

ABM \$10.00

PASCAL USERS GROUP

Pascal News

Communications about the Programming Language Pascal by Pascalers

- APL Scanner
- Computer Generated Population Pyramids
- Path Pascal
- Introduction to Modula-2
- Validation Suite Reports
- Announcements

Number

26

JULY 83

POLICY: PASCAL NEWS

(Jan. 83)

- *Pascal News* is the official but *informal* publication of the User's Group.

Purpose: The Pascal User's Group (PUG) promotes the use of the programming language Pascal as well as the ideas behind Pascal through the vehicle of *Pascal News*. PUG is intentionally designed to be non political, and as such, it is not an "entity" which takes stands on issues or support causes or other efforts however well-intentioned. Informality is our guiding principle; there are no officers or meetings of PUG.

The increasing availability of Pascal makes it a viable alternative for software production and justifies its further use. We all strive to make using Pascal a respectable activity.

Membership: Anyone can join PUG, particularly the Pascal user, teacher, maintainer, implementor, distributor, or just plain fan. Memberships from libraries are also encouraged. See the COUPON for details.

- *Pascal News* is produced 4 times during a year; January, April, July October.
- ALL THE NEWS THAT'S FIT, WE PRINT. Please send material (brevity is a virtue) for *Pascal News* single-spaced and camera-ready (use dark ribbon and 15.5 cm lines!)
- Remember: ALL LETTERS TO US WILL BE PRINTED UNLESS THEY CONTAIN A REQUEST TO THE CONTRARY.
- *Pascal News* is divided into flexible sections:

POLICY — explains the way we do things (ALL-PURPOSE COUPON, etc.)

EDITOR'S CONTRIBUTION — passes along the opinion and point of view of the editor together with changes in the mechanics of PUG operation, etc.

APPLICATIONS — presents and documents source programs written in Pascal for various algorithms, and software tools for a Pascal environment; news of significant applications programs. Also critiques regarding program/algorithm certification, performance, standards conformance, style, output convenience, and general design.

ARTICLES — contains formal, submitted contributions (such as Pascal philosophy, use of Pascal as a teaching tool, use of Pascal at different computer installations, how to promote Pascal, etc.).

OPEN FORUM FOR MEMBERS — contains short, informal correspondence among members which is of interest to the readership of *Pascal News*.

IMPLEMENTATION NOTES — reports news of Pascal implementations: contacts for maintainers, implementors, distributors, and documentors of various implementations as well as where to send bug reports. Qualitative and quantitative descriptions and comparisons of various implementations are publicized. Sections contain information about Portable Pascals, Pascal Variants, Feature-Implementation Notes, and Machine-Dependent Implementations.

VALIDATION SUITE REPORTS — reports performance of various compilers against standard Pascal ISO 7185.

Pascal News

Communications about the Programming Language Pascal by Pascalers

JULY 1983

NUMBER 26

2 EDITOR'S NOTES

5 OPEN FORUM

SOFTWARE TOOLS

11 Program APL Scanner

By Vincent Dichristofano, Alan Kaniss, Thomas Robinson and John Santini

ARTICLES

26 "Don't Fail Me Now" *By Srully Blotnick*

27 Computer Generated Population Pyramids Using Pascal *By Gerald R. Pitzl*

32 Path Pascal — A Language for Concurrent Algorithms *By W. Joseph Berman*

37 An Introduction to Modula-2 for Pascal Programmers

By Lee Jacobson and Bebo White

BOOK REPORT

41 Data Structures Using Pascal

ANNOUNCEMENTS

42 SBB Announces Pascal Compiler for IBM PC

42 Sage Opens Boston Division

42 New 16 Bit Sage IV

43 New Modula-2 Manual

44 USUS Fall Meeting

44 Text Editor Interest Group

44 Modula-2 Users Group

45 USUS San Diego Meeting

46 Volitions Modula-2 for IBM PC

47 IMPLEMENTATION REPORT

VALIDATION SUITE REPORT

48 OmegaSoft Pascal Version 2

51 SUBSCRIPTION COUPON

53 VALIDATION SUITE COUPON

55 USUS MEMBERSHIP COUPON

Charles Gaffney Publisher and Editor

The Pascal Newsletter is published by the Pascal Users Group, 2903 Huntington Rd., Cleveland, Ohio 44120. The Pascal Newsletter is a direct benefit of membership in PUG.

Membership dues in PUG are \$25.00 US regular, other forms of membership please inquire. Inquiries regarding membership should be sent to the above address. Newsletter correspondence and advertising should be sent to the editor at the aforementioned address.

Advertising Rates: \$300.00 Full Page. Please give your preference of magazine location: front, center, or back.

Hello,

Well, this is the third issue I am involved with and there have been many changes. I would like to write of Pascal first.

Pascal has enjoyed a jump in attention in the last year. One reason is that there are Pascal compilers available for many machines and, I am tempted to say, they are available for any machine. Most of the major main frames have Pascal either directly or from a third party.

One step down in size, I know of only one machine, the Tandem computer which is without a Pascal implementation. A Tandem representative here in Cleveland informed me they have a language called "TAL" and in many cases will execute a Pascal program with no changes.

A couple more steps down in size are the small Digital Equipment machines and compilers are available from about four sources. IBM has the Display writer and Datamaster. These were released without our language, but in the last year, UCSD Pascal has been made available through IBM. Apple Computer has been a strong and long supporter of Pascal. TRS 80 has UCSD Pascal.

The smallest machine with Pascal is the TI 99/4A. In this size, Commodore has promised Pascal for this summer on the "64" and "128" machines.

