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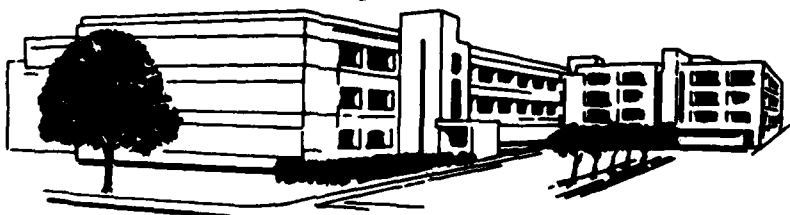
MEDICAL SERVICES
ANNUAL HISTORICAL REPORT-AMEDD ACTIVITIES

RCS MED-41 (R4)
1979

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MEDICAL SERVICES

ANNUAL HISTORICAL REPORT - AMEDD ACTIVITIES, Calendar Year 1979,
Reports Control Symbol MED-41 (R4)

LETTERMAN ARMY INSTITUTE OF RESEARCH

PRESIDIO OF SAN FRANCISCO

CALIFORNIA 94129

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CALENDAR YEAR 1979

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JOHN D. MARSHALL, JR.
Colonel, MS
Commanding

HELMUT F. HACKER
Lieutenant Colonel, MS
Executive Officer

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CY 1979

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SECTION I - MISSION

The Letterman Army Institute of Research (LAIR) is a Class II Activity under the jurisdiction of the U.S. Army Medical Research and Development Command (USARMDC), Office of The Surgeon General, Washington, D.C.

The mission of the Institute is to provide a general military medical research capability and conduct research in the areas of nutrition of military personnel, food wholesomeness, dermal protection against biological, chemical and radiological hazards, battlefield casualty management, effects of military lasers, experimental psychology, military trauma and resuscitation, blood preservation, chronic mammalian toxicology, and within available resources and capabilities, to support clinical investigation projects recommended by Commander, Letterman Army Medical Center (LAMC). The Institute also performs other medical research activities as directed by the Commanding General, U.S. Army Medical Research and Development Command.

SECTION II - ORGANIZATION

The LAIR organizational chart is on page 3.

SECTION III - PERSONNEL AND ADMINISTRATION

1. Personnel strength as of 31 December 1979:

<u>OFFICERS</u>	<u>REQUIRED</u>	<u>AUTHORIZED</u>	<u>ACTUAL</u>
MC	16	16	11
VC	9	9	10
MSC	21	21	19
Subtotal	46	46	40
<u>Enlisted</u>	124	124	116
<u>Civilian (FTP)</u>	110	108	112
Total	280	278	268

2. As of the end of the reporting period, key positions were staffed as follows:

<u>POSITION</u>	<u>INCUMBENT</u>
Commander & Director	John D. Marshall, Jr., COL, MS
Deputy Commander	Louis Hagler, COL, MC
Executive Officer	Helmut F. Hacker, LTC, MS

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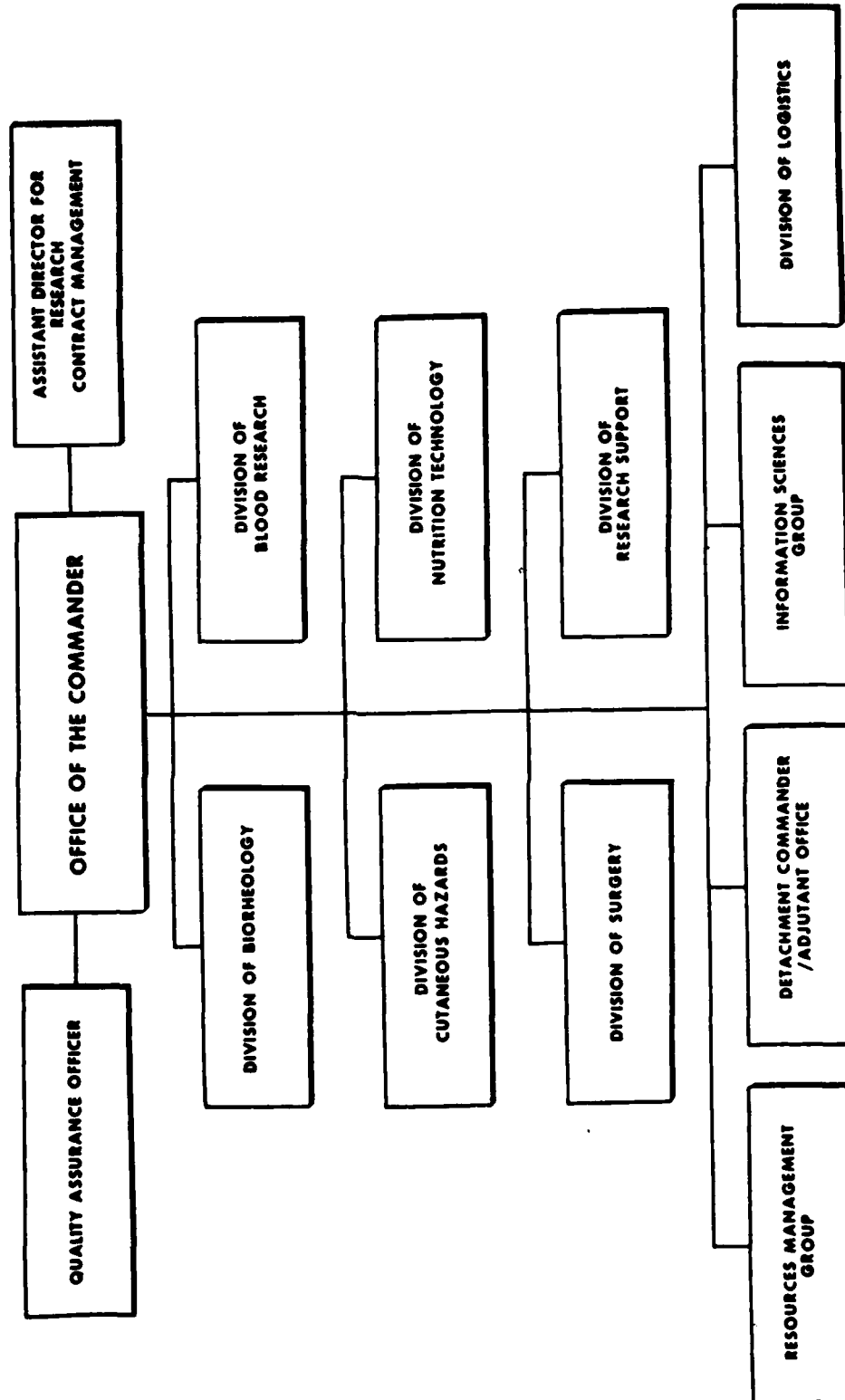
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<u>POSITION</u>	<u>INCUMBENT</u>
Assistant Director for Research Contract Management	J. Ryan Neville, Ph.D., DAC, GS-14
Quality Assurance Officer	John L. Szurek, CPT, MS
Detachment Commander/Adjutant	Margaret M. Kulczyk, CPT, MS
C, Resources Management Group	Gary L. Bennett, CPT, MS
C, Information Sciences Group	Raymond W. Serenbetz, CPT, MS
C, Division of Biorheology	Edwin S. Beatrice, COL, MS
C, Division of Cutaneous Hazards	George H. G. Eisenberg, Jr., MAJ, MS
C, Division of Surgery	Ronald F. Bellamy, COL, MC
C, Division of Blood Research	Robert B. Bolin, LTC, MC
C, Division of Research Support	Paul B. Jennings, Jr., LTC, VC
C, Division of Nutrition Technology	Howerde E. Sauberlich, Ph.D., DA, SES-IV
C, Division of Logistics	Michael H. Todd, MAJ, MS
C, Medical Laboratory NCO/ First Sergeant	James H. Judkins, 1SG

LAIR

CY 1979

LETTERMAN ARMY INSTITUTE OF RESEARCH
PRESIDIO OF SAN FRANCISCO, CA 94129



APPROVED *John Marshall, Jr.*
JOHN MARSHALL, JR.
Colonel MS
Commanding
DATE 2 June 1979

3. Three new positions were recognized and authorized within the Command Group. COL Louis Hagler assumed duties as the Deputy Commander. CPT John L. Szurek was appointed the Quality Assurance Officer and established the LAIR Quality Assurance Unit and Dr. J. Ryan Neville, the Assistant Director for Research Contract Management, was appointed to manage the newly acquired Mission Area II extramural contract program.
4. Eighteen mobilization designees were assigned during the calendar year. Thirteen performed their annual training (AT) at LAIR during the reporting period.
5. Effective 8 Apr 79, the mission of the Dept. of Medicine and Parenteral Nutrition Support Service, of the Division of Surgery, LAIR, were transferred to the Letterman Army Medical Center. This resulted in the transfer of five officer, eleven enlisted, and nine civilian positions.
6. LAIR conducted a civilian Reduction in Force (RIF) during the period 13 Aug-6 Nov 79. A total of 28 positions was eliminated and the assignments of 35 persons eventually influenced by transfers, terminations, or reductions in grade.
7. Key personnel departing the Resources Management Group during 1979 were: LTC David G. Williams, Mr. Alan Kahn and Mrs. Haruye Tanaka. Key arrivals have been CPT Gary L. Bennett and Mr. Alex Parvin. Mrs. Dorothy MacCallum assumed new duties as Accounting Supervisor vice Mrs. Tanaka.
8. During 1979, Division of Logistics had twelve positions eliminated due to a RIF effective 30 Sep 79. The Supply Group had three positions deleted and the Activity Support Group had nine positions deleted from the TDA. The loss of these personnel greatly hampered the Division of Logistics' performance of its mission in such areas as equipment preventive maintenance, equipment fabrication, equipment modification, equipment installation, and some aspects of administration. The Command has allowed the division to hire two persons in temporary positions who have lessened the impact of these reductions. Reauthorization of positions eliminated during 1979 will be requested in the January 1980 Manpower Survey.
9. Information Sciences Group expects to propose a minimum of five additional slots at the January 1980 manpower survey. The RIF has widened the man-year debt, a fact clearly supported by the LAIR management review team's latest inspection. During FY 79 Information Sciences Group has acquired a statistician, NCOIC, Chief, Computer Aid Section, and Operations Officer. These vacancies were created by departing personnel.

10. Key personnel departing were Alan Hopkins, GS-11, to pursue a Ph.D. in Mathematic-statistics, CPT John L. Szurek, to become the LAIR Quality Assurance Officer, and Mr. Richard A. Nelson, GS-12, to Div. of Nutrition Technology. Key personnel arriving were Virginia Gildengorin, Ph.D., GS-11, Mathematical Statistician; CPT Raymond W. Serenbetz, Chief, ISG, former Data Processing Operations Officer, ISG; and 1LT Michael Sawyers currently the DPI Operations Officer.

11. The LAIR reorganization and the results of the RIF action in the Division of Cutaneous Hazards are:

a. The loss of the infectious disease mission entailed the loss of three civilian microbiologists and one civilian technician.

b. The reduction in the staff of the Nutrition Technology Division forced transfer of the senior research chemist in this division to another division; he was replaced by a more senior research chemist from the Division of Nutrition Technology. Also, the two vacant Biological Laboratory Technician positions were filled by a GS-11 research chemist and a GS-09 nutrition scientist. These transfers became effective recently, so impact cannot be assessed as yet.

12. Authorized, but unfilled positions for an 05 MC dermatologist and an 04 MS biochemist were transferred to other divisions. During the period of reorganization in FY 79, these vacancies did not impair progress. However, a dermatologist, an additional biochemist and a physiologist will be needed by 3rd quarter FY 80 to meet critical requirements for research on basic skin function, the dynamics of skin penetration and partitioning of chemicals within the skin, and the pathophysiology of toxic action by chemical agents.

13. Key personnel arriving or assuming key positions in the Division of Surgery during the reporting period were: COL Ronald F. Bellamy, MC, Chief, Division of Surgery, MAJ Robert S. Dixon, VC, Chief, Operating Room Services Group, MAJ L. William Traverso, MC, General Surgeon, John P. Hannon, Ph.D. DAC, GS-15, Research Physiologist, Mark M. Bashor, Ph.D., DAC, GS-12, Research Chemist, and Stanley T. Omaye, Ph.D., DAC, GS-12, Research Physiologist.

14. Key personnel departing from Surgery during the reporting period were: COL Louis Hagler, MC, Chief, Division of Surgery, J. Ryan Neville, Ph.D., DAC, GS-14, Assistant Chief, Division of Surgery, LTC Michael D. Caldwell, MC, General Surgeon, LTC Richard B. Weiskopf, MC, Anesthesiologist, LTC Daniel D. Bikle, MC, Internist, and MAJ Larry C. Watson, MC, General Surgeon.

15. Remaining shortages: two general surgeons, one thoracic surgeon, one GS-09 research physiologist, and eight 01H20 positions remain unfilled.

16. During the reporting period in the Division of Blood Research three new investigators were added to the staff: CPT Paul R. Sohmer, MAJ Patrick J. Scannon, and Dr. Peter Schmid, DAC, GS-13. LTC John Redmond III functioned as a Fellow from LAMC. Consequently, the problem of technician shortage was aggravated and the need for two secretaries emerged. The RIF also strained the administrative and technical support. Authorized positions were filled but the Division desperately needs to be re-surveyed. Positions need to be authorized so that personnel can be assigned/hired to accomplish the expanded mission of the Division.

17. At the end of the reporting period, the position of Chief, Division of Research Support was held by LTC Paul B. Jennings, Jr., VC, who arrived in June 1979. Eight of the civilian animal care spaces lost during the 1978 reorganization were restored, allowing total staffing of the Animal Resources Group to remain at 26. SSG Paul Klaus became NCOIC when SFC Elwood Dupstadt was transferred to the Division of Surgery.

18. Two hundred seventy-two square feet of animal space (including ten former animal rooms) were released to the 6th U.S. Army Medical Laboratory.

19. The following key personnel were assigned during the reporting period:

a. Pathology Services Group: CPT Michael Langford, VC, R. Gordon Williamson, Jr., DAC, GS-04, Administrative Clerk.

b. Animal Resources Group: Vivienne Morton, DAC, GS-04, Secretary.

20. Two of the four vacant enlisted Veterinary Animal Specialists slots, MOS 91T, Animal Resources Group, were filled during the report period. Efforts to recruit a qualified individual to fill the position of Electron Microscopist (GS-11), Pathology Services Group, were unsuccessful. This position was created by the 1 Oct 79 reorganization of LAIR. The position has been vacant since its creation, in spite of concerted recruitment efforts by the Civilian Personnel Office. There are no qualified applicants on current registers. Two requests for authorization for direct hire have been denied by the U.S. Civil Service Commission.

21. SP5 Alison Jones, Animal Resources Group, was selected as LAIR Soldier of the Year and the U.S. Army Medical Research and Development Command Soldier of the Year; SP5 Bruce Warrick, Animal Resources Group, was promoted to the rank of SSG on 2 Jan 79, with a date of rank of 6 Dec 78; and SSG Antonio Inocentes became Pathology Services Group NCOIC upon the transfer of SSG Paul Klaus to the office of the Chief, Division of Research Support.

22. Manpower survey of 1978 resulted in the abolishment of the Dept. of Nutrition. Subsequent reorganization of certain elements resulted in the establishment of the Division of Nutrition Technology. This has resulted in a seventy percent reduction in personnel with concomitant

reductions in research capabilities and facilities.

23. Key personnel departing during the report period were: LTC David D. Schnakenberg, MS, MAJ John D. Turnbull, MS, and David B. Milne, DAC, GS-13.

SECTION IV - TRAINING

1. The following personnel attended training courses:

a. L.D. Bohler, DAC, GS-12, Energy Management Course, Jan 79, Buildig Fire Safe Design Course, Feb 79, and Laboratory Safety Seminar, Dec 79.

b. R.E. Bowen, DAC, GS-11, PH/Blood Gas Apparatus Maintenance and Operation Course, Aug 79, Patient Monitoring Apparatus Maintenance and Operation Course, Aug 79.

c. MAJ H.H. Brown, MS, CPT R.H. Neuteboom, MS, SFC D.H. Fuss, and T.J. Thompson, DAC, GS-10, a Logistics seminar from 2-6 Apr 79 at HQ USAMRDC for purpose of exchanging ideas and developing uniformity in the area of logistics within the Command.

d. All Activity Support Group repairmen attended the Gas Anesthesia Apparatus Maintenance and Operation Course, Aug 79.

e. T.J. Thompson, DAC, GS-10, and A. F. Vujevich, DAC, GS-09, pH Meter and Spectrophotometer Maintenance and Operation Course, Dec 79.

f. SSG D.J. Biron, and R.E. Bowen, DAC, GS-11, pH Probe, Flame Photometer Maintenance and Operation Course, Dec 79.

g. A.F. Vujevich, DAC, GS-09, Microprocessor Maintenance Seminar, Dec 79.

2. W.H. Langley, DAC, GS-11, and F.G. Trout, DAC, GS-09, attended a colloquium at Lawrence Berkeley Laboratory in Berkeley, CA, on the new GRAFPAC, a software package which supports device independent graphics, 10 Jan 79.

3. W.H. Langley, DAC, GS-11, completed the courses, "Data Structures" and "Input/Output Architecture," given at San Francisco State University, San Francisco, 29 May 79.

4. W.H. Langley, DAC, GS-11, and T.C. Steward, DAC, GS-11, attended a course at Univ. of California, Berkeley, entitled, "Interfacing to a Microcomputer." This course presented valuable information on the techniques required and problems encountered in the interfacing of small computers to various types of peripheral devices as may be required in a research laboratory, 25 Jun 79.

5. CPT R.W. Serenbetz, MS, attended a course/seminar in Palo Alto, CA, entitled, "Design Engineer's Microprocessor Course," 31 Jul-3 Aug 79.
6. W.H. Dailey, DAC, GS-11, attended the Ninth Annual Institute of Computer Science at the Univ. of California in Santa Cruz, CA, 13-24 Aug 79.
7. CPT J.L. Szurek, MS, conducted two classes in FORTRAN programming language for the Institute, one 9 Apr 79 and another 11 Jun 79, each class ran for approximately twelve hours total.
8. D.A. Harris, Ph.D., DAC, GS-12, conducted two classes in BASIC programming language, one in Feb 79 and another in Apr 79. Each class ran approximately twenty hours.
9. V. L. Gildengorin, Ph.D., DAC, GS-11, trained several researchers, in the Division of Blood Research on Analysis of Variance in Oct 79. The lectures totaled approximately four hours.
10. D.A. Harris, Ph.D, DAC, GS-12, completed an evening course at Santa Clara University, entitled "Microcomputer Interfacing," 13 Nov-18 Dec 79.
11. SP5 G. DeVillez visited with Dr. T. Kuwabara, Head, Section on Experimental Pathology, National Eye Institute, NIH, Bethesda, MD, 15-19 Oct 79, to increase his competence in preparation and evaluation of the cornea and retina after laser exposure. His attendance will help support further research in ophthalmic pathology to be done by investigators in the Division of Biorheology.
12. SP5 H. Semey attended the Disease Vector Ecology Pest Control Operations Course at Alameda Naval Air Station, CA, 5-30 Mar 79.
13. CPT R.A. Wirtz visited the University of Madison, Madison, WI, to pick up Drosophila melanogaster strains and to receive necessary training to establish the sex-linked recessive lethal testing capability for the toxicological effort at LAIR, 29 Jan-9 Feb 79.
14. CPT R.A. Wirtz, MS, and P. Schmid, Ph.D, DAC, GS-13, attended the management briefing session of the Food & Drug Administration on Good Laboratory Practice Regulations in San Francisco, 3 May 79.
15. COL L. Hagler, MC, attended the US Civil Service Commission course on the Senior Executive System and carried out a liaison visit with HQ, USAMRDC, Ft. Detrick, MD, 1-9 May 79, and attended the Senior Executive System Seminar (as The Surgeon General's representative) given at the Xerox Training Center, Leesburg, VA, 1-3 Aug 79.

16. LTC H.E. Cabaud, MC, attended a continuing education seminar entitled "The Knee and Sports," Los Angeles, CA, 29 May-2 Jun 79.
17. MAJ L.C. Watson received 24 hours of credit for continuing health education at the Southeastern Surgical Congress, Bal Harbour, FL, 18-21 Mar 79, and attended a seminar given by the University of Texas Medical Branch, Dept. of Surgery, Galveston, TX, 22-23 Mar 79.
18. CPT D.G. Griffin attended the Basic Orthopedics Instructional Course given by the Association of Veterinary Orthopedic Research and Education, Incline Village, NV, 11-14 Dec 79.
19. CPT R.L. Scott attended the course to obtain the Expert Field Medical Badge, Ft. Ord, CA, 5-16, Nov 79.
20. SP5 R.R. Gomez received instruction in performing various laboratory assays at the University of California, Los Angeles, CA, 24-19 Jun 79.
21. SP5 T.J. Nemeth attended seminars and classes at the Ninth Western Regional Meeting of Electron Microscopists, Palm Springs, CA, 30 Apr-3 May 79, and attended a short course entitled "Scanning Electron Microscopy and X-ray Microanalysis" given by the San Joaquin Delta College, Stockton, CA, 18-22 Jun 79.
22. SP5 J.A. O'Connor traveled to Vanderbilt University to learn essential laboratory techniques, Nashville, TN, 4-10 Feb 79.
23. W.R. Wise attended a course entitled "Liquid Chromatography in Clinical Analysis" given by the University of California School of Medicine, San Francisco, CA, 12-14 Nov 79.
24. The Division of Blood Research staff presented a course on "Principles and Concepts of Blood Research" to new investigators during Oct-Nov 79. Division staff also provided training in research hematology to two LAMC Hematology Fellows during the month of Jan. LTC Bolin supervised a research year for LAMC Hematology Fellow, LTC John Redmond III. Nursing staff at LAMC Hematology/Oncology Service were given a 16-hour course in Immunohematology so that they could provide us with pheresis and phlebotomy support. Dr. G.L. Moore attended the DuPont Experimental Design course 11-13 Sep 79. LTC Peck attended the "Third Annual Conference on Computer Applications in Medical Care," 14-19 Oct 79, Washington, D.C.; and, the NIH Consensus Development Conference on "The Use of Microprocessor-Based 'Intelligent' Machines in Patient Care," 17-19 Oct 79. LTC Peck also attended the "2nd Annual Retreat on Computers and Clinical Therapeutics," 10-11 Feb 79, Monterey, CA; and presented lectures on Clinical Pharmacology to 2nd year medical students at the Uniformed Services University of the Health Science on 12 and 19 Mar 79. LTC Peck also attended a course in High Pressure Liquid Chromatography in San Francisco, 12-13 Nov 79. LTC Bolin

attended the course "Linear and Nonlinear Model Fitting" given by the Institute for Professional Education in San Francisco on 21-23 May 79. LTC Peck attended the 60th Annual Session of the American College of Physicians (ACP) and was inducted as a Fellow of the ACP; this meeting provided LTC Peck with 30 hours of PMA credits in internal medicine, San Francisco, 26-29 Mar 79. CPT Paul Sohmer was an invited speaker at the "Current Concepts of Combat Casualty Resuscitation Symposium" at the Naval Medical Research Institute, Washington, D.C., 1-2 Aug 79.

25. a. Since toxicology studies generate an enormous workload in pathology, COL Paul K. Hildebrandt, VC, Consultant to The Surgeon General for Veterinary Pathology, visited LAIR in May 79 to study needs for pathology training. It was his recommendation that the AMEDD Veterinary Pathology Preceptorship Program be reinstated at LAIR in order to meet projected pathology requirements. As a result, one additional officer, CPT Langford, was assigned and scheduled training sessions were resumed.

b. Two officers attended AMEDD short courses. CPT John Turnier and CPT John Matlack attended a course entitled Gross Morbid Anatomy of the Diseases of Domestic Animals at the Armed Forces Institute of Pathology, Washington, DC, 28-30 Mar 79. CPT Matlack attended Pathology of Laboratory Animals at the Armed Forces Institute of Pathology, 13-17 Aug 79.

c. Members of Pathology Services Group provided training in tissue preparation techniques and electron microscope operation to investigators and technicians assigned to Divisions of Research Support, Biorheology, and Surgery.

26. a. LTC Jerome A. Goldsboro attended the Pathology of Laboratory Animals AMEDD short course at the Armed Forces Institute of Pathology, Washington, DC, 13-17 Aug 79.

b. SSG James Reeve attended the AMEDD advanced NCO course, Fort Sam Houston, TX, 4 Sep-8 Nov 79.

c. Weekly training in animal technology was conducted for all ARG personnel two hours per week.

27. a. Personnel from Radioisotope Support Group assisted in two presentations of the training course "Safe Use and Handling of Radio-active Material." These courses were conducted jointly with LAMC staff members and were attended by 19 members of the LAIR/LAMC staff.

b. SP5 Lawrence Adams attended a short course in "Liquid Scintillation Counting," 19-20 Aug 79, at the Univ. of California, San Francisco.

28. Seven Mobilization Designees received two weeks annual active duty training at LAIR in the Division of Nutrition Technology.

29. MAJ R.E. Morris, MC, spent two months as attending physician on the teaching service of the Pediatric Ward, Letterman Army Medical Center. In addition, he presented five lectures to the pediatric house staff on gastroenterologic topics.
30. Ms. S.J. Gee and Mr. P.W. Ferguson from the Department of Environmental Toxicology, Univ. of California, Davis, CA, assisted personnel at LAIR in the use of the closed needle liver biopsy technique for the continual assessment of liver metabolite status in monkeys, 20 Feb 79.
31. CPT M.D. Green, MS, attended the Hazardous Materials Safety Course, San Francisco, CA, 27 Feb-2 Mar 79.
32. LTC J.T. Fruin, VC, attended the Veterinary Medicine Symposium at Walter Reed AMC, Washington, DC, 23 Apr-27 Apr 79.
33. MAJ E.W. Askew, MS, attended the Nutrition Symposium, Walter Reed AMC, Washington, DC, 29 Apr-5 May 79.
34. LTC J.T. Fruin, VC; E.L. McGown, DAC, GS-13, S.T. Omaye, DAC, GS-12, and C.M. Lewis, DAC, GS-09, attended Food and Drug Administration Conference on Good Laboratory Practice Regulations, San Francisco, CA, 3 May 79.
35. MAJ E.W. Askew, MS, attended LAMC radioisotope lecture, 12 May 79, and Kodak audiovisual preparation course, LAIR, 11 May 79.
36. H.L. Johnson, DAC, GS-14, attended the American College of Sports Medicine Exercise Test Workshop and Certification Sessions in Davis, CA, 9-20 Jul 79; received CPR training at LAMC, 22-23 May 79; received certification as Exercise Technologist from American College of Sports Medicine.
37. H.E. Sauberlich, DAC, SES-IV, attended the Performance Appraisal Training for SES Members and Supervisors, Leesburg, VA, 31 Jul-3 Aug 79.
38. LTC J.T. Fruin, VC, attended 1979 Annual Conference on Veterinary Education and Training, Washington, DC, 12-15 Sep 79.
39. SP5 J.T. Hawkins attended Waters Associates short course on Liquid Chromatography, San Francisco, CA, 1-30 Oct 79.
40. CPT M.D. Green, MS, and SP6 W.G. Bell, attended J.T. Baker Seminar and Workshop on Hazardous Chemical Safety, Hayward, CA, 25-26 Oct 79.
41. R.J. O'Connor, DAC, GS-09, and P.P. Waring, DAC, GS-11, attended the advanced Course in Amino Acid Analyses, Aionex Corp., Sunnyvale, CA, 13-16 Nov 79.
42. SSG F. R. Pulliam; L.S. Guthertz, DAC, GS-09, and P.C. Taylor, DAC, GS-07, attended VWR Eleventh Annual Seminar on "OSHA Regulations and Carcinogens," San Jose, CA, 14 Nov 79.

SECTION V - MATERIEL

1. The accountable property at the LAIR stands at 15,047 line items valued at \$10,589,055. This compares to 15,920 line items valued at \$10,397,223 reported for the previous year.
2. A total of 652 line items with a value of \$178,074 of excess and/or salvage equipment was turned in to the Property Disposal Office, Alameda, California or otherwise redistributed during the report period. Due to the recent reduction in the scope of the LAIR's mission it is anticipated that during the impending report period additional excess equipment and materiel will be generated.
3. The average number of standard requisitions processed each month during the past year equalled 103 line items. Nonstandard purchase requests averaged 334 line items processed each month during the previous period. The LAIR established 26 Blanket Purchase Agreements (BPAs) during the report period. The requisitions associated with these BPAs averaged 248 line items processed each month. Thus, a significant amount of all items requisitioned for the LAIR during this period were for nonstandard items.
4. Expenditures for capital or other major end items amounted to approximately \$500,000 for CY 79. All required equipment for mission accomplishment were purchased during the year. It is expected that during CY 80 there will be a decrease in procurement of equipment due to nonavailability of funds.
5. A 100 percent physical inventory of the accountable property was conducted by the property management personnel during CY 79. This was accomplished by inventoring two to four hand receipts each month. No serious damage to property occurred during the year.
6. Army Medical Department Property Accounting System (AMEDDPAS). The maintenance portion of this system is operational at LAIR. This maintenance documentation program has proved to be an additional administrative load, and the changes that are being continuously implemented have created a backlog of work in the Activity Support Group. A lack of personnel is hurting this effort.
 - a. Input of FSCM Equipment type code, SMAC code, priority code and Safety A data for all maintenance relevant equipment in the LAIR property book. This effort is approximately 20% complete.
 - b. Input of maintenance data (preventive maintenance, calibration, and Safety B) for all maintenance relevant equipment in the LAIR property book. This effort is approximately 80% complete.

7. The Information Sciences Group has acquired the new 1979 versions of the statistical packages Minitab and International Mathematical and Statistical Library (IMSL) to be implemented on the Data General ECLIPSE 3/330 Minicomputer at LAIR.

8. In order to collect, tabulate, analyze, and store the voluminous data generated by planned toxicology studies, a hardware/software data acquisition system, "TOXSYS," manufactured and marketed by Beckman Institute Company, was evaluated. LTC Paul W. Mellick, VC, LTC John T. Fruin, VC, and CPT John L. Szurek, MS, visited International Research and Development Corporation, Mattawan, Michigan, 1 May 79, to evaluate the system at that facility. On 21 May 79, LTC Mellick and CPT Szurek visited Beckman Instruments, Oceanside, CA, to examine TOXSYS terminals and systems and to discuss characteristics and availability with the vendor. A decision was made to purchase four TOXSYS terminals and software programs for the Protocol Administration System and Experimental Data System - those programs designed to tabulate such data as food consumption, body weights, etc. The terminals were delivered in Sep 79. At year's end, implementation of the system is awaiting delivery of software systems, installation, and training of personnel.

SECTION VI - CONSTRUCTION

1. The main deionized water regeneration system in LAIR was rebuilt to replace the original system. The failure of the original system and the time required for repair created problems in those areas where large amounts of deionized water were utilized.

2. Improved air conditioning was installed in the automation system computer room.

3. CPT R.W. Serenbetz constructed a stand-alone target acquisition system, which uses a pulsed light emitting diode, a beam splitter, an achromat lens, a photo-transistor, and two programmable stopwatches. The bench tested prototype was developed for the Division of Biorheology, in an attempt to provide a highly portable target acquisition evaluation system.

4. The Division of Surgery still has no operational fume hoods. All have been disconnected and their use forbidden until the exhaust system has been corrected. This deficiency has hampered some of the ongoing research efforts.

SECTION VII - ASSISTANCE PROVIDED CIVILIAN AND OTHER GOVERNMENTAL AGENCIES

1. D.I. Randolph, Ph.D., DAC, GS-13, made a presentation on low-level light effects before the Vision Committee, NASNRC, Wash, DC, on 8-12 Apr, and gave a presentation on laser bioeffects at MIRADCOM, Huntsville, AL, on 16-19 May 79.

2. MAJ P.A. O'Mara, Ph.D., MS, and D.A. Stamper, DAC, GS-09, consulted with members of the USAFAS concerning the development of troop selection and training programs to be used with ground laser locator designators (GLLD) at the USAFAS, Ft. Sill, OK, on 16-17 Aug 79.

3. COL E.S. Beatrice, M.D., MC, and D.J. Lund, DAC, GS-12, made presentations and comments concerning the future extent and costs of studies to support Project MILES at PM TRADE, Orlando, FL, on 23-24 Oct 79.

4. COL E.S. Beatrice, M.D., MC, participated in a review of the XM 29 and combat spectacles at HSC, San Antonio, TX, on 8 Nov 79.

5. B.E. Stuck, DAC, GS-12, gave a presentation on laser hardening, laser bioeffects, safe human exposure level, and risk assessment at a workshop on Hardening of Army Optical Systems Against Laser Hazards and Threats at CM/CCM Directorate, ERADCOM, Harry Diamond Laboratories, Adelphi, MD, on 16 Nov 79.

6. CPT Wirtz acted as technical consultant during the seminar "Pesticide Fire and Spill Control" sponsored by the PSF Fire Dept, Presidio of San Francisco, 15-16 Oct 79.

7. CPT Reifenrath developed the methodology and performed the tests required to support the USAF project for decontaminating patients in a chemical warfare environment. He also presented the results of in vitro studies for determining the important parameters in litter patient shower decontamination and participated in the discussions on medical chemical defense held by the USAMRDC Investigative Dermatology Meeting, at the US Army Biomedical Laboratory, Edgewood, MD, 4-5 Sep 79.

8. COL R.F. Bellamy served as co-chairman of the Coronary Physiology Session at the fall meeting of the American Physiological Society, New Orleans, LA, 15-19 Oct 79, and traveled to Tel Aviv, Israel to inspect Israel medical research facilities and assess developments in military medical research (within the spirit of the Data Exchange Agreement 1230), 30 Nov-12 Dec 79.

9. LTC H.E. Cabaud is a staff member at Presbyterian Hospital, Pacific Medical Center, and St. Joseph's Hospital, San Francisco. He visited Keller Army Hospital to develop investigation protocols and conduct initial research, and to act as liaison between Department of Engineering, Department of Physical Education, and Keller Army Hospital, West Point, NY, 5 Mar-6 Aug 79, he visited the US Army Institute of Dental Research, Washington, DC, to help design appropriate materials for repair of injured anterior cruciate ligament, 22-25 Aug 79, and was a guest lecturer at the University of Florida Veterinary School and Medical School, Gainesville, FL, 5-12 Jul 79.

10. LTC M.D. Caldwell served as editor-in chief of the Journal of Parenteral and Enteral Nutrition and served as a member of the Executive Council of the American Society of Parenteral and Enteral Nutrition. He visited John Muir Hospital to aid in establishing a total parenteral nutrition service there, Oakland, CA, 22 Jan 70; visited William Beaumont Army Medical Center to consult on patient care problems and aid in establishing a total parenteral nutrition service there, El Paso, TX, 22 Feb 70; and participated in a total parenteral nutrition committee meeting to aid in establishing a total parenteral nutrition service at Moffitt Hospital, Univ. of California, San Francisco, 26 Feb 79.

11. LTC R.B. Weiskopf served as the US Army representative to the National Institutes of Health, Applied Physiology Study Section; served as Consultant to The Surgeon General for developing a research program for combat casualty care; served as Consultant to USAMRDC for medical aspects of defense from chemical agents; and served as Consultant for Anesthesia to USAMRDC. LTC Weiskopf also served as Mission Area II Manager, Washington, DC, 14 May-31 Jul 79; was a member of the Manpower Survey Team, US Army Institute of Surgical Research, 20-Apr-5 May 79; and attended a meeting to gain an overview of the current program at Biomedical Laboratory (BML) in anticipation of BML becoming a unit of USAMRDC, Washington, DC, 14 May 79. He also served as Assistant Clinical Professor of Anesthesia at the University of California, San Francisco.

12. MAJ L. W. Traverso observed battle casualties in Northern Thailand (at the request of USAMRDC), Provincial Hospital of Nan, Thailand, 6-30 Nov 79.

13. CPT R.L. Scott participated in a conference on improving tube feeding of hospitalized patients, Montefiore Hospital and Medical Center, Bronx, NY, 17-23 Sep 79.

14. J.R. Neville, Ph.D, served on a continuing basis as advisor and consultant to the LAMC Clinical Investigation Committee.

15. J.P. Hannon, Ph.D, served as graduate student advisor for medical physiology, Biology Department, San Francisco State University, 1 Jan-30 Jun 79, and served as scientific referee (exercise and environmental physiology) for the American Physiological Society, CY 1979.

16. SP5 P.J. Knowles visited the Ophthalmology and Neurology Departments at the Naval Regional Medical Center to discuss patient scheduling and testing, Oakland, CA, 14-15 Mar 79.

17. LTC Peck provided assistance to the Univ. of California at San Francisco Medical Center by virtue of his position as Assistant Professor of Medicine, teaching medical students and clinical pharmacology Fellows and consulting on clinical pharmacology research projects.

18. LTC Peck, Dr. Moore, and LTC Bolin provided consultation to the American Red Cross National Blood Research Laboratory, Bethesda, MD.

19. LTC P.W. Mellick participated as a guest lecturer at the short course on Comparative Pathology, Armed Forces Institute of Pathology, 7-9 May 79. He presented a lecture entitled "Comparative Pulmonary Pathology."

b. He participated as a guest lecturer at the Biology Colloquium, Sonoma State University, Rohnert Park, CA, 23 Oct 79, and presented a lecture entitled "Effect of Air Pollutants on the Mammalian Lung."

c. LTC Mellick served as a member of the Cardiopulmonary Research Committee on Medical Defense Against Chemical Warfare Agents. He attended a meeting of that Committee at U.S. Army Biomedical Laboratory, Aberdeen Proving Grounds, MD, 27-28 Aug 79.

d. He served on a standing committee to provide liaison between the American College of Veterinary Pathologists and the Registry of Veterinary Pathology, Armed Forces Institute of Pathology, Washington, DC.

e. He also served as a pathology consultant to the Univ. of San Francisco Fire Safety Center, Univ. of San Francisco.

20. The staff of the Pathology Services Group provided consultative support to the San Francisco Zoological Gardens; the Steinhart Aquarium of the California Academy of Sciences; the Division of Animal Resources of the Univ. of California at Berkeley; and to several civilian veterinarians in the San Francisco Bay Area on selected cases. The Division of Research Support, staff of the Pathology Services Group, provided gross, pathology, histopathology, histochemistry, clinical pathology, and electron microscopy support to investigators from the six LAIR research divisions and Letterman Army Medical Center Clinical Investigation Service.

21. LTC J.A. Goldsboro, Chief, Animal Resources Group, participated in the following activities:

a. Presented a lecture on Primate Diseases at the 14th Annual Veterinary Symposium, Tuskegee Institute, AL, 7-10 Apr 79.

b. Served as a consultant in Laboratory Animal Medicine to Naval Biomedical Research Laboratory, Oakland, CA, 2 Mar-31 Dec 79.

c. Participated in the Annual Conference on Veterinary Education and Training, 12-15 Sep 79.

d. Served on the Veterinary Corps Graduate Training Selection Board, 11-12 Dec 79.

22. The staff of the Animal Resources Group provided veterinary care for a colony of foxhounds used in cardiovascular research at the Univ. of California, San Francisco Medical Center, 20 Aug-20 Nov 79.

23. MAJ R.E. Morris, M.D., established research collaboration with M.M. Thaler, M.D., Head of the Division of Gastroenterology, Department of Pediatrics, Univ. of California San Francisco Medical School.

24. S.T. Omaye, DAC, GS-12, presented a seminar on "Effect of Ascorbic Acid Metabolism in the Guinea Pig," Dept. of Nutritional Sciences, Univ. of California, Berkeley, CA, 3 Jan 79.

25. H.E. Sauberlich, DAC, SES-IV, participated in the following activities:

a. As member of the Advisory Council to review U.S. Dept. of Health, Education, and Welfare project on "Nutritional Status of Small-for-Age and Normal Sized Functionally Retarded Children," Columbus, OH, 25-27 Jan 79.

b. Participated in the National Institutes of Health Project Site Visit at Univ. of Colorado Medical Center, Denver, CO, 28-31 Mar 79.

c. Presentation on "An Analysis of the 1979 Recommended Dietary Allowances," at 1979 Field Faculty Conference for the Public Health Nutrition Program, Univ. of California, Berkeley, CA, 22 May 79.

d. Presented paper at the Public Health Nutrition Program, University of North Carolina, Chapel Hill, NC, 29 May 79.

e. Addressed the 47th Annual meeting of the American Society for Medical Technology, Las Vegas, NV, 18-29 Jun 79.

f. Participated in Ad Hoc Review Group for Food and Drug Administration on "Adverse Health Effects of Nutrients in Man," Bethesda, MD, 4-5 Jun 79.

g. Attended the Meeting of the Committee on Recommended Dietary Allowances, National Academy of Sciences, Washington, DC, 16-17 May 79; 29-31 Jul 79.

h. Participated in Ross Medical conference on "Nutritional Assessment - Present Status and Future Directions and Prospects." He presented a paper entitled, "Laboratory Procedures Used in Vitamin Nutritional Assessment," Santa Fe, NM, 24-27 Sep 79.

i. Participated in the Life Sciences Research Office Ad Hoc Review Group meeting on "Criteria for Safety Evaluation of Nutrients," Bethesda, MD, 15-16 Oct 79.

j. Presented seminars at the School of Public Health, Univ. of California, Berkeley, CA, 22 and 24 Oct 79.

k. Participated in the conference on Dietary Intakes and Iron Deficiency Anemia: HANES-I/NIHS, Cambridge, MA, 12-13 Nov 79.

l. Presented lecture on the new recommended dietary allowances at the meeting of the Bay Area Dietetic Association, Berkeley, CA, 17 Nov 79.

26. L.S. Guthertz, DAC, GS-09, presented lecture on bacteriology at San Jose State College, San Jose, CA, 16 Feb 79.

27. J.H. Skala, DAC, GS-14, H.L. Johnson, DAC, GS-14, and M.J. Kretsch, DAC, GS-12, presented lectures to the San Mateo-Santa Clara Counties Interagency Nutrition Council, 16 Mar 79.

28. MAJ E.W. Askew, MS, presented two seminars at Michigan State University, East Lansing, MI, 7-8 May 79.

29. D.B. Milne, DAC, GS-13, was invited to present a seminar titled, "Ascorbate, Copper, and Iron Interactions," at the USDA Human Nutrition Laboratory in Grand Forks, ND, 23 Jul 79.

30. S.T. Omaye, DAC, GS-12, presented seminar entitled, "Effect of Ascorbic Acid on Hepatic Heme Metabolism and Drug Metabolism in the Guinea Pig," USDA, Berkeley, CA, 13 Nov 79.

SECTION VIII - IMPROVEMENTS AND SIGNIFICANT ACCOMPLISHMENTS

1. An HP9815A programmable calculator based data acquisition system with a Sartorius electronic digital balance was developed to support antineoplastic and lethal dose studies. The system has been particularly effective in reducing errors in recorded data and the time required for weighing TOXSYS data terminals and associated peripheral equipment and data acquisition. Maintenance and reporting software have been procured to support upcoming military toxicology studies. Hardware and software components of the system are presently being tested.

2. All LAIR Logistical Regulations were updated during 1979, to improve the efficiency overall operation of logistics to provide support to activities within LAIR.

3. Equipment Utilization program has been developed to ensure that all equipment is being utilized to the maximum extent possible. In conjunction to this program an Equipment Pool concept has been developed to manage equipment that will be used by more than one division within LAIR.

4. A survey was conducted in Nov 79 to determine excess equipment within LAIR. This survey identify approximately \$750,000 worth of equipment which is excess to the needs of LAIR.

5. Energy Conservation program is continuing, with the following actions taken during the last year: reduction of the run time of non-essential equipment; reduction of heating water temperatures; reduction of lighting in common areas during duty hours, and elimination of most of the lighting load after duty hours; sealing of some sections of the building to minimize cold air infiltration; setting non-occupied animal rooms at minimum energy use temperatures and humidities; and the start of a program to use outside air, as much as practical, for heating/cooling of administrative area.
6. The building water treatment program was improved, resulting in minimized corrosion scaling in the various water systems.
7. Further changes have been recommended in pulse repetition frequency (PRF) laser safety standards based upon completed research.
8. ED₅₀ bioeffects data for normal mode erbium (1.54 microns) and Q-switched holmium (2.06 microns) have been completed.
9. Additional behavioral research for rhesus exposed to low-level argon (514.5 nm) laser radiation has been initiated.
10. Experiments are continuing in diffuse argon laser radiation and gallium arsenide exposures using light and electron microscopic criteria.
11. The MILES ED₅₀ device has been evaluated further for evidence of retinal clouding after repeated exposures to the MILES (gallium arsenide) transmitter.
12. Reports on first two phases of error detection scoring system and training of operators in Project BLASER have been completed.
13. Request for approval to retest human volunteers has been initiated to establish data base for use of the portable field dark adaptometer.
14. Quantitative bioassay-type methods for testing repellents have been developed and recommended to the American Society for Testing and Materials for consideration as standard methods.
15. Investigations have been completed to develop a model host system for the American cutaneous leishmaniasis. Methodologies to isolate and preserve viable parasites and achieve reproducible infections were standardized, implemented, and applied in animal models to the studies on immunity to these diseases.
16. Extensive effort has been put into the development of a toxicology program. Included in the effort were cost analysis, protocol formulation, and quality control. Mechanisms for the management of lethal dose studies were set up. In conjunction with Information Sciences Division, a data management system for analysis of results was developed and tested on a new mosquito repellent.

17. Software was written for data analysis of mosquito repellent studies to be run on the LAIR DG300 computer and for use of the division's Hewlett Packard systems, thus saving turnover time and man hours required to punch cards.
18. Liaison with other research institutes has been established and plans and objectives for research on defense against chemical warfare agents when skin contact is involved are being formulated.
19. Work has been started on the assessment of microbial and immunologic risk factors associated with use of resuscitating fluids or arising from trauma or impaired immunity in battlefield casualties.
20. Dose response-time studies to identify the rate-limiting concentration of deet as 50% showed no increase of concentration prolonged efficacy significantly beyond four hours.
21. An in vitro model was developed for predicting repellent duration on human skin.
22. Preferential usage of issue and commercial topical repellents at eight Army posts indicated low troop acceptance of the Army-issued formulation of deet.
23. The percutaneous penetration of repellents in the hairless dog was determined.
24. The comparative effectiveness of nine human-use approved repellents (presently being marketed) against a variety of mosquitos, sand flies, fleas and ticks was determined.
25. Efficacy tests were initiated on 28 candidate formulations for controlled-release of deet and ethylhexanediol.
26. Screening of 120 candidate compounds submitted by the SRI International and the USDA over the last four years was completed and the 20 most effective (highest repellency) compounds were selected for further evaluation.
27. Using laboratory tests, the three most promising of 20 candidate compounds being considered for use as area repellents were selected. At a field test site, preliminary evaluations of those compounds, comparing them to Mosquito Beater, a commercial product, were conducted. None, including the commercial product, appears to be too promising at present.
28. The isolated perfused wound model demonstrated marked alterations in amino acid release and glucose utilization.

29. Several anesthetic agents have been investigated for their comparative ability to support cardiovascular function during moderate hypovolemia.

30. It was found that gastric output is increased in response to a meal after steroid administration, the response to histamine is unaltered, and a change in plasma amino acids after steroids is not involved in the mechanism.

31. Small bowel neomucosa appeared in 1 out of 6 dogs having artificial intestinal conduits (Gore-Tex).

32. A cardiovascular laboratory is currently functioning which is capable of accurate measurements of left ventricular performance parameters such as stroke volume, dp/dt, ejection fraction, myocardial oxygen consumption, metabolism, and coronary flow.

33. There is no statistical difference between an interfascicular graft or an epineurial technique under tension in overcoming segmental nerve defects in cats.

34. Exercise regimens proved beneficial to the strength and stiffness of the anterior cruciate ligament; those exercised at high frequency and lower duration had the greatest increase in strength and stiffness.

35. Studies of the red cell collection lesion revealed a rapid, anomalous decrease in hemoglobin-oxygen affinity, DPG, and transmembrane pH in the initial 20% fraction of erythrocytes harvested in CPD.

36. Using a spontaneous recovery rat shock model (penthrane anesthesia, cardiac puncture, no fluid replacement), no effects on survival and O_2 consumption from cyanate-induced hemoglobin-oxygen affinity changes were observed with acute 30% blood volume loss.

37. Myoglobin and metmyoglobin reductase differ in their adaptive responses to exercise and diet.

38. Cooperative evaluation of the extended storage citrate-phosphate-dextrose-adenine-2 blood preservative system was organized and initiated. This preservation system is intended to extend storage of red blood cells beyond 35 days, possibly to 56 days, and platelets beyond 72 hours, possibly to 96-120 hours. LTC Peck, LTC Bolin, Dr. Moore, and CPT Sohmer were involved in these efforts.

39. Dr. Moore has investigated adenine, glucose, dihydroxyacetone optional additive system for improved adenosine triphosphate and 2,3 dihydroxyacetone storage for as long as 42 days.

40. LTC Peck and Dr. DeVenuto did the first primate (Rhesus monkey) studies of disposition and pharmacokinetics of stroma-free hemoglobin.

41. Human in vivo evaluation of a platelet cryopreservation system (glycerol/glucose) was initiated by LTC Bolin and LTC Redmond.
42. Nutritional studies, Phase I, were conducted at the U.S. Military Academy, West Point, NY during 14 Apr-8 May 79. Personnel participating included: MAJ R.E. Morris, MC; H.L. Johnson, DAC, GS-14; and R.D. Fults, DAC, GS-11.
43. Nutritional studies, Phase II, were conducted at the U.S. Military Academy, West Point, NY during Sep-Nov 79. Personnel participating included: MAJ R.E. Morris, MC, H.L. Johnson, DAC, GS-14, M.J. Kretsch, DAC, GS-12, and R.D. Fults, DAC, GS-11. Mrs. Miriam Thomas, DAC, GS-11, U.S. Army Research and Development Command, Natick, MA, also assisted during this period.
44. The Ames mutagenicity assay procedure was refined and applied to irradiated foods, insect residues, and insect repellents.
45. M.J. Kretsch, DAC, GS-12, completed the preparation of the "LAIR Dietary Diary-Interview Procedures Manual." The manual was used for training dietary interviewers that participated in the U.S. Military Academy nutrition study conducted at West Point, NY, Oct-Nov 79.
46. The Division of Nutrition Technology completed two anti-vitamin animal feeding studies in support of the irradiated food testing program.
47. The third phase of an evaluation of the feeding system on the USS Saratoga was conducted by members of the Division of Nutrition Technology during Mar 79.

SECTION IX - INSPECTIONS, SURVEY, AND AUDITS

1. The annual data processing installation management review was conducted by LTC R. Nomani and CPT Jon Packman, USAMRDC, 15-19 Oct 79.
2. The Activity Support Group was reviewed by the MAIT, USAMRDC, from 13-17 Aug 79.
3. The Logistics Division was inspected by a review team from the USAMRDC from 3-7 Dec 79. No major deficiencies were noted during the inspection.
4. CPO Annual Position Review Survey was conducted at LAIR, 20-24 Aug 79.
5. Army Science Board conducted an on-site survey of ILIR research projects, 30 Aug 79.
6. On 6 Jan 79, a Letterman Army Medical Center, Health Services Command Inspector General inspection of the Radioisotope Group was conducted. No significant discrepancies were noted; however, the inspection team recommended that a quality control program be initiated for the scintillation counting instruments. This program has been established and SOPs have been written.

SECTION X - CONFERENCES

1. W.H. Langley, DAC, GS-11, attended the regional ADP Council meeting at the Presidio Officer's Club, Presidio of San Francisco, 6 Oct 79.
2. D.A. Harris, Ph.D., DAC, GS-12, attended the IEEE Computer Conference at the Jack Tar Hotel, San Francisco, 26 Feb-2 Mar 79.
3. CPT J.L. Szurek, MS and D.A. Harris, Ph.D., DAC, GS-12, attended the Edison Centennial Symposium at the San Francisco Hilton, 2-5 Apr 79.
4. CPT J.L. Szurek, MS, attended the Third Annual Industrial Research Development Symposium in Oxford, MS, 8-19 Apr 79.
5. W.H. Langley, DAC, GS-11, attended the Computer Expo Caravan 79, San Francisco, 19 Apr 79.
6. R.A. Nelson, DAC, GS-12, attended the Fourth National Nutrient Data Bank Conference at Case Western Reserve University, Cleveland, OH, 22-24 Apr 79.
7. CPT R.W. Serenbetz, MS, attended the Annual Conference, Mitre Corp and NBS, and Local Area Communications Network Symposium, Boston, MA, 6-9 May 79, the Federal ADP Council Meeting in Emeryville, CA, with GSA regulations update of ADP standards taking place at that time, and a Seminar in Palo Alto, CA, "Design Engineers Micro-Processors," 31 Jul-3 Aug 79.
8. W.H. Langley, DAC, GS-11, and J.T. Trout, DAC, GS-09, attended the Fourth Annual Berkeley Conference on Distributed Data Management and Computer Networks in San Francisco, 28-30 Aug 79.
9. V.L. Gildengorin, Ph.D., DAC, GS-11, attended the Twenty-Fifth Conference on the Design of Experiments in Army Research, Development and Testing at the Natick Research and Development Command, 17-19 Oct 79, and the regional American Statistical Association meeting at Mountain View, CA, Sep 79.
10. D.A. Harris, Ph.D., DAC, GS-12, attended the Ninth International Symposium on Mini-microcomputers in Montreal, Canada at which time he presented a paper entitled, "Predicted Trend in Scientific Computing Due to New Government Regulation." 25-30 Sep 79.
11. H. Zwick, Ph.D., DAC, GS-13, and D.J. Lund, DAC, GS-12, attended the annual meeting of the Association of Research in Vision and Ophthalmology (ARVO), Sarasota, FL, 30 Apr-5 May 79. Dr. Zwick presented two papers entitled "Progressive Long-term Changes in Rhesus Spectral Sensitivity after Low-level Laser (514 nm) Exposure" and "Changes in Receptive Field Organization and Spectral Sensitivity Following Coherent Light Exposure." Mr. Lund presented a paper entitled "Spectral Photography of Retinal Lesions."

12. D.I. Randolph, Ph.D., DAC, GS-13, H. Zwick, Ph.D., DAC, GS-13, D.J. Lund, DAC, GS-12, and B.E. Stuck, DAC, GS-12, attended NASA AMES, Mountain View, CA, 10 May 79, and presented a Laser Safety Course.
13. D.J. Lund, DAC, GS-12, and B.E. Stuck, DAC, GS-12, attended Topical Review - OUSDRE, Washington, DC, 6-7 Jun 79, and presented a summary on Laser Bioeffects Research.
14. H. Zwick, Ph.D., DAC, GS-13, attended the fifth meeting of the International Research Group on Colour Vision Deficiencies, St. Mary's College, London, England, 25 Jun-6 Jul 79, and presented four papers entitled "Progressive Long-term Changes in Rhesus Spectral Sensitivity after Low-level Coherent Light (514 nm) Free Exposure," "Immediate Effects on Acuity and Spectral Sensitivity of Single Brief Laser Exposure," "Comparison of Coherent and Incoherent Light on Pseudemys ERG Spectral Sensitivity," and "Changes in Tectal Spectral Sensitivity and Receptive Field Organization Following Coherent Light Exposure."
15. P. Schmid, attended a Symposium on Toxicology and Cancer, Oakland, CA, 23 Mar 79.
16. CPT W.G. Reifenrath, attended the 6th International Symposium on Controlled Release of Bioactive Materials, New Orleans, LA, 6-8 Aug 79.
17. 1LT W. Jederberg, attended the International Conference on Liquid Scintillation Counting, San Francisco, 21-24 Aug 79.
18. MAJ G.H.G. Eisenberg, Jr., attended the Investigative Dermatology Research Committee Meeting, Biomedical Laboratory, Aberdeen Proving Ground, MD, 4-5 Sep 79.
19. L.C. Rutledge, attended the October Committee Week of the American Society for Testing Materials, Chicago, IL, 15-19 Oct 79.
20. MAJ G.H.G. Eisenberg, Jr., Dr. S. Kerbs, CPT W. Keith and Dr. P. Schmid, attended the Annual Meeting of the American Society for Microbiology, Los Angeles, CA, and Honolulu, HI, 4-11 May 79.
21. COL R.F. Bellamy, SP5 M.O. Baysinger, and SP5 E.M. Mahoney attended the Annual Meeting of the American Physiological Society, New Orleans, LA, 13-21 Oct 79.
22. COL L. Hagler*, LTC R.B. Weiskopf, CPT R.L. Scott, and Dr. J.P. Hannon attended the Annual Federation of American Societies for Experimental Biology (FASEB) meetings, Dallas, TX, 1-11 Apr 79.

*Presented paper at meeting.

23. LTC H.E. Cabaud* attended the Annual meetings of the American Academy of Orthopaedic Surgeons, American Society of Surgery of the Hand, Orthopaedic Research Society, and American Orthopaedic Society for Sports Medicine, San Francisco, 20-27 Feb 79, and also attended the 21st Annual Meeting of the Society of Military Orthopaedic Surgeons, San Francisco, 26 Nov-1 Dec 79.
24. LTC D.D. Bikle attended meetings of the American Society of Bone and Mineral Research and the Endocrine Society, Anaheim, CA, 10-17 Jun 79.
25. LTC MD. Caldwell*, Ms. L. Forlaw*, CPT R.L. Scott*, SP5 J.A. O'Connor*, and SP5 J.D. Shearer* attended the annual meeting of the American Society of Parenteral and Enteral Nutrition, Boston, MA, 20 Jan-3 Feb 79.
26. LTC W.Y. Moores* attended the annual meeting of the Society of Thoracic Surgeons, Phoenix, AZ, 17 Jan 79.
27. MAJ L.W. Traverso attended the Annual Meeting of the American Pancreatic Association, Chicago, IL, 31 Oct-3 Nov 79.
28. LTC W.Y. Moores*, MAJ L.C. Watson* and MAJ L.W. Traverso attended the Annual meeting of the American College of Surgeons, Chicago, IL, 22-26 Oct 79.
29. CPT D.G. Griffin attended the 7th Annual Veterinary Surgical Forum, Chicago, IL, 23-27 Oct 79.
30. Dr. J.P. Hannon* attended the International Symposium on Life, Heat, and Altitude, Las Vegas, NV, 15-17 May 79.
31. SP5 T.J. Nemeth attended "Scanning Electron Microscopy/1979" presented by Scanning Electron Microscopy, Inc., Washington, DC, 16-20 Apr 79.
32. G.L. Moore, Ph.D., DAC, GS-13 presented three papers, "CPD-adenine, and Update," "In Vitro Evaluation of New CPD-Adenine Formulations," "The Use of Adenine, Glucose, DHA, and/or Ascorbate Phosphate to Maintain Red Cell ATP and 2,3-DPG During Packed Cell Storage"; LTC R.B. Bolin, MC, presented a paper on the liquid storage of platelets; CPT P.R. Sohmer, MC, gave "Pathophysiology of Hemorrhagic Shock," and "Early Management of Severe Multiple Trauma"; F. DeVenuto, Ph.D., DAC, GS-14 presented "Transfusions with a Solution of Crystalline Hemoglobin Supplemented with Albumin;" LTC C.C. Peck, MC made an invited presentation, "Improved Data Analysis Technique for Survival Studies"; and, M.E. Moore, DAC, GS-11, attended 32nd annual meeting of the American Association of Blood Banks, Las Vegas, NV, 3-8 Nov 79.
33. LTC R.B. Bolin, MC attended the Platelet Cryopreservation Workshop, American Red Cross, Washington, DC, Oct 79.

34. LTC R.B. Bolin, MC presented a paper on "Asanguineous Oxygen Carrying Resuscitation Solutions," to Triservice Blood Program Symposium, Bethesda, MD, Aug 79.

35. G.L. Moore, Ph.D., DAC, GS-13, presented the paper "Properties and Use of CPDA-1," at the Pacific Northwest Red Cross Transfusion Therapy Conference, Portland, OR.

36. LTC R.B. Bolin, MC gave a speech and F. DeVenuto, Ph.D., DAC, GS-14, attended the "Current Concepts of Combat Casualty Resuscitation Symposium," at the Naval Medical Research Institute, Washington, DC, 1-2 Aug 79.

37. CPT P.R. Sohmer, MC delivered an invited paper at the Society of Armed Forces Medical Laboratory Scientist Annual Meeting in San Antonio, TX.

38. The Annual Primate Pathology Workshop and a symposium on Gastrointestinal Pathology of Laboratory Primates was held at LAIR 3-4 Mar 79. LTC P.W. Mellick, VC, Chief, Pathology Services Group, served as Program and Local Arrangements Chairman for the meeting which was attended by more than 60 pathologists from the United States and western Europe. At this conference CPT J.C. Turnier, VC, presented a paper entitled "Poorly Differentiated Histiocytic Lymphosarcoma in an African Green Monkey (Cercopithecus aethiops). CPT J.R. Matlack, VC, presented "Vascular Mineralization in Brains of Owl Monkeys (Aotus trivirgatus)."

39. LTC P.W. Mellick, VC, CPT J.C. Turnier, VC, and CPT J.R. Matlack, VC, attended the Annual Meeting of the American College of Veterinary Pathologists in Denver, CO, 4-8 Dec 79.

40. LTC J.A. Goldsboro, VC, Chief, Animal Resources Group, attended the following: Annual Veterinary Medical Symposium, Tuskegee Institute, AL, 7-10 Apr 79, National Meeting of the American Association for Laboratory Animal Science, Atlanta, GA, 15-22 Sep 79, Symposium on Military Veterinary Medicine, Walter Reed AMC, 23-27 Apr 79, and Annual Conference on Veterinary Education and Training, Walter Reed AMC, 12-15 Sep 79.

41. CPT J. Sudduth, VC, attended the American Animal Hospital Association Conference, New Orleans, LA, 21-27 Apr 79, and the American Veterinary Medical Association meeting, Seattle, WA, 22-26 Jul 79.

42. CPT M.D. Green, MS, attended and presented a paper at the Western Pharmacology Society meetings, Colorado Springs, CO, 21-27 Jan 79.

43. MAJ R.E. Morris*, M.D., attended the Western Society for Clinical Research in Carmel, CA, 6-9 Feb 79.

44. LTC D.D. Schnakenberg, MS, attended a symposium sponsored by the National Security Industrial Association, Washington, DC and presented the paper "Nutritional Evaluation of a Fast Foods SVC System on the USS Saratoga," 13 Mar 79.

45. MAJ D.D. Schnakenberg, MS, H.L. Johnson, DAC, GS-14, J.H. Skala, DAC, GS-14, H.E. Sauberlich, DAC, SES-IV, G.J. Klain*, DAC, GS-14, E.L. McGown, DAC, GS-13, and D.B. Milne*, DAC, GS-13, attended the 63rd Annual Meeting of the Federation of American Societies for Experimental Biology (FASEB) in Dallas, TX, 1-6 Apr 79.

46. G.J. Klain, DAC, GS-14, attended the Annual Meeting of the American Oil Chemists' Society, San Francisco, 30 Apr-4 May 79.

47. H.E. Sauberlich, DAC, SES-IV, attended the following:

a. The Annual Meeting of the Society for Clinical Nutrition, 1-5 May 79.

b. The conferences on "Stimulating Nutritional Awareness and Action in Military Personnel" and presented a paper entitled, "Nutritional Status, Surveillance, and Intervention," Bolling AFB, Washington, DC, 29 May-1 Jun 79.

c. The 12th Annual Meeting of the Society for Nutrition Education and participated in session on "Update on Nutrition Research," San Francisco, 23-26 Jul 79.

48. L.S. Guthertz, DAC, GS-09, attended and presented two papers at the Annual Meeting of the American Society for Microbiology, Los Angeles, CA, 4-8 May 79.

49. R.D. Fults, DAC, GS-11 and MAJ E.W. Askew*, MS, attended the American College of Sports Medicine Annual Meeting and Pan Pacific Conference, Honolulu, HI, 22-27 May 79.

50. H.L. Johnson, DAC, GS-14 and M.J. Kretsch, DAC, GS-12, attended the conference on "Stimulating Nutritional Awareness and Action in Military Personnel," Bolling AFB, Washington, DC, 29 May-1 Jun 79.

51. CPT J.D. Turnbull, MS, and S.T. Omaye, DAC, GS-12, attended and presented papers at the International Congress of Biochemistry meeting, Toronto, Canada, 8-13 Jul 79.

52. LTC J.T. Fruin, VC, attended the 116th Annual Conference of the American Veterinary Medical Association, Seattle, WA, 22-27 Jul 79.

53. LTC D.D. Schnakenberg, MS and M.J. Kretsch, DAC, GS-12, attended the 12th Annual meeting of the Society for Nutrition Education, San Francisco, 23-26 Jul 79.

54. LTC D.D. Schnakenberg, MS, attended the National Conference on Nutrition Education in the 1980s, Bethesda, MD, 25-28 Sep 79.

55. H.L. Johnson*, DAC, GS-14, attended and participated in the 21st Annual Conference of the Military Testing Association, San Diego, CA, 16-18 Oct 79.

56. E.L. McGown, DAC, GS-13, and H.E. Sauberlich, DAC, SES-IV, attended the International Workshop on Autoxidation Processes in Food and Related Biological Systems, Natick, MA, 29-31 Oct 79.

57. L.S. Guthertz, DAC, GS-09, attended the 5th Annual Asilomar Conference, Northern California Branch of the American Society for Microbiology, Pacific Grove, CA, 7-9 Dec 79.

SECTION XI - LIAISON AND ORIENTATION VISITS

1. CPT R. Stacy, Manpower Group, DCSRM, USAMRDC, conducted a pre Manpower Survey orientation class and liaison visit during the period 16-17 Oct 79.

2. CPT R. Stacy and A.J. Puetz, DCSRM, USARMDC, conducted a liaison visit with LAIR staff elements and Presidio of San Francisco staff elements for the purpose of coordinating the conversion of LAIR's accounting operation to STANFINS, during the period 27-29 Nov 79.

3. F. Mallickson, DCSRM, USAMRDC, conducted an internal review of LAIR's accounting procedures during the period 15-19 Jan 79.

4. D.A. Harris, Ph.D., GS-12, visited Walter Reed Army Institute of Research, Washington, DC to discuss mini and microcomputer applications, 1 Oct 79.

5. Tri-Service Coordinating Meeting on Laser Bioeffects was held at LAIR on 13-14 Feb 79 with the following visitors in attendance: MAJ Gaston, USAEHA, APG, MD; MAJ Glick, USAARL, Ft. Rucker, AL; M. Pablo, Naval Research Lab, Washington, DC; E. Postow, Naval Medical Research and Development Command; LT Jenkins, USAEHA, APG, MD; MAJ Pitts, USAEHA, APG, MD; D. Breglia, Naval Training Equipment Center, Orlando, FL; Dr. Cronholm, PM TRADE, Orlando, FL; D.H. Sliney, USAEHA, APG, MD; LT Wedding, USN, Bureau of Medicine and Surgery, Washington, DC; MAJ Redington, USAMRDC, Ft. Detrick, MD; LTC Gibbons, J. Zuclich, and R.G. Allen, USAFSAM/RZL; Ft. Sam Houston, TX; COL Godden, AMD/RDR, Brooks AFB, San Antonio, TX.

6. Dr. Belkin and Dr. Tamir, Israeli Defense Forces, visited on 6 Mar 79 during a tour of the U.S. and discussed laser uses.

7. MAJ Holtsclaw and LT Veldhouse, USAFAS, Ft. Sill, OK, and Dr. Milligan, Washington, DC, Army Research Institute, visited LAIR on 7-8 Jun 79 to investigate possible alternatives for a laser designator training device.

8. Dr. Kuwabara, National Eye Institute, NIH, Bethesda, MD, visited on 20-24 Aug 79 and consulted in electron microscopy of laser-exposed retina.

9. LT Griffis, USAEHA, visited on 21 Aug 79 to discuss the laser bioeffects program.
10. J. Torre, USAHEL, visited on 14 Sep 79 to discuss Project BLASER.
11. Dr. J.N. Cronholm and Dr. Metzger of PM TRADE, Orlando, FL, visited on 28 Sep 79 to discuss FY 80 research and the budget for Project MILES.
12. LTC McDougall, Canadian Defence Liaison Staff, Washington, DC, visited on 10 Oct 79 to discuss dark adaptometry and laser safety.
13. Dr. Beadle, British Aerospace Aircraft Group, Filton House, Bristol, England, visited on 10 Oct 79 to discuss laser bioeffects research.
14. CPT Stacy, USAMRDC, visited on 17 Oct 79 to discuss Schedule X and upcoming manpower survey.
15. M. Travis, USAMRDC, visited on 17-18 Oct 79 to discuss laser contracts.
16. LTC Nomani and CPT Packman, Information Sciences Group, USAMRDC, visited on 25 Oct 79 to review ADP requirements.
17. Dr. C. Moody and Dr. R. Conrad, MICOM, visited on 19 Oct 79 to review laser protection.
18. Laser Bioeffects and Hazards Assessment Meeting was held at LAIR on 30-31 Oct 79 with the following visitors attending: C.S. Willett, CM/CCM, DARCOM; C.E. O'Connor, HQTRADOC; MAJ T.C. Weaver, Army Missile Lab, MICOM; COL F.K. Gates, HQTRADOC; COL S.R. Ruark, HQFORSCOM; COL R.T. Cutting, DARCOM; COL E.L. Buescher, HQMRDC; G.D. Todd, MICOM; Dr. C. Moody, MRADCOM; M. Pablo, Naval Research Lab, Washington, DC; F. Campbell, AMSAA; G.C. Cran, AMSAA; P.H. Beavers, AMSAA; D.J. Giordano, USAHEL; R.L. Adams, USAMIIA; A. Akerman, Martin Marietta, Orlando, FL; J.K. