contract.

[redacted] was primarily involved in a Guild project for Media Metrics, Incorporated (MM) beginning in November, 1979. The project was based on a verbal agreement between Guild and MM. The conditions of that agreement were almost completely

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Investigation on 2/24/82 at Wolfeboro, New Hampshire File # BS 196A-890

by SA [redacted] gdj Date dictated 2/26/82

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fulfilled with only minor corrections remaining, by May or June, 1980. By that time, Paul had almost completed the contract for which he had originally been hired. As Paul got more free time, [redacted] phased him into the MM project. At the same time Guild was negotiating with MM to do major new systems work for MM to enhance their existing system, which did have some serious problems. MM had originally obtained their system (hardware and software) from NCSS so Paul was somewhat familiar with it and was therefore assigned to help debug it. Most of the problems were the result of less than optimum programming in the original system. Guild was successful in improving the system and MM was satisfied with their efforts. In return for their work, Guild was provided with time on the MM computer and some disc storage space.

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[redacted] described Paul as a very hard worker with some very good clever programming ideas. Paul requires supervision to the extent tasks must be assigned to him. He does not have a great deal of initiative when it comes to identifying or seeking out jobs which have to be done.

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[redacted] stated that he was aware of the existence of directory data on the NCSS system as well as on the MM system. The MM systems, since it was obtained from NCSS, would naturally contain directory data. The NCSS 3200 system which MM had was a small copy of a bigger system. [redacted] has never seen a printout of directory data. As time went on, directory data on smaller NCSS systems was expanded to the point where directory data was identical on all systems.

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[redacted] is also aware of the existence of internal passwords, access authorization codes and user identifiers. He knows this information is in the directory data, but he does not know exactly where it is located. This information is constantly changing. Whenever anyone left NCSS, this information was changed to include the elimination of that individual's access code.

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[redacted] never discussed the existence of directory information or the availability thereof with Paul. He does recall that Paul was required to do some work with the directory data when he was helping to correct problems in the MM system. Systems development people, as a rule, have access to directory data.

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[redacted] stated that [redacted] is one of the most qualified systems programmers he has ever met. The other three employees of Guild were also capable people, but to a lesser degree of expertise than [redacted]

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All five of the employees of Guild had access to disc storage available at MM. As [redacted] recalls, however, he and Paul were the only two to use that storage. [redacted] indicated that the MM system consisted of slow machines that were too slow for many of the applications Guild would have needed. They also had access to other facilities which were better suited to their needs.

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[redacted] stated that he is not aware of an unauthorized transfer of directory data from the NCSS computer system to disc storage space allocated to Guild on the MM system. In fact, he doubts that storage space allocated to Guild on the MM system was extensive enough to accept a file that large. Anyone who could get access to directory data on the NCSS system could also get similar information from any NCSS 3200. MM had such a system. [redacted] questioned the value of the directory data to anyone who might obtain it in such a manner. The information would be obsolete almost immediately since it changes constantly. It would make more sense to [redacted] to leave the data where it was and access it there. Anyone who could access it to transfer it, would have that capability. In addition, anyone dumping the directory data would leave a trace. No trace is left if someone merely queries the information.

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F B I

TRANSMIT VIA:

Teletype
 Facsimile
 AIRTEL

PRECEDENCE:
 Immediate
 Priority
 Routine

CLASSIFICATION:
 TOP SECRET
 SECRET
 CONFIDENTIAL
 UNCLAS E F T O
 UNCLAS

Date 3/3/82

TO: SAC, NEW HAVEN (196A-397)
 FROM: SAC, BOSTON (196A-890) (RUC)
 SUBJECT: BRUCE IVAN PAUL;
 NATIONAL CSS, INC.-VICTIM,
 FBW-COMPUTER FRAUD
 (OO: NH)

Re New Haven teletype to Boston dated 2/18/82.

Enclosed for New Haven are the original and three copies of an FD-302 reflecting interview of [redacted] on 2/24/82 and agent's notes of that interview.

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2-New Haven (Encs. 5) 4/14
 1-Boston
 DGF/gdj
 (3)

196-397-53

SEARCHED	INDEXED
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MAR 12 1982	
FBI - NEW HAVEN	

[Redacted]

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Approved: VS Transmitted _____ Per _____
 (Number) (Time)

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U.S. Department of Justice

Federal Bureau of Investigation

In Reply, Please Refer to
File No.

150 Court Street
Post Office Box 2058
New Haven, Connecticut 06521
March 19, 1982

Honorable Alan H. Nevas
United States Attorney
Post Office Box 1824
New Haven, Connecticut 06508

**Re: CASES AWAITING
USA ACTION**

Dear Mr. Nevas:

Enclosed is a list of cases which have received investigative attention in this office and are currently awaiting prosecutive action. Per our previous conversations, I also include briefs of those cases which this office considers of paramount importance.

