PASCAL USERS GROUP

Pascal News

NUMBER 17

COMMUNICATIONS ABOUT THE PROGRAMMING LANGUAGE PASCAL BY PASCALERS

MARCH, 1980

Contributors to this issue (#17) were:

- Membership is open to anyone: Particularly the Pascal user, teacher, maintainer, implementor, distributor, or just plain fan.
- Please enclose the proper prepayment (check payable to "Pascal User's Group"); we will not bill you.
- Please do not send us purchase orders; we cannot endure the paper work!
- When you join PUG any time within an academic year: July 1 to June 30, you will receive all issues of Pascal News for that year.
- We produce Pascal News as a means toward the end of promoting Pascal and communicating news of events surrounding Pascal to persons interested in Pascal. We are simply interested in the news ourselves and prefer to share it through Pascal News. We desire to minimize paperwork, because we have other work to do.

- American Region (North and South America): Send $6.00 per year to the address on the reverse side. International telephone: 1-404-252-2600.
- European Region (Europe, North Africa, Western and Central Asia): Join through PUG (UK). Send £4.00 per year to: Pascal Users Group, c/o Computer Studies Group, Mathematics Department, The University, Southampton S09 5NH, United Kingdom; or pay by direct transfer into our Post Giro account (28 513 4000); International telephone: 44-703-559122 x700.
- Australasian Region (Australia, East Asia - incl. Japan): PUG(AUS). Send $A8.00 per year to: Pascal Users Group, c/o Arthur Sale, Department of Information Science, University of Tasmania, Box 252C GPO, Hobart, Tasmania 7001, Australia. International telephone: 61-02-23 0561 x435

PUG(US/) produces Pascal News and keeps all mailing addresses on a common list. Regional representatives collect memberships from their regions as a service, and they reprint and distribute Pascal News using a proof copy and mailing labels sent from PUG(USA). Persons in the Australasian and European Regions must join through their regional representatives. People in other places can join through PUG(USA).

RENEWING?

- Please renew early (before August) and please write us a line or two to tell us what you are doing with Pascal, and tell us what you think of PUG and Pascal News. Renewing for more than one year saves us time.

ORDERING BACK ISSUES OR EXTRA ISSUES?

- Our unusual policy of automatically sending all issues of Pascal News to anyone who joins within a academic year (July 1 to June 30) means that we eliminate many requests for backissues ahead of time, and we don't have to reprint important information in every issue--especially about Pascal implementations!
- Issues 1 .. 8 (January, 1974 - May 1977) are out of print.
  (A few copies of issue 8 remain at PUG(UK) available for £2 each.)
- Issues 9 .. 12 (September, 1977 - June, 1978) are available from PUG(USA)   C
  all for $10.00 and from PUG(AUS) all for $A10.
- Issues 13 .. 16 are available from PUG(UK) all for £6; from PUG(AUS) all for $A10; and from PUG(USA) all for $10.00.
- Extra single copies of new issues (current academic year) are: $3.00 each - PUG(USA); £2 each - PUG(UK); and $A3 each - PUG(AUS).

SENDING MATERIAL FOR PUBLICATION?

- Your experiences with Pascal (teaching and otherwise), ideas, letters, opinions, notices, news, articles, conference announcements, reports, implementation information, applications, etc. are welcome. Please send material single-spaced and in camera-ready (use a dark ribbon and lines 18.5 cm wide) form.
- All letters will be printed unless they contain a request to the contrary.

`- - - - - -` ALL-PURPOSE COUPON `- - - - - -` (17-Mar-80)

Pascal User's Group, c/o Rick Shaw
Digital Equipment Corporation
5775 Peachtree Dunwoody Road
Atlanta, Georgia 30342 USA

NOTE

- Membership is for an academic year (ending June 30th).
- Membership fee and All Purpose Coupon is sent to your Regional Representative.
- SEE THE POLICY SECTION ON THE REVERSE SIDE FOR PRICES AND ALTERNATE ADDRESS if you are located in the European or Australasian Regions.
- Membership and Renewal are the same price.
- The U. S. Postal Service does not forward Pascal News.

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[ ] Enter me as a new member for:

                     [ ] 1 year ending June 30, 1980

[ ] Renew my subscription for:

                     [ ] 2 years ending June 30, 1981

                     [ ] 3 years ending June 30, 1982

[ ] Send Back Issue(s)

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[ ] My new/correct address/phone is listed below

[ ] Enclosed please find a contribution, idea, article or opinion which is submitted for publication in the Pascal News.

[ ] Comments: _____

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COMPUTER _____

DATE   _____

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 ALL-PURPOSE COUPON for details.

Facts about Pascal, THE PROGRAMMING LANGUAGE:

Pascal is a small, practical, and general-purpose (but not all-purpose) programming language possessing algorithmic and data structures to aid systematic programming. Pascal was intended to be easy to learn and read by humans, and efficient to translate by computers.

Pascal has met these goals and is being used successfully for:
* teaching programming concepts
* developing reliable "production" software
* implementing software efficiently on today's machines
* writing portable software

Pascal implementations exist for more than 105 different computer systems, and this number increases every month. The "Implementation Notes" section of Pascal News describes how to obtain them.

The standard reference and tutorial manual for Pascal is:

Pascal - User Manual and Report (Second, study edition)
by Kathleen Jensen and Niklaus Wirth.
Springer-Verlag Publishers: New York, Heidelberg, Berlin
1978 (corrected printing), 167 pages, paperback, $7.90.

Introductory textbooks about Pascal are described in the "Here and There" section of Pascal News.

The programming language, Pascal, was named after the mathematician and religious fanatic Blaise Pascal (1623-1662). Pascal is not an acronym.

Remember, Pascal User's Group is each individual member's group. We currently have more than 3357 active members in more than 41 countries. this year Pascal News is averaging more than 120 pages per issue.

