NEWARK COLLEGE OF ENGINEERING

323 HIGH STREET NEWARK, N. J. 07102

OFFICE OF THE PRESIDENT AREA CODE 201. 624-2424

March 22, 1965

Dr. Phyllis Fox
66 Old Short Hills Road
Short Hills, New Jersey 07078

Dear Dr. Fox:

It is a pleasure to be able to advise you that approval has been given to the recommendations of Dr. Lehman and Dr. Zatzkis that you be promoted to Associate Director of the Computing Center with the rank of Associate Professor in Mathematics.

I should like to invite you to continue your services at the College in this new position for the period July 1, 1965, through June 30, 1966. The compensation for this assignment, payable in 24 consecutive, semi-monthly installments beginning July 15, 1965, would be at the annual rate of Eleven thousand eight hundred fifty-one dollars ($11,851). Since your schedule will be reduced to three days per week, actual compensation will, once again, be three-fifths of the above stated rate.

I should appreciate receiving your reply to this invitation not later than two weeks following the date of this letter, in order that we may be certain of your plans for next year. If you wish, you may indicate your acceptance by signing the enclosed carbon copy of this letter.

The tremendous changes which are taking place with respect to the College's physical facilities are readily apparent. We can only speculate on many of the resultant changes which will develop in terms of responsibilities among the staff. It is certain, however, that each expansion has brought greater challenge to us all; and I fully anticipate that any new challenges will be met, as they have been in the past, with an overriding spirit of understanding and cooperation.

On behalf of the College I extend my thanks for your services, past and present. Acceptance of the invitation in this letter involves, I trust, your continued dedication to NCE.

Very sincerely yours,

Robert W. Van Houten

Robert W. Van Houten
President

md
Enclosure

NEWARK COLLEGE OF ENGINEERING

323 HIGH STREET NEWARK, N. J. 07102

OFFICE OF THE PRESIDENT

AREA CODE 201, 645-5101

Tenure

May 18, 1972

Dr. Phyllis Fox
66 Old Short Hills Road
Short Hills, New Jersey 07078

Dear Dr. Fox:

It is my pleasure and privilege to advise you that, in accordance with the recommendations of both your departmental committee and the College Committee on Promotions and Tenure, I am hereby granting you tenure at Newark College of Engineering. The policy on tenure established by our Board of Trustees is stated in the current Staff Handbook.

The granting of tenure is an expression of the confidence in you that your colleagues, chairman and I share. It also expresses our confidence that you will continue your own development in ways consistent with the best interests of the College and its students.

Sincerely yours,

William Hazell

William Hazell
President

WH:mc

NEWARK COLLEGE OF ENGINEERING

323 HIGH STREET NEWARK, N. J. 07102

OFFICE OF THE PRESIDENT AREA CODE 201, 645-5101

April 12, 1972

Dr. Phyllis Fox
66 Old Short Hills Road
Short Hills, New Jersey 07078

Dear Dr. Fox:

I hope that you will continue your services to Newark College of Engineering during 1972-73.

As was the case last year, we are not yet in a position to indicate the status of salaries for the next fiscal and academic years. Such information will be forwarded when available.

I want to take this opportunity to inform you, however, that this will be the last formal communication with regard to what we have always called annual "contracts". It is understood, of course, that tenured faculty members have a continuing contract with the college and that a non-tenured faculty member will be informed if his year-to-year contractual relationship is to be terminated. With the growth of the College and attendant changes in personnel practices, it no longer seems either necessary or practical to continue sending annual offers and confirmations of employment.

We will use formal letters for initial contracts and to notify staff about promotions, tenure, and other special contractual relationships; but, regular annual employment status communications will be limited to some form of notification about base salary.

Annual letters of contract have traditionally served the College by offering a confirmation of the intentions of staff members. This has assisted in the planning for an ensuing academic year. In moving to this new system, we assume that you will take upon yourself the same obligation of notice of intent that is placed upon the administration as part of its responsibility to all personnel. For this interim year I would appreciate your notifying me now -- if you have not already done so -- about any plans not to return to the College for 1972-73 or to request a leave of absence.

Sincerely yours,

William Hazell

William Hazell
President

WH:mc

W. Stanley Brown
Bell Telephone Laboratories
Mountain Avenue
Murray Hill, New Jersey 07974

Dear Stan:

Enclosed please find my vita. I tried to keep it brief and formal, and will amplify it slightly here.