The small computer, that is, the home computers and small business computers, have exceeded \$10 million in sales. This is according to Future Computing, a Richardson, Texas research firm.

With a guess, I would say that Pascal is implemented on at least 25% of these machines. If only 1% of these were being used to learn and program Pascal, then 25,000 people are presently involved. This is a lot of people looking for the best books from which to learn.

I am making an appeal to our members to submit comments and reviews of text books so that we all may benefit from your experience. I get calls from authors requesting information on Pascal. To these people, the best I can do is to send complete sets of *Pascal News*! With your comments and criticism, perhaps we could influence future text books.

Herb Rubenstein of Budget Computer in Golden, Colorado has sent a small article from *Popular Computing*. It seems that advanced placement test in computer science will use structure programming and the Pascal language. These tests allow up to one year of college level credits in computer science. The author of this article, Dan Watt, believes that the choice of Pascal in the testing may lead to Pascal as a defacto standard in high schools preparing students for college. Let me quote the last paragraph:

"This situation illustrates the power of the testing establishment to influence the lives of students and teachers. Although the vast majority of high schools now offer Basic as the standard computer language for most programming and computer science classes, this action by the College

Board may lead to the establishment of Pascal as a defacto standard for high school teaching and spawn an entire mini industry of curriculum to meet the new requirements. It may also offer significant school marketing advantages to micro-computer companies that already support Pascal — such as Apple, IBM and Texas Instruments."

I would like to see comments from you regarding this use of Pascal in a rite of passage.

In this issue, you will find a reprint of Dr. Sully Blotnick's column from *Forbes* magazine. I like this column because of the clever way he has made our economy dependent on you learning Pascal.

I enjoy *Forbes* magazine. They emphasize common sense and illustrate proven business practices. *Forbes* also takes a pulse of industries, and small computers is a fast growing industry. In a column called "Technology", edited by Stephen Kindel, on March 28, 1983, he noted that 2% of the households in the U.S.A. own computers of one form or another. There had been predictions of 40% of households by 1990. This has been reduced to 20% in 1990 because there doesn't seem to be software that is useful in households.

Mr. Kindel ends this article with a quote from Seymour Papert, an MIT professor:

"The real purpose of learning how computers work should be to improve human logic and thought processes, to make people more creative, not simply more dependent on machines."

Maybe this would be a good issue to review the tools available in our back issues. This issue contains the APL scanner. I am embarrassed to print this, not because of the program's quality, but because it was submitted four years ago. Well, no time like the present.

In issue #17 (yellow), Arthur Sale submitted "Referencer", a procedural cross reference. This program provides a printout of the heading of each procedure and function with indentation showing nesting. In issue #25, Mr. Yavner has improved on this program with "A Better Referencer". Mr. Yavner claims that *Pascal News* has been his sole source of instruction in Pascal. I believe this is a compliment to Andy Mickel and Rick Shaw for their efforts to maintain this newsletter. We should also thank our contributors, Mr. Sale for instance, for outstanding generosity. These people will appreciate your complements, criticisms and gifts of money. (Ho! Ho!)

Andrew Tandenbaum, in issues 21 and 22/23, provided us with "The EM1 Compiler". This is a good look at all that is necessary for a pseudo 32-bit machine Pascal compiler.

The UCSD Pascal Project started with a 16-bit pseudo machine portable compiler. It was called P4 out of Zurich, Switzerland by Vrs Ammann, Kesav Nori and Christian Jacobi. I mentioned this because it has been published with critical commentary by S. Pemberton and M.C. Daniels in 1982. It is presented as a

case study of compiler design and is very interesting to read.

Pascal Implementation

S. Pemberton and M.C. Daniels
Ellis Horwood Limited Publishers

Distributed by:

John Wiley & Sons
605 Third Avenue
NY, NY 10016
USA

In #21 you will find Jeff Pepper's fine implementation of extended precision arithmetic.

Nicklaus Wirth, Pascal's creator, wrote Pascal S and we have it in #19 (mis-labeled #17). This is a subset of Pascal and was intended as a teaching aid.

Also in #19 is a Lisp interpreter written in Pascal.

"MAP", a Pascal macro preprocessor for large program development, is published in #17.

Issue #16 contains the Validation Suite version 2.2. This is the compiler checker that Arthur Sale and Brian Wickman have now revised to version 3. This new version is available by using the Validation Suite coupon in the rear of this issue.

"Prose", a text formatter, by John Strait is the major program available in #15. A disclaimer in the instructions manual admits that it doesn't do everything, but I must say, it has a lot of capability.

In #13, two programs were printed that performed the same work. A sort of "Battle of Algorithms". "Pretty Print" and "Format" used any Pascal programs as input and printed it in a consistent style.

For those of you looking for other Pascal periodicals, there are four of which I know. "Pascal Market News", 30 Mowry Street, Mt. Carmel, CT. 06518. This is a nice quarterly for \$9.

Another quarterly for Oregon Software users is the "Pascal Newsletter". Maybe this is too narrow in content, but you will know what Oregon Software is up to. Their address is 2340 SW Canyon Rd., Portland, OR. 97201.

A very slick magazine with good design is "Journal of Pascal and Ada." You can contact them at West Publishing Company, 898 South State Street, Orem, UT. 84057. The cost is \$14 for six issues.

The USUS News and Report is more a system user's journal, but the system is based on Pascal. They also have a software library, seventeen floppy disks full, and all in source code and written in Pascal.