Policy

Policy

* <u>Pascal</u> <u>News</u> is the official but <u>informal</u> publication of the User's Group.

* <u>Pascal</u> <u>News</u> contains all we (the editors) know about Pascal; we use it as the vehicle to answer all inquiries because our physical energy and resources for answering individual requests are finite. As PUG grows, we unfortunately succumb to the reality of:

  1. Having to insist that people who need to know "about Pascal" join PUG and read <u>Pascal</u> <u>News</u> - that is why we spend time to produce it!

  2. Refusing to return phone calls or answer letters full of questions - we will pass the questions on to the readership of <u>Pascal</u> <u>News</u>. Please understand what the collective effect of individual inquiries has at the "concentrators" (our phones and mailboxes). We are trying honestly to say: "We cannot promise more that we can do."

* <u>Pascal</u> <u>News</u> is produced 3 or 4 times during an academic year; usually in September, November, February, and May.

* ALL THE NEWS THAT'S FIT, WE PRINT. Please send material (brevity is a virtue) for <u>Pascal</u> <u>News</u> single-spaced and camera-ready (use dark ribbon and 18.5 cm lines!)

* Remember: ALL LETTERS TO US WILL BE PRINTED UNLESS THEY CONTAIN A REQUEST TO THE CONTRARY.

* <u>Pascal</u> <u>News</u> 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.

  HERE AND THERE WITH PASCAL - presents news from people, conference announcements and reports, new books and articles (including reviews), notices of Pascal in the news, history, membership rosters, 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 <u>Pascal</u> <u>News</u>.

  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.

APPLICATION FOR LICENSE TO USE VALIDATION SUITE FOR PASCAL

Name and address of requestor:
(Company name if requestor is a company) _____

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Phone Number: _____

Name and address to which information should _____
be addressed (Write "as above" if the same) _____

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Signature of requestor: _____

Date: _____

In making this application, which should be signed by a responsible person in the case of a company, the requestor agrees that:

a) The Validation Suite is recognized as being the copyrighted, proprietary property of R. A. Freak and A.H.J. Sale, and

b) The requestor will not distribute or otherwise make available machine-readable copies of the Validation Suite, modified or unmodified, to any third party without written permission of the copyright holders.

In return, the copyright holders grant full permission to use the programs and documentation contained in the Validation Suite for the purpose of compiler validation, acceptance tests, benchmarking, preparation of comparative reports, and similar purposes, and to make available the listings of the results of compilation and execution of the programs to third parties in the course of the above activities. In such documents, reference shall be made to the original copyright notice and its source.

X Distribution charge: $50.00

X Make checks payable to ANPA/RI in US dollars drawn on a US bank. Remittance must accompany application.

Source Code Delivery Medium Specification:
9-track, 800 bpi, NRZI, Odd Parity, 600' Magnetic Tape

( ) ANSI-Standard

a) Select character code set:
( ) ASCII   ( ) EBCDIC

b) Each logical record is an 80 character card image.
Select block size in logical records per block.
( ) 40   ( ) 20   ( ) 10

( ) Special DEC System Alternates:
( ) RSX-IAS PIP Format
( ) DOS-RSTS FLX Format

> Mail request to:
>
> ANPA/RI
> P.O. Box 598
> Easton, Pa. 18042
> USA
> Attn: R.J. Cichelli

Office use only

Signed _____
Date _____

Richard J. Cichelli
On behalf of A.H.J. Sale & R.A. Freak

Editor's Contribution

GETTING STARTED

Let me start my first editorial by saying, "I can't believe how hard this job is!!" My esteem for Andy Mickel has always been high, but after the last few months, it has gone up astronomically! I don't know how one person had all the time--there are so manv things to do, and I have been lucky enough to have alot of help.

My section editors have been very prompt (for the most part!) and have made the job "do-able". And, I might add, PUG has hired some part-time clerical help that is out of this world! To round it off, the switch to a commercial printer (oh, the luxury of a university print shop) has been quite successful. I could not ask for better service. Their prices are close to those we paid in the past.

My thanks
must go to the membership, who have been so patient with me. This issue represents a tremendous learning curve for me (and culture shock!). Things will go smoother starting next issue.

NEXT ISSUE (#18) - SPECIAL!!

Speaking of next issue, we at PUG are pleased to announce that the next one will be completely devoted to the ISO Draft Standard for Pascal. (See Jim Miner's article this issue for a discussion of this and other items concerning standards.)

We are currently preparing this document for reproduction; it will be out no later than one month after this issue (#17).

ABOUT THIS ISSUE

WOW!! Is there alot of good stuff in this issue! Pascal has been on everyone's tongue lately, so "Here and There" is chock full of "newsy" information. We also have a large number of books and articles that have been reviewed this quarter, as well as an excellent in-depth review of the text Alagic and Arbib by one of our readers. (We could use more contributions such as this.)

The "Articles" section is kicked off by lucid discussion of "Conformant Array Parameters" authored by Arthur Sale (who else!). This article is highly recommended for review by all readers because of its controversial, proposed inclusion into the ISO standard.

There is no lack of contributions to the "Software Tools" section either. Nearly one-quarter of the issue is devoted to publishing programs and algorithms. This quarter many checklists are included in the "Implementation Notes" section, as well as some contributions to ur new section, "Validation Suite Reports".

A great deal of fine work went into this issue. We hope you like it.