What I'm interested in, in answer to your question, includes numerical computation with emphasis on the development of computer program libraries (I developed a sort of mini-ISML library at Newark College of Engineering), and also simulation which for my purposes means the use of computers in representing the dynamic behavior of a postulated model of a system. For the last couple of years I've taught an undergraduate course on simulation and it has proved popular; many of our undergraduates do their senior projects in this field. This year I've introduced a two-semester graduate course in simulation, and achieved 30 students (quite large) in the fall semester at least . . .

Also, I've always like programming and various computer languages. I caught the bug (double-entendre?) at Whirlwind, and it persists, but the only one I've implemented fully was DYNAMO, written to Jay Forrester's specs, not mine. I also wrote the first LISP manual but didn't do any of the building of it.

Finally, as to references, the following names come to mind but I'll wait to ask them until you indicate the ones that would interest you. Anyhow I haven't yet told NCE that I plan to leave:

Reference possibilities

M.I.T.	F. J. Corbato Jay Forrester Marvin Minsky C. C. Lin (Doctoral advisor - but fluid dynamics)
Courant Institute N.Y.U.	Max Goldstein Peter Lax
N.C.E.	George Moshos (Chairman, Computer Science Dept.) L. Bryce Andersen (Dean of Engineering)

Reference possibilities (continued)

General
John McCarthy (now Stanford, worked with him at M.I.T.)
Tony Ralston (we did our doctoral work at the same time at M.I.T., and later published an article together.)
Robert D. Richtmyer (Head of the Computing Facility at Courant Institute when I was there.)

Of course, please let me know of any further information which might prove useful.

Very best,

Phyllis Fox

BELL TELEPHONE LABORATORIES
INCORPORATED
HOLMDEL NEW JERSEY 07733
TELEPHONE
AREA CODE 201
949-3000

March 17, 1967

MRS. PHYLLIS FOX
66 Old Short Hills Road
Short Hills
New Jersey 07078

Dear Mrs. Fox:

On behalf of Bell Telephone Laboratories, I am pleased to extend to you an offer of temporary employment for the summer. The terms of the offer are as follows:

Your position would be that of Member of Technical Staff associated with our Mathematical Physics Department at our Murray Hill Laboratory. We have in mind that your assignment would deal with work as discussed with you by Mr. W. S. Brown.

Your salary would be at the rate of $1500 per month for our standard five-day, 37-1/2 hour week in effect at Murray Hill. It is assumed that you would be available for a period of at least ten weeks starting in June.

Your employment would commence when you report for work to begin your duties at our Murray Hill Laboratory and would be contingent upon your ability to meet our physical requirements at that time. If you will telephone Miss Ann Hooker on 949-3184, reversing the charges, she will make arrangements for you to take the required examination at Murray Hill.

You would be required to sign a Laboratories Security Statement. However, since it is not anticipated that your work assignment would carry military security classification, it would not be necessary to obtain security clearance.

Since you currently reside in Short Hills, New Jersey, which is within normal commuting distance of our Murray Hill Laboratory, we would not expect you to have to relocate your residence for the summer on our behalf.

BELL TELEPHONE LABORATORIES
INCORPORATED
HOLMDEL NEW JERSEY 07733
TELEPHONE
AREA CODE 201
949-3000

March 17, 1967

MRS. PHYLLIS FOX
66 Old Short Hills Road
Short Hills
New Jersey 07078

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Since you currently reside in Short Hills, New Jersey, which is within normal commuting distance of our Murray Hill Laboratory, we would not expect you to have to relocate your residence for the summer on our behalf.

If you have any questions or need additional information, please let me know. If you wish to telephone, call me on 949-3183, reversing the charges. We would appreciate having your decision by the end of April. If you find you will not be in a position to let us know by that time, please contact me at your earliest convenience so that we may discuss your intentions.

I sincerely hope that you decide to come with Bell Telephone Laboratories this summer. We are confident that you would find your work here challenging and rewarding.

Very truly yours,

J. L. Laferrera

J. L. LAFERRERA
Technical Employment Supervisor

Also talked to a
Mr Feldman there
who seems in charge
of NCE people (old grad)

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Statistical libr
not pertinent
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PRIVATE

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broad
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D. [illegible]
may be ok

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PAF

Bell Laboratories

subject: An Opportunity to Acquire a Superior Numerical Program Library for Bell Labs Computation Centers

date: December 18, 1972

from: W. S. Brown
M. D. McIlroy
J. McKenna

Mr. G. L. Baldwin:

not attached to this copy.

Attached is a specialist recruiter's report on Professor Phyllis Fox, who would like to build a high-quality library of numerical mathematics procedures for the Bell Labs Computation Centers. Phyllis is an exceptionally outstanding candidate for this task, and we feel that her application provides an opportunity which Bell Labs cannot afford to miss.