Now to the business of *Pascal News*. *Pascal News*, as the Pascal periodical granddaddy published since January 1974, has had its ups and downs. In 1979 our circulation was 7,000; now it is 3,600. Our biggest problem has been irregular publication. I am committed to four issues this year and I am considering six issues next year. I believe that regularity will supply us with growth and members and more software tools.

As I mentioned in the last issue, PUG (AUS) has stopped and I, in the USA, have taken over their area. Unfortunately, they have not sent me their mailing list and I fear that I have lost touch with our members there. This issue will be sent to those members listed as of 1979 and I hope they will "spread the word" and the subscription coupons!

Open Forum

Our PUG (EUR) has performed very nicely and I thank Helmut Weber and friends for their good work. But they have a problem concerning money. They have not charged enough for subscriptions and were pressed to send our #24. As a result, I will mail all issues directly and I hope you will not be inconvenienced. Please keep in touch with them as they are a strong group.

I have saved the worst for last. In November, 1982, I sent 300 copies of issue #24 to Nick Hughes in care of PUG (UK), Post Office Box 52, Pinnen, Middlesex HA5 3FE, United Kingdom. Using the phone number 866-3816, the air express shipper delivered these issues by mid-November. All well and good. The issues arrived before the cover date with plenty of time to post them to our English members. I called Nick at this number many times, but spoke to him only after many months. It was late April and I asked if I should use the same procedure in shipping #25 to him.

Nick said that the issues arrived properly and that method was efficient but wanted to know what was in #25. He told me that he did not like issue #24 and from the sound of it, did not like issue #25. He had disliked #24 so much, he decided not to send any of them out. Need I say more?

Nick will not supply his mailing list so I am sending this issue and #25 directly to the members of record in the United Kingdom as of 1979. If you feel a need to find out why Nick Hughes did not like issue #24 or would like to see it yourself, please call or write Nick at the above address and ask for your copy. He has 300 and I am sure he can spare one.

As a result of these difficulties, I will receive and service all subscriptions from here in Cleveland, Ohio. From now on, there will be only one person to blame if you have a complaint.

As of this issue, a year's subscription is raised in price to \$25 a year and \$50 for three years. These represent two sets of costs; production and organization. Production costs are typesetting, printing and mailing. Other activities of production are editing, reviewing, quality assurance and formatting. These tasks are performed by "yours truly" and presently I do them for free. (I'm real smart!)

Organization is a cost of servicing you and other members satisfactorily. This includes collecting and reviewing the mail, depositing checks, updating the mailing list, sending back issues to fill new subscriptions and sending sets of previous years back issues. In order to do this correctly, and in a timely fashion, I don't do it. I pay a firm to perform "fulfillment" and it takes one or two days per week. This cost is small compared to the bad feelings generated if not done correctly and quickly.

These are costs of which you are totally responsible. This newsletter has been a beneficiary of volunteerism. There are no volunteers now (save me). In many magazines, advertisements will pay for all production and organizational costs plus provide profits, sometimes large profits.

The cost of a full page ad in *Byte* or *PC* or *PC World* is over \$2,000 and these are publications with 500 pages!

Now we may be able to keep our costs down and publish more often if we accept advertising. Three hundred dollars per page is not expensive. I will pursue

advertisers and I am asking for your help. If you are writing a book, have your publisher advertise with *Pascal News*. If you are making software packages, influence your boss in the virtues of an ad in *Pascal News*. If you manufacture or sell computers, sell your product from the pages of *Pascal News*. This is the oldest Pascal publication and, I proudly say, the most influential.

This newsletter help spread Pascal and our members were most influential in the standard efforts.

I believe *Pascal News*' new mission is to enable Pascal to be taught in the easiest way. This is in many forms. For instance, reviews of books and texts, discussion of what features to teach first as a foundation, how to teach advanced courses, discussions of extensions or standard program tools to include in every well written program as it is appropriate.

By the way, Andy Mickel tells me that the "Pascal User's Manual and Report" by Jensen and Wirth has sold 150,000 copies in 1982. This is interesting considering that in the previous seven years, it sold 175,000 copies. A very sharp jump in interest.

A new text book has been sent to me, "Pascal" by Dale/Orshalik, 1983 DC Heath. A nice title, short and to the point. The preface states a philosophy that I would like you to comment on.

"In the past there have been two distinct approaches used in introductory computer science texts. One approach focused on problem solving and algorithm design in the abstract, leaving the learning of a particular language to a supplemental manual or a subsequent course. The second approach focused on the syntax of a particular programming language, and assumed that the problem-solving skills would be learned later through practice.

We believe that neither approach is adequate. Problem solving is a skill that can and should

be taught — but not in the abstract. Students must be exposed to the precision and detail required in actually implementing their algorithms in a real programming language. Because of its structured nature, Pascal provides an effective vehicle for combining these two approaches. This book teaches problem-solving heuristics, algorithm development using top-down design, and good programming style concurrently with the syntax and semantics of the Pascal language."

One of the letters mentions high resolution graphics. I know of two texts that use Pascal as the illustrative language of their algorithms. They are "Principles of Interactive Computer Graphics" by Williams Newman and Robert Sproull, 1979 McGraw-Hill and "Fundamentals of Interactive Computer Graphics" by James Foley and Andries Van Dam, 1982 Addison-Wesley.

Two notes from members:

Steven Hull of Campbell, California, received a notice from me that #22/23 had been returned to us because the postal service will not forward bulk mail. His reply:

"I guess this will teach me to move from Lakewood (a suburb of Cleveland, Ohio). Didn't know bulk mail wasn't forwardable. The Postal Diservice has been re-routing every piece of junk mail for a full year . . . I might have to file suit to stop it all!