Here and There With Pascal

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J. Mack Adams, Comp. Sci Dept., Box 3CU, New Mexico State University, Las Cruces, NM 88001: "We have added an assertional checking capability to UCSD Pascal and have developed a debugging system based on assertional checking and symbolic execution. A paper on the system will be presented at ACM 79..." (*79/05/14*)

Ron Barstad, P.O. Box 6000, B-118, Phoenix, AZ 85005: "The Pascal on the (*USW Louisiana*) L68 (Multics) is only a subset. The L66 version from Waterloo is a full blown batch and/or TSS version. (*79/09/14*)

Dr. Oddur Benediktsson, Science Institute, University of Iceland, Dunhaga 3, Reykjavik: "We...are looking for a PASCAL compiler for...our PDP-11 RSX-11M system and so far have found only the OMSI product which we find a bit on the expensive side at $1500. We would also rather have the P-code type compiler if available. Can you make any suggestions? (*78/11/23*)

Rick Boggs, Nationwide Insurance, One Nationwide Plaza, Columbus, OH 43216: "Our problem is one of finding a Pascal implementation which matches our operating environment: a large-scale IBM/AMDAHL center running MVS 3.7 and...both the TSO and VSPC interactive systems." (*79/10/10*)

Paul C. Boyd, PPG Industries, Box R, Elwin-Mt. Zion Rd., Mt. Zion, IL 62549: "We are hoping to implement the OMSI PASCAL-1 package on a DEC PDP-11/34...under RSX-11/M...to develop process control programs to run on a network of DEC LSI-11/23 micros.... I would appreciate hearing from any OMSI PASCAL-1 users with experience in digital control applications." (*79/09/27*)

Glenn A. Burklund, 3903 Carolyn Ave., Fairfax, VA 22031: "Have North Star (UCSD) Pascal----it is miserable. Going Pascal/Z...for scientifc and engineering applications. The funct. & proc. are th main features of interest. It is virtually aimpossible to implement under North Star Pascal. Unless it is practical to implement these calls easily, Pascal will wither on the vine." (*79/10/09*)

John D. Bush, Minnesota Power & Light Co., 30 West Superior St., Duluth, MN 55802: "I have been trying to get programmers and DP Managers at MP&L interested in Pascal. By finding compilers for our Prime and IBM machines, I hope to give some of these people a chance to experiment with the language." (*79/10/03*)

Jim Carlson, School of Dentistry, University of the Pacific, 2155 Webster St., San Francisco CA 94115: "The School of Dentistry has recently acquired an Omsi Pascal Compiler...configured to operate under RSX-11M and will be installed on a PDP-11/34. We plan to use Pascal primarily for administrative purposes, but it will also be available for uses in other areas." (*79/05/22*)

M. B. Clausing, 5603 Fisher Dr., Dayton, OH 45424: "If the matter's still at issue, I vote not to affiliate with ACM. I see no particular advantage." (*79/07/06*)

John Corliss, Loyola University of Chicago, 6525 N. Sheridan Road, Chicago, IL 60026: "Loyola University...has acquired the Pascal compiler from the University of Manitoba for academic instructional use...we are (*interested*) in acquiring PASCAL subroutine libraries that we could use in our computer science classes." (*79/05/14*)

Don R. Couch, 5100 Montreal Dr., San Jose, CA 95130: "I am a student in a Cogswell College Pascal course, and use Pascal on a PDP-11/10 computer at American Microsystems, Inc." (*no date*)

R. H. Frank, Digital Consulting Corporation, P.O. Box 32505, San Jose, CA 95152: "Our company has just released a Pascal Compiler (P2 derivative) for the popular CP/M microcomputer system." (*79/09/26*)

Jim Gagne, M.D., Datamed Research, 1433 Roscomare Rd., Los Angeles, CA 90024: "Who's your medical applications editor (if any)? I'll do it if you need." (*79/05/30*)

Anton L. Gilbert, Information Sciences, U.S. Army White Sands Missile Range, NM 88002: "I am a new Pascal users. It will be used in my research group...on a PDP-11/70, PDP-11/35, a PDP-11/34 (* all under RSX-11M) and a PDP-11/15 (RT-11). One of my employees...is especially interested in Pascal in Image Processing Research." (*79/06/12*)

Ricardo O. Giovannone, Box 3606, University Park Branch, Las Cruces, NM 88003: "I am a graduate student at New Mexico State University...using this language since fall '78 and I really like it.... At the moment, I am working in a project dealing with implementation of an Educational Data Base System using Pascal as a host language. ...We hope to finish in this fall. We are using UCSD Pascal Version 1.4." (*79/08/20*)

Mark Gordon, Computer Business Systems, Box 421, Truro, Nova Scotia B2N 5C5: "I am using a DEC PDP-11 under RSTS/E". (*79/05/23*)

Roedy Green, 1478 East 27th Avenue, Vancouver, British Columbia V5N 2W5: "I'm loking after a computer acquisition for the provincial Electric and Gas utility. I'm looking forward to using Pascal to implement our records & man scheduling system. At present Burroughs 1800, DEC PDP-11/70, Tandem, Univac 1100, Cyber 170 are all potential winners. I am particularly interested in Pascal on these machines." (*79/09/04*)

David L. Hamby, Combustion Engineering, INc., 1000 Prospect Hill Rd., Windsor, CT 06095: "Interests are real time process monitoring. Looking for process support software in a machine independent high level language." (*79/06/18*)

M. L. Harper, Oak Ridge National Labs, Bldg. 1505, Rm. 118, Oak Ridge, TN 37830: "I have pursued your references at JPL regarding a Pascal for ModComp minicomputers and the prospects look promising." (*79/06/26*)

David C. E. Holmes, P.O. Box 1708, Grafton, VA 23692: Teacher of micro-computer design, system design, and programming. owns 48K Z80 Altair 8800, CP/M, UCSD Pascal, and Ithica Intersystem Pascal/Z compiler. (*79/10/29*)

Mike Hughes, P.O. Box 293, Rapid City, SD 57709: "I am currently about three fourths of the way there on a business-oriented Pascal compiler for second-generation BCD machines. The implementation is for the RCA 301, but the problems are similar to the IBM 1401 and 1620, Burroughs B600, etc. I would be interested in getting in touch with anyone else having such Quixotic interests." (*no date*)

