

# **Exploding The Phone**

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TitleStudent Dialers Play Their Way to Global Phone Calls,<br/>Non-Pay; Sound Right Tune, Get Peru

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- Author(s) Kessler, Ronald
- Abstract Overview of the "Harvard five". Describes the activities of five Harvard and MIT students starting in October 1962. Mentions blue boxes, inward operators, Kleena Kleene, Fine Arts 13, etc.
- Keywords blue box; Harvard five; MIT; inward operator; Kleena Kleene, BC

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## INVASIONS OF PRIVACY

HEARINGS

BEFORE THE

SUBCOMMITTEE ON ADMINISTRATIVE PRACTICE AND PROCEDURE

OF THE

## COMMITTEE ON THE JUDICIARY

## UNITED STATES SENATE

### EIGHTY-NINTH CONGRESS

SECOND SESSION

PURSUANT TO

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PART 5

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61-406

Mr. WATERS. No. Mr. Chairman.

Senator Long. Thank you, Mr. Hitt. You have been helpful to the committee. I will ask the staff if they have developed some more information from Mosler.

Our next and last witness is Mr. Arthur Snowberger.

Do you solemnly swear the testimony you are about to give this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. SNOWBERGER. I do, sir.

### TESTIMONY OF ARTHUR A. SNOWBERGER

Senator Long. Mr. Snowberger, state your name, please. Mr. Snowberger. I am Arthur A. Snowberger.

Senator Long. And your address?

Mr. SNOWBERGER. I reside in Washington County, Md.

Senator Long. What is your business?

Mr. SNOWBERGER. I am a consulting engineer on electrical communications and I have offices here in the District of Columbia. I am registered in the District of Columbia and maintain offices in the District of Columbia. I have made a theoretical study of electronic invasion of privacy—electronic eavesdropping.

Senator Long. Mr. Snowberger, you have a statement. This committee will be glad to hear it.

Mr. SNOWBERGER. I have made a theoretical study of electronic invasion of privacy, commonly known as electronic eavesdropping. This invasion of privacy can be broken down into two categories; (1) direct eavesdropping on private conversations between one or more parties, (2) electronic eavesdropping on private telephone conversations.

The first method of eavesdropping I have not made any detailed studies on other than investigating the various types of miniature transmitters authorized for use by the FCC. These transmitters in most cases are authorized under various sections of the FCC and can be purchased at any local store, catalog house, and can be purchased by anybody. They are available, all different sizes and all different price ranges.

Since these transmitters are required to be licensed by the FCC to the extent of frequency operation, I have had occasion to check several manufacturers of these transmitters to see if they met FCC specifications so that they could be used for wireless microphones by broadcasting stations. In most cases they meet all of FCC specifications. But the lower price types, if they are not handled carefully, could violate FCC rules, so I advise my clients not to use them. As far as that method goes, I don't think I am going into any other details, because I have not made a thorough investigation of that particular point, other than the wireless microphones.

The second method of eavesdropping some private telephone conversations. The telephone system in the United States has become very, very complex. It has been completely automated. If anybody has the time and money to invest, he can practically eavesdrop on any conversation of anybody he desires.

I recently came across an article in the Boston Herald, which I have a copy here of. I think you might want to put it in the record. (The article referred to follows:)

[From the Boston (Mass.) Herald, May 27, 1966]

STUDENT DIALERS PLAY THEIR WAY TO GLOBAL PHONE CALLS, NONPAY; SOUND RIGHT TUNE, GET PERU

(By Ronald Kessler)

Five Harvard and MIT students crowded around a telephone receiver. Two students began playing woodwind recorders, while a third conducted.

The students were not practicing their music lessons. They were making a free telephone call to Peru.

Playing musical instruments was one of six methods the students discovered to make free long distance telephone calls throughout the world.

They discovered how to enter free trunk lines by activating telephone company switches with electronic tones of specific frequencies.

They built an electronic device allowing them to do almost anything the operator does.

They devised a method of hooking into defense lines.