And from Eric Eldred of New Hampshire who rewarded *Pascal News* with a three year subscription and dutifully filled the coupon with name and address and arrived at a request for "Date". Eric filled in "No! Married!". Thanks Eric, I needed that!

Charlie

To Charlie Gaffney,

I'm glad you have taken on *Pascal News*. I hope it works.

Perhaps, I should say what I would like to see published in *Pascal News*. The most valuable things are 1) Tools, and 2) Info on the various implementations. In my job we are using many computers. It is very helpful to know which compilers work well, meet standards, and produce efficient code. Apple Pascal is nearly bug free, and works as specified (with UCSD quirks). IBM Pascal VS is good — extensions are large presenting conversion problems if they are used. It has a good interface to FORTRAN. VAX Pascal is plain vanilla, appears to work well but we have not tested it in difficult situations. HP Pascal 1000 works fine but does not have a stack architecture and seems to compile slowly. Recent tests on HP Pascal 1.0 for the HP 200 computers seem to indicate it derives from UCSD although it is a native code 68000 compiler. It seems to work very well. We are interested in Pascal for the Data General Eclipse.

Good luck,
Dennis Ehn
215 Cypress Street
Newton Centre, MA 02159

Gentlemen:

Would you be so kind as to send information on the Pascal User's Group (PUG) and its official publication *Pascal News*. Recently we have acquired a microcomputer Pascal compiler and are very much interested in keeping up with current developments in Pascal.

Our system is based upon a SouthWest Technical Products Corporation S/09 computer, running the UniFLEX Operating System (similar to UNIX). If specific information is available for this unit, please let us know.

Additionally, the college has several (approximately 18) Apple computers which are capable of running the UCSD Pascal System. Once again, any special information here would be very helpful.

We look forward to hearing from you and hope that we can make a positive contribution to the Pascal User's Group.

Yours Truly,
Lawrence F. Strickland
Dept. of Engineering Technology
St. Petersburg Jr. College
P.O. Box 13489
St. Petersburg, FL 33733

Dear Sir,

I just received issue number 25 of *Pascal News* and was surprised to find an implementation note for our

Open Forum

Pascal compiler. What makes it surprising is that to the best of my knowledge I have never sent in an entry, and the information provided is about a year and a half out of date.

In case you would like to provide your readers with valid information, I have enclosed an implementation note for the currently available compiler. I have also enclosed a copy of the ISO validation suite report from our language manual.

Work is currently being done on moving this compiler to the 68000 family of processors and should be available by the end of 1983.

On another note, I have received issues number 21, 22/23, and 25, but not issue 24. I am also enclosing a check for a 3 year membership — please see if you can determine what happened to number 24.

Sincerely,
Robert Reimiller
Owner, OmegaSoft
5787 Brandywine Ct.
Camarillo, CA 93010

December 1, 1982

I hope the letter referring to the possible end of the P.U.G. is wrong! I can be of some help if needed.

Allen Duberstein
Pine Instrument Co.
3345 Industrial Blvd.
Bethel Park, PA 15102

January 10, 1983

Dear Mr. Gaffney:

Enclosed is a check covering both the remailing cost of *Pascal News* #24 (\$5) plus my membership renewal for two years (\$18).

My apologies for getting out of synchronization with the Pascal Users Group. As the post office informed you, I recently moved to the address noted. Frankly, I hadn't received a *Pascal News* in so long that I simply forgot about it. It appears that I won't miss any issues — the enclosed All-Purpose Coupon is from issue #23.

Interestingly, after a long period (3 years) of not using Pascal, it looks like I will be using it once again. We have a couple of Convergent Technologies workstations in my office. These are very nice 8086-based machines; Burroughs sells them as the B-20s, and NCR sells them as WorkSavers. We will probably be getting a Pascal compiler, and I am looking forward to getting back into Pascaling in the near future.

Sincerely,
Read T. Fleming
144 Irving Avenue #B-3
Providence, RI 02906

November 30, 1982

I was surprised and pleased to receive issue number 24 of *Pascal News*. Thanks for taking it over. I do have one question, however, which you might be able to help me with. What year is it? My address label includes [82] on it but the previous issue I received was dated September, 1981. I notice that this issue is dated January, 1983. Should I send in another year's subscription money now? What happened to 1982? I never have managed to figure our *Pascal News*' subscription scheme. Maybe a note in the issues towards the end of a year saying "if your address label says [82] it's time to send in a renewal" would help.

Thanks for your help.

Richard Furuta
Computer Science, FR-35
University of Washington
Seattle, WA 98195

8 February 1983

Dear Sir,

I received your notification of renewal in the mail yesterday. I am slightly concerned that you may not have received the check which I mailed to you in December. I hope that it has only been a slight mix-up, and in fact, my subscription has been renewed for 3 years, as I requested.

I am currently using the Pascal implemented by Microsoft for the IBM Personal Computer. It has some non-standard features which were provided in order to allow programmers to access the full capabilities of the machine. This implementation is quite flexible, and was designed to allow users to produce systems programs, as well as application programs.

The greatest shortcoming to this product, however, is its lack of usable documentation. Even someone like myself, who has been programming in Pascal for 8 years, has difficulty in trying to locate the appropriate material in the 'reference manual'. Once this is overcome, the user is able to use this version for the production of some very powerful software.

I continue to look forward to the delivery of your fine newsletter. I enjoy the articles, and realize how difficult a task you have. Keep up the good work.