G. P. Janas, 4447 Buchanan, Warren, MI 48092: "I own an Apple][with two disk drives. I have on order, since September, the Apple Language Card and am awaiting same." (*79/10/18*)

Peter T. Jawbsen, Ceremain Microsystems, 759 Glen Canyon Rd., Santa Cruz, CA 95060: "I use both UCSD and OMSI Pascal." (*79/09/09*)

John W. Jensen, Jensen Farms, RR#1 Box 142, Everly, IA 51338: "I have been working on computer programs for a complete feedlot management system for about 4 years. The programs are written in RPG and run on an IBM System 34 which...I am losing access to.... I...am wiling to look at something in the $10-15000 range not counting software...(* here follows a description of hardware being considered *) Basic is the most popular language...but I'm not convinced that Basic is the best language to program in. Pascal has been called the software superstar. Yet it appears to me to be rather slow in being accepted. I have seen very little commerical software available (such as accounting packages, etc.)." (*79/10/01*)

Donald R. Kelley, 2451 Hingham Court, Woodbridge, VA 22192: "Just getting started using Pascal - have been working with assembly and BASIC." (*79/10/01*)

Wallace Kendall, 9002 Dunloggin Rd., Ellicott City, MD 21043: "I have an OSI Challenger III and have been trying for some time to get Pascal for it. Althought it has a Z80 chip (as well as a 6502 and a 6800) OSI apparently used a slightly different implementation, and the version used by most Z80 computers (I'm told) doesn't run on OSI. HOwever, I'm told that it will soon be ready either for the 6502 or the Z80 in OSI." (*79/05/07*)

Jack Laffe, 320 19th Ave. S., Minneapolis, MN 55454: "Re: machine dependent implementations: remove NCR 200 implementation that is listed in News #9/10 p. 105. This has been replaced by an NCR 8400 implementation and will be available February 1980. I will make more information available at that time." (*79/08/07*)

W. A. Lane, Canadian Tire Corporation, Limited, Box 770, Station K, Toronto, ONtario M4P 2V8: "We are a large retailing company in Canada with approximately 315 stores country wide. We are presently implementing "point of Sale" systems in these stores and are utilizing Datapoint, NCR and Amdahl computers. We also have several other machines including IBM system 34's, IV Phase and Basic mini's." (*79/08/22*)

James H. Lauterbach, Genesys Corporation, 223 Alexander Ave., Upper Montclair, NJ 07043: "Genesys Corporation...(*wishes*) to feature 'canned' applications programs which are easily customized...hence, our development system will probably be configured largely with C Basic and Pascal capability in mind--especially Pascal. Our quandary, at present, revolves arund the...relative merits of UCSD Pascal, the Per Brinch Hansen sequential version, the Intersystems Pascal/Z, the Alpha Micro version, the new 6809 Motorola version, the soon to be released Data General Micro NOva version, etc. etc. etc. Can you kindly bring some illumination to us?" (* no date *)

C. E. Leonard, 14008 S.E. Harrison, Portland, OR 97233: "I presently own an Exidy Sorcerer (Z80) with 32K and want to implement Pascal to go with my one year of Pascal studies at Portland Community College." (*79/08/31*)

Jerry LeVan, Eastern Kentucky University, Richmond, KY 40475: "I have extended Pascal-S with strings, scalars, graphics, execution profiler and many features useful in a teaching environment - runs under RSTS on a PDP-11/70." (*79/06/11*)

Robert C. Luckey, M.D., P.S., 1110 Gillmore Ave., Richland, WA 99352: "It is with distress that I read in the truly excellent issue 13 of your (*Andy's*) withdrawal from active lead position. You obviously have that combination of talent to co-ordinate a complex development such as that of a new high level computer language. None of the alternatives offered to the present arrangement at all compares with what we have now." (*79/03/26*)

Phong Thanh Ly, 6415 Prospect Terrace, Alexandria, VA 22310: "I am currently using Pascal on a PDP-11 and am going to have a Pascal compiler for the Honeywell Level-6 very, soon." (*no date*)

Gregory A. Marks, Institute for Social Research, University of Michigan, SQR(A), MI 48106: "All I ever hear about UCSD Pascal is the good comments. Where can I get the opposite viewpoints; the problem in their extensions and implementation." (*79/06/29*)

Richard R. Martin, 634 Dallas Ave. #21, Grand Prairie, TX 75050: "I am running the UCSD Pascal on my Z80 system and am interested in keeping up with other implementations. My use for Pascal is in writing a CAI system with color graphics (RAMTEK). For a living, I manage a computer store." (*79/08/27*)

M. E. Markovitz, Culp & Tanner, Inc., 585 Manzanita Suite 6, Chico, CA 95926: "I am trying to build up a Pascal scientific library and would like to see if anyone else could lend me a hand. P.S. Does the user's group have such a scientific library?" (*79/07/23*)

Sakari M. Mattila, Lokkalantie 18 B 43, SF-00330 Helsinki 33, Finland: "I am a computer scientist at Technical Research Centre of Finland, EDP research division. We have University of Minnesota Pascal 6000 release 3 on CDC and some other on minis." (*79/07/07*)

Frank Monaco, 679 Lowell Drive, Marietta, GA 30060: "Keep up the good work." (*79/03/09*)

Jerry Moore, Dunn, Moore & Associates, 2935 E. Broadway, Suite 201, Tuscon, AZ 85716: "We are a systems house in Tucson working primarily with Perkin-Elmer (Interdata) and Alpha Microsystems minicomputers. We have a project slightly outside our normal sphere of influence, and...for which Pascal is most desirable. (*The project is*) a hydrologic model of complex irrigation systems for Saudi Arabian Naval base (* which *) must run on an IBM 3032 in Saudi Arabia. Development will have to be done on DEC system...unless I can find some IBM 370 time nearby. I would be very appreciative if you would consider my plight briefly and forward any suggestions." (*79/09/04*)