They explored the inner sanctum of the telephone system by reaching "inward operators" who would connect them to any foreign country they wished.

And they learned secrets about the telephone system even the telephone company didn't know.

The students spent seven months working 40- to 80-hour weeks on what they called their "experiments." They read technical journals, conned operators, visited telephone exchanges, learned telephone jargon, and dialed as many as 10,000 numbers over a period of two or three days to obtain the combination of numbers they required.

They were finally caught by the telephone company, and, because of a mistaken suspicion that they were trying to obtain defense secrets, they were questioned by FBI agents.

They kept meticulous records of their "research" in a 121-page Fine Arts 13 notebook. When their schemes were uncovered, the telephone company impounded the Fine Arts 13 notebook and made copies which were distributed to key security personnel.

### ASK EXPLANATION

But because some of the discoveries were difficult to understand—one page contained girls' telephone numbers—the company also required them to submit a report explaining all of their findings. The report was 40 pages, double spaced.

The students—four from Harvard and one from MIT—are now employed by prestigious electronics firms and laboratories in the Boston area, except for two who are still in college. Most of the students had majored in electrical engineering or mathematics.

The story of their plot, as told by a knowledgeable source, began in October of 1962.

At that time two of the students were experimenting with a new tape recorder in one of their homes in Marblehead. They wanted to record strange sounds on the tape recorder, so they dialed telephone numbers at random to obtain incorrect numbers which would produce the wailing "wrong number" signal.

When one of these numbers was dialed, they heard two clicks. One of the students recognized the sounds as those preceding a toll call from Marblehead to Boston.

#### CHARGE AVOIDED

He dialed another digit and found himself connected to an "inward operator" in Boston. Inward operators help regular operators to complete some long distance calls.

The students found that the inward operator thought they were official telephone company men and would connect them to any local number they desired. The charge for a call from Marblehead to Boston was thus avoided.

Stimulated by this success, they began "experiments" on leased lines between Harvard and MIT, and when they had learned how to tie up all the leased lines by dialing back and forth, they turned their attention to the entire Bell System.

With three other students, they began by dailing possible area codes and exchanges not listed in the telephone book. Their first discovery was that they could dial a 10-digit number and be connected to the inward operator in Kleena Kleene, British Columbia, Canada. The operators in Kleena Kleene, apparently no match for Harvard and MIT students, would connect them to any telephone in the United States free. The students sometimes called telephones in Cambridge via Kleena Kleene, which is on the Kleena Kleene river. They also learned the telephone route or code to the inward operator in Campbell River, B.C., where they performed the same tricks they had used on the Kleena Kleene operators.

As their expertise increased, they put more and more hours into their wild research, sometimes neglecting to go to sleep at night. They said they were more interested in breaking the puzzle of the phone system, which presented a challenge, than making free calls. They spent most of their time chatting with operators and calling unknown telephone offices in such spots as Snake Rock, Montana.

Their next discovery was that they could dial a three-digit number from an East Boston exchange, thus putting them into long distance trunk lines, and then dial a fourth-digit number which put them through to the inward operator in Mexico City, Mexico. They made these calls from a pay telephone at Logan Airport.

The inward operator would connect them to any number in the world.

Once they asked her to call the president of Mexico in Mexico City. A man who answered the phone at the Presidential Palace told them the president was not available. That was at 2 a.m.

To permit other persons to call the students' telephones without paying long distance charges, they built a device known as a "black box" for less than \$10.

The students' ultimate device for making free calls is known as a "blue box." The gadget emits electronic tones corresponding to the 12 electronic tones used by operators and direct dialing equipment to make long distance calls.

The mechanism was essentially a duplicate of an operator's console, and it could be built for \$50 from components available in electronic stores.

The students would dial a code number to obtain a long distance trunk line, then substitute for the number a different call with electronic tones.

They could make any free long distance call they wished.

To call foreign countries, they would call inward operators who would obligingly put their call through.

Although the "blue box" was their most notable achievement, they also learned to produce the required tones with musical instruments and human whistling.