Regards,

Robert A. Gibson
1609 Lake Park Dr.
Raleigh, NC 27612

November 30, 1982

Pascal is being used for process control of laser trimming systems. We use Oregon Software Pascal.

Barbara Huseby, Training Dept.
Electro Scientific Industries
13900 N.W. Science Park Drive
Portland, OR 97229

March 3, 1983

Dear Mr. Gaffney:

I'm writing to let you know why I am not renewing my subscription to *Pascal News*. The main reason is that the price is now too high for the utility of the product (at least to me). I appreciate your efforts to keep PUG and *Pascal News* going, but I'm afraid they may have outlived their usefulness. Pascal is not really in need of promotion as it was when PUG was formed. The *Journal of Pascal & Ada* may be an appropriate successor.

As a long-time subscriber and occasional contributor, I wish you luck in your efforts.

Richard Leklanc
Assistant Professor
Georgia Institute of Technology
Atlanta, GA 30332

January 7, 1983

Hang in there, Charlie!

Andy Mickel
106 SE Arthur Avenue
Minneapolis, MN 55414

December 9, 1982

Dear Sirs:

Could you provide us with information on membership in your organization, both personal and institutional, as well as the subscription cost of your journal.

We are also interested in a rigorous comparison of the various PASCAL versions implemented by mini and microcomputer vendors. Do you know of any such comparative research? We are making plans to offer Advanced Placement Computer Science in the fall term of 1983, and wish to select an effective computer.

Very truly yours,

Charles McCambridge
Director
Instructional Materials Services
Niskayuna High School
1626 Balltown Rd.
Schenectady, NY 12309

December 25, 1982

Merry Xmas! Good luck, Charlie! Is your "acquisition" of PUG a sign that PUG and USUS will someday merge? I'm not sure I'd like that, but let's see.

Jim Merritt
P.O. Box 1087
Morro Bay, CA 93442

December 24, 1982

Please send me information on joining the Pascal
Open Forum

User's Group, I am a software project engineer at General Electric in Syracuse. I am currently in the process of selecting a high level language for internal programming of a 1024 x 1280 resolution raster display. Pascal is the leading candidate, therefore, I am very interested in the latest information regarding the language which I feel a user's group could provide.

My interest does transcend my work however as I do own a Commodore SuperPET which includes the University of Waterloo software package consisting of Pascal, APL, Fortran, Basic and a 6809 Assembler.

Sincerely,

Douglas W. MacDonald
4303 Luna Course
Liverpool, NY 13088

2/5/83

To Whom It May Concern:

I just received your notice to inform me that my membership is about to expire and that I should renew now.

I would like to tell you that I would consider renewing if I could be assured of getting my money's worth — this time!

When I first joined in 1981, I didn't hear from *Pascal News* for almost a year. Then a few months ago, I received a second issue, but that's been it.

Now I am a convicted Pascaler. I understand the difficulties of operating a non centralized club, but \$20 should buy *some kind* of organization for things I feel.

Can you assure me of a better value this time around?

Cordially,

David Abate
Micro People
116 S. Bowdion St.
Lawrence, MA 01843

P.S. Question: Do you intend anything on UCSD-Pascal? This is my greatest interest.

7 January 1983

Hi,

This is a note in a bottle to: 1) find out if you're still out there, and 2) what's happening with Pascal. It doesn't seem to be taking the bite (or is that byte) out of Basic I thought it would.

We will start covering Pascal as soon as we have finished Basic programming — about five weeks from now. The extension program from Hocking Technical College in Nelsonville has provided seven Apple II and Apple III computers and two printers. By the end of the year, they will have installed a winchester disc and either a modem or a microwave link to their main campus computer. We'll need it by then to cover the Cobol and Fortran IV programs we'll be writing.

Most of my practical computer experience is in assembler language. I used it at Cincinnati Milacron's

Open Forum

Process Controls Division (Mater's of the controls for the T³ Industrial Robot).

I am interested in any literature you have to send me. In particular, I would like the titles of the books you consider best for teaching Pascal — either on the Apple II or on computers in general. Apple, Inc., sent me the Pascal Reference Manual (just a bit or a nibble over my head). I've also read copies of the DOS 3.2 Reference Manual and their Basic Programming Manual. I covered all these before classes started and wound up tutoring two other student/inmates.

Sincerely,

Brian Appleman 166-767
15802 St. Rt. 104
P.O. Box 5500
Chillicothe, OH 45601

P.S. If you need more on my background, just ask.

83-02-24

Dear Charlie:

I am a member of PUG (AUS) which has just folded, and I would like to re-enroll through PUG (US).

I don't share Arthur Sales view that PUG and PN have no purpose now that there is an ISO standard. The world still needs cheap, good software and PN (in a modest way) supplies some of it. Also, some organization is needed to defend and develop good programming language and style.

PUG (AUS) says I have a credit of 12 (old) issues and that the funds have been sent to you. Please will you accept my re-enrollment and advise me how many (new) issues I am now entitled to?

Finally, I, and I'm sure, many others appreciate your offer to keep PUG/PN going.

Thanks again.

Yours sincerely,

Peter Edwards
40 Davison St.
Mitcham, Vic.
Australia 3132

December 3, 1982

Best wishes in this venture, Charlie. I agree that *Pascal News* and P.U.G. are worth saving.

John W. Baxter
750 State Street, Apt. #224
San Diego, California 92101

February, 1983

You people have ripped me off for the last time!