Hal Morris, Prindle and Patrick Architects:planners, 199 S. Fifth St., Columbus, OH 43215: "The company...is an architecture firm which has a PDP-11/34 running RT-11 and TSX. Our applications are Accounting, Word Processing, and some statistics and simulation.... My own impression is that C and Pascal are quite complementary, C being a better systems language, and Pascal being better for many, or even most applications." (*79/10/17*)

Gregory L. Nelson, Apt. 31, 2280 California St., Mountain View, CA 94040: "Have implemented Swedish Pascal V5 and NBS Pascal V1.4d (a preliminary version) under RSX-11M V3.1 on a PDP-11/70 system. Both Pascals lack operating system linkages sufficient to consider them for systems implementation." (*79/03/12*)

Neil Overton, Computer Systems and Services, Inc., Box 31407, Dallas, TX 75231: "I wanted an accounting package in Pascal or BASIC to be converted to run on a TI 990/2 for a large non-chain restaurant." (*79/09/05*)

Craig Payne, Enertec, 19 Jenkins Ave., Lansdale, PA 19446: "We are actively using Concurrent Pascal to write real time programs for the Z80. The language has been extended to allow the writing of device drivers directly in C.P.; the interpreter/kernel knows nothing about I/O." (*79/06/05*)

Raymond E. Penley, 3578F Kelly Circle, Bolling AFB, DC 20336: "Just purchased Pascal/Z from Ithaca Intersystems. This is a Z80 compiler that makes assembly code directly from the Pascal source. Will let you know more when I get it running. I don't have enough memory right now." (*79/09/24*)

Martin M. Peritsky, Bendix Corporation, P.O. Drawer 831, Lewisburg, WV 24901: "I am available for membership on standardization committees, etc. I am a member of IEEE and ISA. One of my specialties is compiler design." (*79/10/30*)

Stephen A. Pitts, 305 Jarman Dr., Midwest City, OK 73110: "I have ordered Apple Computer's Pascal system for my Apple][." (*79/08/24*)

Stephen M. Platt, 4060 Irving St., Philadelphia, PA 19104: "In my work (CS grad student U. of P.) people are starting to prefer Pascal to FORTRAN for reasons of portability(!) and ease of use. From my own view, it's a choice of hours debugging 100 lines of FORTRAN or not having to debug 700-1000 lines of Pascal...you get the idea. Keep up the good work." (*79/09/13*)

Michael S. Plesher, RDI Box 258, Hoewell, NJ 08525: "I am currently using the AAEC compiler on an IBM 370/168 (RCA, Cherry Hill NJ). They also have a Pascal P4 compiler." (*79/08/05*)

Hardy J. Pottinger, EE Dept., Univ. of Missouri Rolla, Rolla, MO 65401: "We are using University of Lancaster's implementation for Nova from Gamma Tech under RDOS and DOS. Like it a lot. We will be experimenting with microcomputer versions and concurrent Pascal during coming year." (*79/08/01*)

Fred W. Powell, P.O. Box 2543, Staunton, VA 22401: "I have been working primarily on a TI 990/10 computer which has a TI supported Pascal compiler. I expect to soon be using a TI 990/5 system which does not currently support the Pascal compiler. If TI does not change that problem soon, I intend to put the Pascal P compiler on that system. Thanks for your help and for the good job you are doing with PUG." (*79/10/08*) John Purvis, Sperry Univac Computer Systems, 55 City Centre Dr., Missisaugua, Ontario L5B 1M4: "I am a software instructor with Sperry Univac in Toronto. Our Mini Computer Operation is becoming involved with Pascal, so I am very interested in finding out what is happening with a Pascal user group." (*79/08/24*)

Frederick A. Putnam, Joseph R. Mares Asst. Prof., Dept. of Chemical Engineering, Massachusetts Institute of Technology, Cambrdige, MA 02139: "Here in the Chemical Engineering Department, we have a Data General Eclipse running (among other things) Gamma Technology's Pascal." (*79/10/17*)

Holly Robinson, Winthrop Publishers, Inc., 17 Dunster St., Cambridge, MA 02138: "We are about to publish two titles which will be of considerable interest to your PASCAL NEWS readership: PROGRAMMING FOR POETS: A GENTLE INTRODUCTION USING PASCAL, by Conway & Archer; and A PRIMER ON PASCAL by the same authors." (*79/10/03*)

Armando R. Rodriguez, P.O. Box 5771, Stanford, CA 94305: "I am in charge of the compilers for Pascal at LOTS, SAIL, GSB, SUMEX, and SCORE at Stanford, all of them DEC-10 or DEC-20. I am preparing a note on our improved version of the Hamburg compiler for DEC-10 and DEC-20." (*79/06/21*)

Wayne Rosing, Digital Equipment Corp., TW-C03, 1925 Andover St., Tewksbury MA 01876: "I was a 12/15/78 lost soul. I figured for $4/year you had gone out of business or you folks had been eaten by a FORTRAN compiler. (I'm on UCSD now but want to get a 32-bit Zurich version up on a 68000, demand paging off an 8 inch Winchester hard disk.)" (*79/08/20*)

Louis V. Ruffino, Federal Systems Division, IBM, 18100 Frederick Pike, Gaithersburg MD 20854: "Your pubs are excellent, but keep up the great work.
I look forward to PUG just like BYTE!" (*79/07/09*)

Carl Sandin, 314 Shadow Creek Dr., Seabrook, TX 77586: "I have a SOL-20, with North Star disks and Diablo printer. I'm trying to get started in North Star Pascal." (*79/08/06*)

Robert H. Scheer, CDP, Sheridan Oaks Cybernetics, 1915 Larkdale Dr., Glenview, IL 60025: "I have had some limited experience with Pascal on an Alpha Micro system and expect to start a project on a North Star Horizon microcomputer system before the year is over. I am also an instructor in computer science at Northwestern University's Division of Continuing Education in Chicago. I am investigating the possiblity of using Pascal as a means of teaching structured programming techniques." (*07/07/09*)