On certain nights, while other students were studying or sleeping, they were gathered around a telephone playing two recorders into the receiver while one of their number acted as conductor. The conductor was necessary to make sure the musical tones began and ended simultaneously.

A roommate, trying to sleep next door, discovered he could put a kink in their schemes by whistling at a certain pitch, thereby disconnecting whatever long distance call they had managed to make.

Their activities were uncovered in April of 1963 when a telephone company employe who had helped them obtain some information finally ratted on them.

The telephone company did not bring charges against them, but impounded their notebook, questioned them closely, and required them to write a full report of their activities.

When asked about the incident Thursday, Richard B. Flynn, public news supervisor of New England Telephone and Telegraph Co., said, "Bell Telephone Laboratories in conjunction with the operating companies of the Bell System and Western Electric have for some time been working with this problem of 'sophisticated equipment' being used to avoid paying for long distance telephone calls.

"We would prefer not to indicate what specific steps have been taken."

Mr. SNOWBERGER. In this article, six college boys have broken the electronic coding devices which enabled them to make long-distance calls to practically any place they wanted to without paying any fees for them. It also allowed them to talk to inside operators. This talking to inside operators leads to speculation that if one wanted to and knew the proper code they could dial up any line and eavesdrop on a conversation such as the service operator does when you request her to see if someone is actually talking on your line or if it is out of order. I believe the telephone companies are aware that this can be done. From this statement in the paper, I believe they have taken some action. This Boston Herald article states that the parts to make the electronic device to do this cost around \$50 and could be purchased in any electronic store. I briefly investigated these prices and with any ingenuity it could be possible. But, of course, as I previously stated, given the time and money any capable electronic technician could develop such a gadget. As a matter of fact, a good gadget to do this with is an electronic organ, which generates any tone necessary.

Mr. FENSTERWALD. Could I interrupt to ask you whether you are describing what is generally known in the trade as a blue box?

Mr. SNOWBERGER. I don't know whether it is known as a blue box. It is nothing but a little tone generator which can simulate the same type of tones that your pushbutton dialing equipment generates. An audio oscillator can do it. It is a little device which makes the same tone that triggers the electronic memory. The electronic memory does not know whether it is a genuine article the telephone company has or a substitute article. As long as you have the proper sequence or proper tones, you can trigger these.

Mr. FENSTERWALD. You mean I can trigger the test phones, and do basically what Mr. Roper was doing—listen in on anybody's line in the city?

Mr. SNOWBERGER. Right.

Mr. FENSTERWALD. They could not tell I was listening in ?

Mr. SNOWBERGER. That is correct.

Mr. FENSTERWALD. That is a pretty frightening prospect for \$50.

Mr. SNOWBERGER. Yes, sir; the parts are available. With a little ingenuity, it can be done.

Mr. FENSTERWALD. I understand the original of this was invented by a 17-year-old boy.

Mr. SNOWBERGER. I could not verify that. I picked up the Boston Herald and saw this thing.

Mr. FENSTERWALD. I understand when they graduate, they get hired by the telephone company.

Mr. SNOWBERGER. Possibly.

Mr. FENSTERWALD. Go ahead.

Mr. SNOWBERGER. That briefly describes what can be done with the electronic system in its state of art today. If anybody wanted to, they could eavesdrop on a system by the proper combination of tones.

Then we get into the old-fashioned, common wiretapping in which, for example, an answering service in a hotel or apartment in which one wishes to tap a phone line—they are usually located in the basement or the back of the switchboard, and very easy to get to as far as security goes.

It is very simple for a person to gain access to the terminal box and cross-connect a wire with the phone to be tapped with another convenient phone located in the same hotel. With the new electronic techniques now developed, the only way it is possible to detect this is a visual inspection of all telephone wires. Since the eavesdropping device is so sensitive that it does not load the telephone line so that the ordinary equipment will detect it. Therefore, I have reached the conclusion that the only way to see that a telephone line is secure from eavesdropping is a visual inspection of such line, because the electronic eavesdropping units so lightly load the line that ordinary equipment,