By your own back order form (attached) you show that my renewal in 1981 paid for 3 issues mailed in 1982. But then, WHAT OF MY RENEWAL PAID IN 1982? ONLY ONE ISSUE #24 COUNTS??? AND THAT HAD TWO PREVIOUSLY PUBLISHED PRO-

GRAMS!! (That is, programs I had ALREADY received.) If you ran a decent organization, you'd make my 1982 renewal count for 1983 also.

David S. Bakin
Softech Inc.
360 Totten Pond Road
Waltham, MA 02154

December 24, 1982

We're indebted to you, Charlie!

Wayne N. Overman
3522 Rockdale Ct.
Baltimore, MD 21207

February 17, 1983

Dear Mr. Gaffney,

I am one of those folks who does not have a currently correct address with *Pascal News*.

Enclosed is a check for \$5 for a copy of issue 19 which was returned to you.

Thank you on behalf of all the members of the user's group for the effort you are putting out. It is very much appreciated.

Tom Bishop
P.O. Box A
Kenmore, WA 98028

March 14, 1983

Dear Sir or Ms.:

We plan to offer Pascal at our school. I would appreciate receiving information on your group and, if possible, a sample copy of *Pascal News*.

Any suggestions or information you could send would be appreciated. We are particularly concerned that the new Apple 2-E does not support Pascal with one disk drive. We had hoped tht UCSD Pascal with one drive would work on the Apple 2-E.

Thanks for your help.

Sincerely,
Harold Baker
Director, Computer Science
Litchfield High School
Litchfield, CT 06759

February 11, 1983

Hi!

Here's my renewal. I really enjoy *Pascal News* and have been upset about what has happened with it the past 18 months or so. It has been of substantive value to me, particularly in the area of the style of Pascal coding among the community that have submitted articles.

I would like to see more articles on Modula 2,

Wirth's follow on to Pascal and Ada in parallel. To me, this would seem a way of keeping PUG alive as well as providing a growth path to these languages for Pascal programmers.

I use Pascal/VS extensively at work and I have found its extensions the best of any other Pascal compiler for S/370 compatible machines. Almost all of its extensions are within the "spirit" of Pascal and uses a very good extension to STRING data. Of particular convenience is its READSTR and WRITESTR functions (they are procedures actually -unfortunately). I force the concept of function upon them by embedding their invocation within a function when required.

I never received issues 20 and 21 of *Pascal News* during the confusion, although I did mention this at times. I would certainly purchase them separately, but I am not prepared to purchase two sets to get them. Please advise.

Thanks for your work,

Bob Dinah
630 Alvarado St. #207
San Francisco, CA 94114

November 12, 1982

Dear Pascal User's Group:

The only source of information that I have on the Pascal User's Group came from "The BYTE Book of Pascal", according to an article written by Kenneth Bowles. An editor's note of July 1, 1979 listed the annual newsletter as \$6.00 per year. I am enclosing \$12.00 in case things have increased since that date. If this amount is insufficient, please make it up on back issues.

I am currently using an Apple III with Apple computer's version of UCSD Pascal. There does not seem to be more than a dozen books written on Pascal, and just a few on UCSD.

I am an ex-electrical engineer, turned to building construction. Previously, I worked for Westinghouse Research Center in Pittsburgh, and used the Burroughs B6500 main frame computer with ALGOL language. The B6500 used a number of formats and types that I miss; the Fixed Format was especially useful since it allowed the user to specify the number of total digits and the number of decimal digits combined. I would like to use this format in UCSD Pascal.

Thanks for taking the time to help me.

Very truly yours,
Larry J. Moorhead
5207 - 32nd Street East
Bradenton, Florida 33508

18 March 1983

Dear Sirs,

For the first time we have received a copy of *Pascal News*, and it has been read with great interest.

We would like to join your User Group but cannot find either a price or contact address for our region.

Please send us this information as soon as possible,

so that we can become members and start receiving your journal on a regular basis.

We have taken note of your abhorrence of paper-work (and endorse the sentiment) and will send the necessary prepayment once we receive the information.

Yours sincerely,

Bette Kun
Librarian
Control Data
P.O. Box 78105
Sandton, South Africa 2146

20 April 1983

Dear Mr. Shaw:

Enclosed is a check for \$10.00 for a one-year subscription to the PASCAL Users' Group Newsletter. We have just recently acquired PASCAL-2 here at Villanova and our students are using it on LSI-11 systems running RT-11 V4.0 for applications involving real-time control, data acquisition, and computer communications.

Sincerely yours,

Richard J. Perry, Ph.D.
Villanova University
Dept. of Electrical Engineering
Villanova, PA 19085

15th February, 1983

Dear Mr Gaffney,

As a long PUG user the demise of PUG-AUS is a blow. Anyhow, as you can see from the attached letter I would *love to continue* and thus need your help.

Could you please detail the fees for 1983 for us "down under" for surface mail and air mail and as you can see I'm afraid I've not got issue number 21. Can you help?

For interest I use:

UCSD Pascal/p-System	ERA-50 Computer (8-bit, 8085 base)
Pascal MT+ under CP/M and MP/M	ERA-50 Computer (8-bit, 8085 base) ERA-50 Computer (8-bit, 8085 base)
Pascal MT+ 86 under CP/M-86 and MP/M-86	ERA-80 Computer (16 bit, 8086/8087 based) ERA-80 Computer (16 bit, 8086/8087 based)

Regards,
Dr. William J. Caelli, F.A.C.S.
President
ERACOM Group of Companies
P.O. Box 5488, G.C.M.C.
Qld. 4217, Australia

1-8-82

Dear Sir/Madam,

This is the first letter I write to contact you. Let
Open Forum

me introduce myself first. I am a student pursuing a computer course in the Hong Kong Polytechnic — a licensed user of your OMSI-PASCAL-2 V1.2. I don't know what your definition of user may be. May it be my Polytechnic or any student or programmer who use your OMSI PASCAL-1 under the Polytechnic, I venture to call myself a user in this letter, and would like to join the Pascal Users' Group and receive the newsletter.