R. C. Shaw, The Grange, Spring Brank New Mills, Nr Stockport, Cheshire, SK12 4BH: "I would be interested in information on Pascal implementations on either Argus 700 or Modular One machines." (*07/09/13*)

Thomas W. Sidle, Technical Staff, Scientific Calculations, Inc., 4245-B Capitola, CA 95010: "We are interested in bringing up Pascal on VAX11/780, Prime 400 (and larger), and IBM 370/148 (and larger) computers." (*07/07/24*)

Connie Jo Sillin, Kansas City Southern Industries, Inc. 114 W. 11th St., Kansas City, MO 64105: "We at KCSI are interested in the Pascal programming language and the compiler for Pascal. We now have the IBM 370/158 and 3032 (OS-VS2) soon to be 3033 (MVS).

T. R. Simonson, G.M. Simonson & T.R. Simonson Consulting Engineers, 612 Howard Street, San Francisco, CA 94105: "I realize that PUG may have simply collapsed. I certainly hope not, for I have thoroughly enjoyed the contact. I believe you stated that some cross compilers exist for creating 8080 or Z80 machine code. If you know of one for CDC machines I would appreciate your jotting down the source." (*79/10/12*)

Lee L. C. Sorenson, 10226 Victoria Ave, Whittier, CA 90604: "I do not yet have a large enough system for Pascal, but I hope to learn from your group and to implement it in my system some day." (*79/06/07*)

T. J. Sullivan, 712 Rand Ave., Oakland, CA 94610: "I work with BART (*Bay Area Rapid Transit*) and am a neophyte to Pascal but am highly interested in all aspects of the language; particularly interested in programming for real time process control." (*79/06/07*)

Kevin Talbot, 3029 127th Place S.E., Bellevue, WA 98005: "The system I use is an HP3000 (Pascal P/3000 by Fraley, et. al.)" (*no date*)

Ron Tenny, President, G.W. Tenny Co. Inc., 3721 Scottsville Rd., Box A, Scottsville, NY 14546: "We are currently using a DEC 11/34 with 256KB memory, eight terminals, two printers, and dual 20MB drives in a business application environment. We want to implement Pascal under RSTS/E (CTS-500) and are looking for a good DBMS package to go with the Pascal code."

William W. Tunnicliffe, Bobst Graphic, INc., P.O. Box 462, Bohemia, NY 11716: "Thanks, volunteers!" (*79/08/20*)

Rex M. Venator, Major USA, 12451 Skipper Circle, Woodbridge, VA 22192: "While working on my Masters at Georgia Tech I became a Pascal 'fanatic' and since then my enthusiasm has not diminished. I attempt to follow all aspets of the language from the standardization efforts to Pascal's first descendant ADA in DOD. I would most certainly like to join your group and provide what assistance I can from an unofficial DOD perspective." (*79/05/16*)

Dick Wattson, 10 Dutton St. S., Manchester, NH 03104: "I surely would preciate info on PDP-11 compilers (RT-11 compatible)." (*79/10/31*)

Anna Watson, 3705 Delwood Drive, Panama City, FL 32407: "Don't be discouraged, Andy. You're putting out a really interesting publication. I expect to use it as a reference tool later." (*79/08/12*)

Sydney S. Weinstein, CDP, CCP, 170 Centennial Road, Warminster, PA 18974:
"I am now working for Fischer and Porter Company, and am developing data
communications software for local networks for them. We use C as our main
development language, but are also looking at Pascal especially as it
develops for the PDP-11 and 8086 computers. Pascal is the basis of our new
'experimental' process control language." (*79/08/19*)

Tom Westhoff, Willmark A.V.T.I., Box 1097, Willmar, MN 56201: "Are there any
Pascal implementations for Ohio Scientific Challenger II disk systems?"
(*79/09/07*)

Rodney E. Willard, M.D., Loma Linda Medical Center Clinical Laboratory, Loma
Linda, CA 92350: "I am trying to get a Z80 UCSD-CP/M system together and
running." (*no date*)

R. S. Wood, 260 Trafalgar Lane, Aiken, SC 29801: "I'm a research analyst
working for the DuPont Company at the Savannah River Laboratory. My
interests in Pascal are both personal i.e., on a home micro and
professional. The company is looking into the possiblity of using a Pascal
based 'black-box' between our big main frames and any arbitrary
microcomputer to make the micros look like all the other IBM-TSO terminals
in the shop." (*79/07/03*)

Max Wunderlich, c/o Textronix, Inc., P.O. Box 500, Beaverton, OR 97077:
"Both of us (*Max Wunderlich & Steve Jumonville*) are software engineers for
Tektronix, Inc. We are presently using OMSI Pascal for production testing
purposes on an LSI-11/2 with RT-11." (*no date*)

Richard Yensen, Ph.D., clinical Psychologist, 2403 Talbot Road, Baltimore,
MD 21216: "I am running UCSD Pascal version I.5 on a Heathkit H-11 Computer
with 32K words of 16 bit memory. The computer is a 16 bit machine."
(*79/07/01*)

Fred Zeise, Data Systems Design, 3130 Coronado Drive, Santa Clara CA: "We
are using ESI/OMSI Pascal and will be getting UCSD Pascal 1.5 soon."
(*79/05/07*)

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JOBS:

(* Note-these listings are intended primarily to show that there are indeed
openings for Pascal programmers "out there". By the time you see these
listings, the jobs may well be filled. *)