A general plan for constructing a high-quality numerical program library for Bell Labs was set forth in 1967 by W. M. Gentleman and J. F. Traub [1,2]. Three projects were actually completed, of which the most useful is the procedure DESUB for integrating a first order system of ordinary differential equations. The selection, adaptation, and certification of DESUB were carried out by Phyllis Fox, with the assistance of Mrs. P. C. Crane. The selection process involved the rigorous comparative testing of six different procedures [3]. The adaptation and certification involved modification, testing, and documentation of the procedure that was finally selected [4]. Phyllis began this work as a summer employee in Department 1374 in 1967, and completed it as a consultant during the ensuing 22 months.

Unfortunately, Gentleman and Traub have both left the Laboratories, and our program library continues to suffer from the defects which they so eloquently summarized as follows:

"1. The latest and best algorithms are not used.

"2. When several routines are available which purport to do the same job, there is little or no indication as to which one is best, and under what circumstances.

"3. Certain basic programs are completely missing.

"4. Certification is haphazard. Routines are not, and should not be, trusted. (By certification we mean a stamp of approval that someone other than the author has tested the program and that the tests were 'successful.' Certification must be accompanied by documentation of the tests.)

"5. Documentation is inadequate: the method used is not divulged, values of fundamental constants are not given, limitations are not properly described.

"6. Often the routines are incompatible with respect to calling sequence or data format, and cannot be used together.

"7. [Often] key portions of the library are machine or system dependent."

A detailed discussion of fourteen important kinds of computations for which library procedures can and should be provided, and ten for which library procedures are still beyond the state of the art (or inherently impossible) is given by Gentleman in [5]. Thus the objectives are well defined, the need is compelling, and the opportunity is at hand.

There is general agreement among those who know Phyllis Fox that she is exceptionally well qualified to work in this area. However, the problem of sponsorship remains. Since creativity and originality are not the dominant requirements, such work may not qualify as computing science research. On the other hand, to computation center personnel the numerical program library may seem to be a responsibility of the users rather than a vital component of the overall software system. Unfortunately, when a user is confronted with an inadequate program library, he is likely to get inadequate results, or to rewrite procedures which have been written better elsewhere before, or both.

In order to acquire a numerical program library of lasting value to the Laboratories, we recommend that you hire Phyllis Fox, and we offer to give her any desired advice and assistance when she arrives. However, if you feel that Center 823 is not the appropriate place for this activity, we should appreciate your advice and assistance in finding a suitable alternative.

W. S. Brown

THIS COPY FOR

M. D. McIlroy

J. McKenna

1274
MH-1271-WSB-pd
1211

Copy to
Messrs. S. P. Morgan
H. O. Pollak
R. C. Prim
M. M. Rochkind
B. A. Tague
P. H. Thayer, Jr.

REFERENCES

1. W. M. Gentleman and J. F. Traub, The Construction of a Numerical Mathematics Computer Library, MM 67-1374-5, 28 Feb. 1967, 7 pages + 2 appendices.

2. W. M. Gentleman and J. F. Traub, The Bell Laboratories Numerical Mathematics Program Library Project, Proc. of the 1968 ACM National Conference, pages 485-490.

3. Phyllis Fox, A Comparative Study of Computer Programs for Integrating Differential Equations, Comm. ACM 15, pages 941-948, November 1972.

4. Phyllis Fox, DESUB: Integration of a First-Order System of Ordinary Differential Equations, Chap. 9 (pages 477-507) of Mathematical Software, Ed. by John Rice, Academic Press, 1971.

5. W. M. Gentleman, Off-the-Shelf Black Boxes for Programming, IEEE Trans. on Education E-12, pages 43-50, March 1969.

AT&T
Bell Laboratories

subject: Resignation

date: August 20, 1984

from: Phyllis Fox
MH 45266
2F-223 X4747

Mr. R. E. Archer, Jr.:

For over a year it has been clear that there are no longer funds available to support the kind of work I have been doing at AT&T Bell Laboratories--bridging between the numerical analysts in research and other researchers or developers wishing to do numerical computation.

However, I felt that I wanted to get out the third edition of the PORT Mathematical Subroutine Library incorporating the large number of subroutines written in research over the last few years. These include, in particular, linear algebra (Linda Kaufman), optimization (David Gay), and partial differential equations (Norm Schryer).

PORT 3 is now complete and documented in a two-volume user's manual and an installation guide, so I submit my resignation effective August 27, 1984.

Phyllis Fox

MH-45266-PF-fg
Phyllis Fox