In the past few months, I have been doing extensive programming using PASCAL, and find it very handy, especially in writing structured programs. However, until recently when I develop some system programs, I find problems. I discover that there is no source listing or documentation on the OMSI PASCAL-1 run time system (possibly in file FPP.RTS) and its relationship with RSTS/E, and I cannot interface with the low level I/O trap handlers without knowing their details. I find some problems on the RESET ODT mode, but I cannot deal with it in assembly level.

All in all, my problem is highly personal and does not in any way bear relation with the Hong Kong Polytechnic. However, as a student on computing, I don't want to leave problem unsolved. So, please send me any informational help, if possible.

Included please find a bank draft of \$6 for subscription.

May I state once more my request. I need information on OMSI PASCAL-1 run time system especially the EMT trap handling.

Thank you very much in advance.

Yours faithfully,

Mr Kam Man-Kai
Flat 8
3/F Ting Yin House
Siu On Court
Tuen Mun - N.T.
Hong Kong

6th November, 1982.

Dear Mr. Mickel,

I am a student of computing studies in the H.K. Polytechnic. Recently, I got a chance to buy a Chinese version of 'A Practical Introduction to Pascal' by Wilson & Addyman from which I was informed that there is a PUG in States.

Briefly understanding the objectives of the PUG, I find myself in great interest in joining the group. Would you be so kind as to provide me with further information as far as the PUG is concerned. I am eagerly looking forward to your reply.

Yours sincerely,

Alan Kwong
12, Boundary St.
Po Hing Bldg.
8/F, Block 'C'
Kln., H.K.

December 23, 1982

We have been using Oregon Software's RT-11 Pascal implementations for over three years with excellent results and complete satisfaction; Pascal is used for scientific "number crunching", program development, algorithm testing, etc.

Bob Schor
The Rockefeller University
1230 York Avenue
New York, NY 10021

December 30, 1982

A worthwhile journal.

George Williams
Union College
Schenectady, NY 12308

March 22, 1983

Dear Mr. Gaffney:

I have previously received *Pascal News* through University of Tasmania. Is it still published? If so, do I have any credit on my subscription dues? I would also be interested in information about USUS.

Yours sincerely,
M.J. Palmer
CSIRO
Private Bag
P.O. Wembley, W.A. 6014

February 3, 1983

Good job, Charlie! and good luck to the renewed *Pascal News*!

Norman W. Molhant
320 Principale
Tres-Saint-Redempteur, P.Q.
Canada J0P 1P0

May 1, 1983

A professor in Ithaca, NY told me there exists a public domain UCSD Pascal available for micro's.

I have a 60K Z-80 which uses memory map video, and a 63K 8085/8088 (both machines S-100 bus) which uses a TVI 950. I also have a H-29 terminal (like Z-19 but with a detached keyboard).

Is there really any way of getting this UCSD Pascal running on one of my systems? (I have UCSD on the Sage also Modula-2. Good stuff.)