Control Data Corporation, Communications Systems Division, 3285 E. Carpenter
Avenue, P.O. Box 4380-P, Anaheim, CA 92803: "Professional openings exist in
the areas of data communications netowrk, message switching and front-end
systems. Experienced candidates should be familiar in any of the
following: Assembly/Pascal/Algol languages, Microprocessors, Real Time
Systems, Communications protocols, test procedure development, test tool
development." Contact Jess Holguin. (*Computerworld 79/09/24*)

Hewlett-Packard, West 120 Century Road, Paramus, NJ 07652: "We have
opportunities both in Commercial and Scientific areas. Scientific
experience is desired using FORTRAN, Assembler, BASIC, Pascal, data base,
data communications with real-time operating systems. (*79/10/12*)

V.P. Personnel SS160, New York Times: "Minimum of 1 year experience.
Programming experience with Pascal, PLM, Pll, ALGOL, or FORTRAN" V.P.
Personnel SS160 Times (*79/10/28*)

Perkin-Elmer Corporation, Main Avenue, NOrwalk, CT 06856: Looking for a
micro-computer programmer whose responsibilities include "developing high
level language (PL/1,Pascal) techniques to improve software development for
micro-computers. (*79/10/28*)

MANUFACTURERS' ADVERTISEMENTS:

Apple Computer Co.,10260 Bandley Drive, Cupertino, CA 95014: Various
advertisements for their version of UCSD Pascal

Columbia Data Products, Inc, 9050 Red Branch Road, Columbia, MD 21045:
Advertising "a unique family of computer systems, the Commander series"
which will run Pascal under CP/M. (* Computer Design, October 1979*)

Enertec, a company in Pennsylvania, has sent a flyer about their version of
concurrent Pascal, which runs on the HP3000, and has an interpreter/kernel
for a Z-80 Micro-computer. P-code for a given program is "about one-third
the size of the P-code from Brinch-Hansen's concurrent Pascal compiler." On
the Z-80, "execution speed at 4MHz is fast enough to handle 1200 baud
terminals with all I/O to the IN, OUT level written in Concurrent Pascal.
P-codes execute in 20 microseconds (push constant) to 500 microseconds
(divide, context switch)

Pertec Computer Corp, Chatsworth, CA advertises a "Pascal Blaiser software
development system, intended for systems and real-time applications
programming," with 64K RAM, 1 megabyte of mass storage. The CPU directly
executes Pascal; price is $5995 in single-unit quantities. (*Mini-Micro
Systems October 1979*)

Rational Data Systems, 245 W 55th St., New York, NY 10019: has provided a
Pascal that is "compatible with the entire (*Data General*) line - from
Eclipse to microNova. All versions are source compatible and each can
cross-compile for any of the other systems. The AOS version is priced at
$3500." (*Computer Design, October 1979*)

Southwest Technical Products Corp., 219 W. Rhapsody, San Antonio, TX 78216
advertises the S/09 with MC6809 processor. "Both multiuser and
multitasking/multiuser operating systems are available for the S/09. BASIC,
Pascal, and an Assembler are immediately available." Cost with 128K bytes
of RAM is $2995.

Sperry Univac Minicomputer OPerations, 2722 Michelson Dr., Irvine, CA 92713
has various advertisements for the Structured Programming System (SPS)
running under their SUMMIT operating system which supports a Pascal
compiler, debugger, program formatter, and concordance program. SPS also
includes a text editor and document formatter.

Stirling/Bekdorf, 4407 Parkwood, San Antonio, TX 78218, advertises
combination coding and CRT layout sheets to 'speed software development and
documentation for Pascal programmers". Two pads of 50 cost $26.85 plus
$3.25 for handling.

Texas Instruments: Various advertisements for the DS990 Model which runs
Pascal on a system that stores "up to 4,600,000 characters using
double-sided, double-density diskette storage". Also advertisements in
various places for their Microprocessor Pascal System with source editor,
compiler, host debugger, configurator, native-code generator, and run-time
support.

Three Rivers Computer Corp., 160 N. Craig St., Pittsburgh, PA. 15213: has a stand-alone system that can take up to 1 Megabyte of RAM, with interactive graphics (1024 lines on a 15-inch screen), and a speech output module. Mass storage is provided by 12 Megabyte Winchester disk drive with a 24 Megabyte disk option. "The unit contains a 16-bit processor that operates with P-Code, a high-level instruction language based on Pascal. The processor can reportedly execute in excess of one million P-Codes per second. The system's memory has a 32-bit segmented virtual addressing mechanism," and has 4K bytes of writable microstore as an option. (*Computerworld, 79/10/22*)

NEWSLETTERS & ARTICLES:

David A. Mundie has an article on the relative merits of Pascal vs. BASIC in Recreational Computing, Sept-Oct 1979. It concludes with "Most Pascal lovers are deeply committed to portability and standardization. It is not our fault that BASIC dialects have proliferated so wildly that there exists no standard BASIC to compare with Pascal."

Arthur Sale passes on a note from Computing, 1 November 1979, which mentions that the European Space Agency (ESA) will be using concurrent Pascal "to program ESA's latest venture into the simulation of satellite subsystems, the Multiple Processor Reconfigurable Simulator."

The Big Byte (University of Calgary) notes in its September 1979 issue that "the development of a Pascal compiler under Multics is near completion."

Early Warning Newsletter (University of Nebraska Computer Network) has a "new release of Stanford Pascal. This version is a considerable improvement over previous versions. For the most part, changes to the system are enhancements and will not affect Pascal programs that ran under the previous version." A change has been made to nested comments, giving a compiler option to make constructs such as (* x:=y (* comment *) *) legal or produce an error as the user desires. (* 79/09/13*)

Log On (Massey University Computer Centre), notes that "We are to implement a Pascal compiler" for a newly-acquired IBM Series/1 minicomputer. In usage statistics for the B6700, Pascal comes in second place with 10% of usage (981 accesses) during June 1979. (*July 1979*)

ICSA Newsletter (Rice University, Houston TX), tells "Pascal users don't despair. Although Pascal is currently not available at ICSA, we hope to remedy the situation soon. Plans are underway to install Pascal 8000 this fall." (*79/09/17*)

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BOOKS ABOUT PASCAL

Alagic, S. and Arbib, M. S., *The Design of Well-structured and Correct Programs*, Springer-Verlag, 1978, 292 pages.