Please contact me regarding the substantive content, our new procedures, or any modifications which would make our quarterly submission more useful to you.

Very truly yours,

Alonzo L. Lacey, Jr.
Special Agent in Charge

Enclosure

1	-	Addressee
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196-397-54
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FBI FILE
NUMBER

CASE
AGENT

CASE
TITLE

ACTION
REQUESTED

DATE OF
LAST CONTACT

USA/OFFICE
HANDLING CASE

196A-397	[redacted]	Bruce Ivan Paul; National CSS-Victim	To Indict (AUSA request for subject contact) Date of report 10/6/81	[redacted]	New Haven
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FEDERAL BUREAU OF INVESTIGATION

Date of transcription March 26, 19821.

Bruce Ivan Paul voluntarily appeared at the Brooklyn-Queens Metropolitan Resident Agency, Rego Park, New York. Paul was advised of the official identities of the interviewing agents and the nature of the interview. He, thereafter, provided the following information:

He freely admitted obtaining and attempting to use two software programs known as the PASCAL Module (Compiler), and NOMAD II. Both programs were easily available on the NCSS System. Access to the programs was granted to a user simply by using the "Attach" command. No password entry was necessary.

He believes that the PASCAL Module was developed by the Australian Atomic Energy Commission and acquired by [redacted] for NCSS. He further believes that Fonigsbach did not pay for the Module.

The NOMAD II Module which he used is a data base management system that was approximately 3/4 of a meg long. He took this Module to see if he could make it work on a mini-computer such as the Mediametrics 3200.

He obtained one of the programs by using a disk dump through the NCSS Network direct to the AIMS (Mediametrics) computer. He had the other program on magnetic tape. He was not sure exactly which program was on the tape.

He stated that he has been advised by his attorney not to answer questions about the obtaining and subsequent transmission of directory (password) data from NCSS.

Although he is not continuously represented by an attorney, he has consulted with [redacted]

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Investigation on 3/20/82 at Rego Park, New York File # NH 196A-397-56
 by SA [redacted] DEF / sab Date dictated 3/23/82
SA [redacted]

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NH 196-397

150 Court Street
Post Office Box 2058
New Haven, Connecticut 06521
April 5, 1982

Honorable Alan H. Nevas
United States Attorney
Post Office Box 1824
New Haven, Connecticut 06508

Attention: AUSA [redacted]

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b7C

RE: BRUCE IVAN PAUL;
NATIONAL CSS, INC. - VICTIM
FRAUD BY WIRE - COMPUTER FRAUD

Dear Sir:

Enclosed are copies of the following items:

- 1) FD-302 reflecting interview of [redacted]
February 17, 1982;
- 2) FD-302 reflecting interview of [redacted] Feb-
ruary 24, 1982;
- 3) FD-302 reflecting reinterview of Bruce Ivan Paul
March 20, 1982.

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The enclosed items represent completion of all additional investigation requested by your office.

As a point of clarification please be advised that [redacted] stated during interview that the Mediometrics Computer System contained Directory Data. [redacted] is actually referring to library information. A library contains information such as a file's location, type, size and name for each file established on a particular disk. Library information is not in any way the same as directory data.

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As reflected by the enclosed FD-302's and our report of October 6, 1981, our office firmly believes that Bruce Ivan Paul obtained and transmitted the "Directory Data" over interstate telephone lines for the following reasons:

1 - Addressee
1 - 196-397

DEF/sab

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196-397-57
SEARCHED
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FILED
FBI - NEW YORK

WJD

NH 196-397

1) Paul had a high level of technical knowledge of the NCSS operating system and the existance of the directory files.

2) Paul was one of only three individuals having knowledge and use of disc space located at Mediometrics, Moraga, California.

3) Both other individuals [redacted]

A) Did not have as high a level of technical knowledge as Paul.

B) Did not know about directory data at Mediometrics.

C) Relied on Paul's expertise in the NCSS System.

4) [redacted] identified the Directory Data on the Mediometrics System and, thereafter, advised [redacted] to notify NCSS, Inc. in November of 1980.

Please advise our office when this matter is to be presented to the Grand Jury for indictment.

Very truly yours,

Alonzo L. Lacey, Jr.
Special Agent in Charge

Enclosures

Memorandum



To : SAC, NEW HAVEN (196A-397) (P)

Date 5/4/82

From : SA [redacted]

b6
b7C

Subject : BRUCE IVAN PAUL;
NATIONAL CSS, INC. - VICTIM
FBW (A) - COMPUTER FRAUD
(OO: NEW HAVEN)

On 4/29/82, writer accompanied AUSA [redacted] to NCSS Corporate Headquarters in Wilton, Conn. to meet with [redacted]. During a lengthy conversation which followed, [redacted] attempted to understand the violation which occurred. [redacted] was able to resolve certain points which were unclear in his mind.

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After the meeting concluded [redacted] advised writer that he would like to meet to discuss some minor points. [redacted] indicated that he would then subpoena [redacted] to appear before a Federal Grand Jury.

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LEAD:

NEW HAVEN
At New Haven, Conn.

Will maintain contact with AUSA [redacted]

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② - New Haven
DEF/sab
(2)

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196-397-58

SEARCHED	INDEXED
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MAY 4 1982	
FBI - NEW HAVEN	
[Redacted]	

[Signature]

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Memorandum



To : SAC, NEW HAVEN (196A-397) (P)

Date 5/24/82

From : SA [redacted]

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Subject : BRUCE IVAN PAUL
NATIONAL CSS, INC. - VICTIM
FBW (A) - COMPUTER FRAUD
(OO: NEW HAVEN)

On 5/19/82, captioned subject telephonically contacted writer to advise that he was moving to the following address effective immediately:

1201 East 53rd Street
Brooklyn, New York
Telephone Number: (212-241-1555)

For information

2 New Haven
DEF/sab
(2)

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196-397-59

SEARCHED	INDEXED
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MAY 24 1982	
FBI - NEW HAVEN	
[Redacted]	

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Memorandum



To : SAC, NEW HAVEN (196A-397) (P)

Date 6/23/82

From : SA [redacted]

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Subject : BRUCE IVAN PAUL
NATIONAL CSS, INC. - VICTIM
FBW (A) - COMPUTER FRAUD
(OO: NEW HAVEN)

On 5/26/82 writer briefly discussed captioned matter with AUSA [redacted] advised that he would like to subpoena [redacted] before a Federal Grand Jury. Writer advised [redacted] that [redacted] advised that he would try to obtain time during the next FGJ.

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On 6/22/82 writer discussed status of captioned matter with AUSA [redacted] advised that he was unable to obtain FGJ time during the last two FGJ sessions. [redacted] indicated that he would attempt to obtain time during FGJ session on [redacted] will issue the subpoenas to [redacted] and the U. S. Marshall's will serve them.

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LEAD:

NEW HAVEN
At New Haven, Conn.

Will maintain contact with AUSA [redacted]

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② - File
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196-397-60

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FBI—NEW HAVEN	

[redacted] *ldj*

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196-397-61

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FBI — NEW HAVEN	
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Memorandum



To : SAC, NEW HAVEN (196A-397) (P)

Date 7/8/82

From : SA [redacted]

Subject : BRUCE IVAN PAUL
NATIONAL CSS, INC. - VICTIM
FBW(A) - COMPUTER FRAUD
OO:NH

Re: Memo. of SA [redacted] dated 6/23/82.

On 7/1/82, writer discussed captioned matter with AUSA [redacted]. Following a lengthy discussion, [redacted] advised that he now understood the process by which the electronic data was gathered, transmitted and encrypted. [redacted] intends to institute FGJ inquiry in an effort to develop additional evidence. In this regard, he intends to issue subpoenas for the [redacted] FGJ session. [redacted] will issue subpoenas to [redacted] and the U.S. Marshals will serve them.

NOTE: The 6/30/82 FGJ was cancelled.

LEAD:

NEW HAVEN

AT NEW HAVEN

Will maintain contact with AUSA [redacted] to coordinate FGJ investigation.

(2) New Haven
DEF:cah
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cah
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196-397-62

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FBI - NEW HAVEN	

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U.S. Department of Justice

Federal Bureau of Investigation

In Reply, Please Refer to
File No. NH 80-36

150 Court Street
Post Office Box 2058
New Haven, Connecticut 06521

July 26, 1982

Honorable Alan H. Nevas
United States Attorney
Post Office Box 1824
New Haven, Connecticut 06508

Re: Cases Awaiting USA Action

Dear Mr. Nevas:

Enclosed is a list of cases which have received investigative attention in this office and are currently awaiting prosecutive action.

Please contact me regarding the substantive content, our new procedures, or any modifications which would make our quarterly submission more useful to you.

Very truly yours,

Alonzo L. Lacey, Jr.
Special Agent in Charge

1-addressee
27-New Haven

1

[Signature]

JMQ/bd
(28)

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FBI FILE
NUMBER

CASE AGENT

CASE TITLE

ACTION REQUESTED

DATE OF LAST
REQUEST

USA HANDLING
THE CASE

b5
b6
b7C

196A-397

[redacted]

Bruce Ivan Paul
NCSS, Inc. - Victim
FBW

FGJ presentation
Pros. Rpt 10-6-81

7/1/82

[redacted]

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