Thanks,
J. E. Pournelle, Ph.D.
12051 Laurel Terrace
Studio City, CA 91604

Program APLscanner

By Vincent Dichristofano, Alan Kaniss, Thomas Robinson, and John Santini
NADC, Philadelphia, PA

```

1 program APLscanner(input ( + TERMINAL ), output , APLfile );
2
3 {
4 * Purpose:
5   This program is an implementation of APL in Pascal.
6
7 * Authors:
8   Vincent Dichristofano
9   Alan Kaniss
10  Thomas Robinson
11  John Santini
12    authors' affiliation - NADC
13
14                               Phil. PA. USA
15
16   project leader: Dr. Joseph Mezzaroba
17
18   This program was written as part of an independent study
19   course at Villanova University.
20
21 * Submitted and accepted for Pascal News. DEC 1976.
22
23 }
24 Label
25 100;
26
27 const
28   prefix1 = 60;
29   prefix2 = 62 { prefix for CDC ASCII 12-bit codes };
30   MaxVarNameLength = 10;
31   MaxInputLine = 132;
32   InputArraySize = 134;
33   NumberOfMessages = 100;
34   MessageLength = 80;
35
36 type
37   PackedString = packed array [1 .. MaxVarNameLength] of 0 .. 8191;
38   TokenNoun =
39     (FormRes, FormArg, GlobVar, MonadOper, ReductOper, DyadOper,
40      SpecOper, constant, StatEnd);
41   values = record
42     RealVal: real;
43     NextValue: ^values
44   end;
45   VarTab = record
46     VarName: PackedString [ v1 ];
47     FuncTabPtr: ^FuncTab [ v2 - ftab ];
48     ValTabPtr: ^ValTab [ v3 - vtab ];
49     DeferredValTabPtr: ^FParamTab;
50     NextVarTabPtr: ^VarTab
51   end;
52   ValTab = record
53     IntermedResult: Boolean;
54     dimensions: integer;
55     FirstDimen: ^DimenInfo;
56     ForwardOrder: Boolean;
57     FirstValue: ^values;
58     NextValTabLink: ^ValTab
59   end;
60   TokenTable = record
61     NextToken: ^TokenTable;
62     case noun: TokenNoun of [ p ]
63       FormRes, FormArg, GlobVar: { vtab }
64         (VarTabPtr: ^VarTab);
65       MonadOper: (NonIndex: integer);
66       ReductOper: (RedInIdx: integer);
67       DyadOper: (DOPInIdx: integer);
68       SpecOper: (CharInIdx: integer);
69       constant: (ValTabPtr: ^ValTab);
70       StatEnd: (EndAdj: integer)
71     end;
72   vfunc = record
73     NextStant: ^TokenTable;
74     NextVFuncPtr: ^vfunc;
75     StatLabel: PackedString
76   end;
77   OperatorType = (niladic, monadic, dyadic);
78   FuncTab = record
79     FuncName: PackedString [ f1 ];
80     arity: OperatorType [ f2 ];
81     result: Boolean [ f3 true = explicit ];
82     ResultName: PackedString [ f4 ];
83     LeftArg: PackedString [ f5 ];
84     RightArg: PackedString [ f6 ];
85     FirstStatement: ^vfunc;
86     NextFuncTabPtr: ^FuncTab;
87     NumOfStatements: integer
88   end;
89   FParamTab = record
90     PtrVal: ^ValTab [ sd1 and sd2 ];
91     LastParm: ^FParamTab [ link to last ]
92     [ sd1 or sd2 ]
93   end;
94   DimenInfo = record
95     NextDimen: ^DimenInfo;
96     dimenLength: integer
97   end;
98   OpRecord = record
99     OpIndex: integer;
100    OpSymbol: integer
101  end;
102  OperandTab = record
103    OperPtr: ^ValTab [ sval ];
104    LastOper: ^OperandTab [ link to last sval ]
105  end;
106  SubrTab = record [ sf ]
107    CalledSubr: ^FuncTab [ s1 ];
108    TokenCallingSubr: ^TokenTable [ s2 ];
109    StateCallingSubr: ^vfunc [ s3 ];
110    LastSubrPtr: ^SubrTab [ link to last sf ]
111  end;
112  OpTable = array [1 .. 16] of OpRecord;
113  VarTabPtrType = ^VarTab;
114  TypeValTabPtr = ^ValTab;
115  TokenPtr = ^TokenTable;
116  PtrFuncTab = ^FuncTab;
117  TypeValuesPtr = ^values;
118  APLcharSet =
119    (ASymbol, BSymbol, CSymbol, DSymbol, ESymbol, FSymbol, GSymbol,
120     HSymbol, ISymbol, JSymbol, KSymbol, LSymbol, MSymbol, NSymbol,
121     OSymbol, PSymbol, QSymbols, RSymbols, SSymbols, TSymbols, USymbols,
122     VSymbols, WSymbols, XSymbols, YSymbols, ZSymbols, OneSymbol, TwoSymbol,
123     ThreeSymbol, FourSymbol, FiveSymbol, SixSymbol, SevenSymbol,
124     EightSymbol, NineSymbol, ZeroSymbol, colon, RightArrow, LeftArrow,
125     SmallCircle, period, LeftParen, RightParen, LeftBracket,
126     RightBracket, semicolon, quadrangle, space, plus, minus, times,
127     divide, asterisk, iota, rho, comma, tilde, equals, NotEqual,
128     LessThan, LessOrEqual, GreaterOrEqual, GreaterThan, AndSymbol,
129     OrSymbol, ceiling, floor, LargeCircle, ForwardSlash, DoubleQuote,
130     negative, QuestionMark, omega, epsilon, UpArrow, DownArrow, alpha,
131     UnderScore, del, delta, SingleQuote, EastCap, WestCap, SouthCap,
132     NorthCap, ibeam, TBeam, VerticalStroke, BackwardSlash);
133
134   text = file of char;
135
136 var
137   XColonSym, XRightArrow, XLeftArrow, XLittleCircle, XPeriod, XLeftPar,
138   XRightPar, XLeftBracket, XRightBracket, XSemicolon, XQuadSym:
139   integer;
140   character: array [APLcharSet] of integer;
141   APLstatement: array [1 .. InputArraySize] of integer;
142   digits: array [OneSymbol .. ZeroSymbol] of integer;
143   ErrorMessage: packed array [1 .. NumberOfMessages, 1 .. MessageLength] of
144   char;
145   APLfile: text;
146   MOPTab, DOPTab, RedTab, CharTab, SpecTab: OpTable;
147   SaveLabel: PackedString;
148   name: PackedString;
149   NewTokenPtr, OldTokenPtr, HoldTokenPtr, SaveTokenPtr: ^TokenTable;
150   TestFuncPtr, NewFuncTabPtr, OldFuncTabPtr: ^FuncTab;
151   NewVarTabPtr, OldVarTabPtr: ^VarTab;
152   LeftValPtr, RightValPtr, ValPtr: ^values;
153   NewValues, NewValPtr: ^values;
154   NewDim: ^DimenInfo;
155   DimPtr, NewPtr, LeftDimPtr, RightDimPtr: ^DimenInfo;
156   VarPointer: ^VarTab;
157   OldVFuncPtr, NewVFuncPtr: ^vfunc;
158   NewValTabLink, OldValTabLink: ^ValTab;
159   position: integer;
160   LineLength: integer;
161   code, ColCnt: integer;
162   FuncStatements: integer;
163   TokenError, FirstFunction: Boolean;
164   LineTooLong, HasLabel: Boolean;
165   switch, FunctionMode, TokenSwitch, ItsAnIdentifier: Boolean;
166   OperTabPtr: ^OperandTab [ sv ];

```