Bowles, K. L., *Microcomputer Problem Solving Using Pascal*, Springer-Verlag, 1977, 563 pages.

Brinch Hansen, P., *The Architecture of Concurrent Programs*, Prentice-Hall, 1977.

Coleman, D., *A Structured Programming Approach to Data*, MacMillan Press, 1978, 222 pages.

Conway, R. W., Gries, D. and Zimmerman, E. C., *A Primer on Pascal*, Winthrop Publishers Inc., 1976, 433 pages.

Findlay, B. and Watt, D., *PASCAL: An Introduction to Methodical Programming*, Computer Science Press (UK Edition by Pitman International) 1978.

Grogono, P., *Programming in Pascal*, Addison-Wesley, 1978, 359 pages. *Note: Those persons using the first printing of this text may obtain a list of corrections from: Barry Cornelius, Dept. of Computer Studies, University of Hull, Hull, HU6 7RX, England.*

Hartmann, A. C., *A Concurrent Pascal Compiler for Minicomputers*, Sprinter-Verlag Lecture Notes in Computer Science, No. 50, 1977.

Jensen, K. and Wirth, N., *Pascal User Manual and Report*, Springer-Verlag Lecture Notes in Computer Science, No. 18, 2nd Edition, 1976, 167 pages.

Kieburtz, R. B., *Structured Programming and Problem-Solving with Pascal*, Prentice-Hall Inc., 1978, 365 pages.

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Schneider, G. M., Weingart, S. W., and Perlman, D. M., *An Introduction to Programming and Problem Solving with Pascal*, Wiley and Sons, 1978, 394 pages.

Webster, C. A. G., *Introduction to Pascal*, Heyden, 1976, 129 pages.

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Wilson, I. R. and Addyman, A. M., *A Practical Introduction to Pascal*, Springer-Verlag, 1978, 148 pages.

Wirth, N., *Systematic Programming: An Introduction*, Prentice-Hall, 1973, 169 pages.

Wirth, N., *Algorithms + Data Structures = Programs*, Prentice-Hall, 1976, 366 pages.

Alagic, S.; Arbib, M. A. "The Design of well-Structured and Correct Programs," Springer-Verlag, New York, 1978.

> The major goal of this book is to present the techniques of top-down program design and verification of program correctness hand-in-hand. It thus aims to give readers a new way of looking at algorithms and their design, synthesizing ten years of research in the process. It provides many examples of program and proof development with the aid of a formal and informal treatment of Hoare's method of invariants....

> The secondary goal of this book is to teach the reader how to use the programming language Pascal....

> From the Preface

This reviewer is a Pascal production programmer and this review is presented in light of that background. While many production programmers, not familiar with the Pascal language, may find this book to be somewhat difficult at first reading, it is well worth the trouble for the insights that it provides. The production programmer, considering the purchase of this book, should have a well read copy of Jensen and wirth [1] handy. This book's advantage is that it can raise the programming abilities of its careful readers. The chapters and the topics chosen for inclusion are:

Chapter	Topic
1	Introducing Top-Down Design
2	Basic Compositions of Actions and Their Proof Rules
3	Data Types
4	Developing Programs with Proofs of Correctness
5	Procedures and Functions
6	Recursion
7	Programming with and without Gotos

Chapter 2 contains an excellent introduction to logical formulas; Chapter 3 contains an excellent primer on set theory (expanded later in Chapter 4). A bibliography, glossary and subject index are included as are two appendices: the syntax of Pascal and a complete renumeration of Pascal statement Proof Rules. Typography is clean and uncluttered with extremely few typographical errors.

I have only two complaints regarding this book. The first, an annoyance, is the excessive use of reference numbers appended to examples. The authors also begin reference renumbering at the section level rather than at the chapter level. This causes unnecessary difficulties to the reader who, ignoring the section number, provided at the top of the odd-numbered pages, thumbs back to find a referenced example (in one case, the reference is

to an example in a preceding section, therefore requiring a little detective work to determine exactly which example should be reviewed!) I have found myself completely baffled by an "obviously erroneous" backward reference, only to realize, after some consternation, that I had passed back into an earlier section!

The second, and perhaps more significant, complaint deals with the formatting of and symbols used in Pascal program examples. The indentation scheme is inconsistent. Thus, on page 89, we find:

```
while ¬ eof(f) do
       begin S := S + f↑;
              get (f)
       end
```

while on the very next page (90), we find

```
for i := 1 to numstud do
begin gr := grade [i,j] ;
         if gr ≠ 0 then totgrade := totgrade + gr
         else numgrades := numgrades - 1
end
```

In the first example, it is clear that the compound statement is within the scope, and therefore control, of the while; in the second it is not at all apparent that the compound statement is under the control of the for. Although this inconsistency may be a symptom of a "gremlin typesetter", it should be corrected in future editions. A less disconcerting problem with the typesetting of Pascal programs is the use of the non-Pascal symbols "∧", "∨", "¬" and "≠". Since they are not a part of the language, they should be replaced by and, or, not and "<>", respectively, in all program fragments (they are acceptable within the proof comments, since they have a logical meaning).

This text has been used in at least one graduate level course and so contains material of interest to the more erudite Pascal programmer. Even though the going may be rough at times, I stongly recommend this book to anyone seriously interested in programming languages, and especially to Pascal programmers.

G. G. Gustafson, San Diego CA

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[1] Jensen, K. and wirth, N. "PASCAL - User Manual and Report," Second Edition (Corrected Printing), Springer-Verlag, New York, 1978.

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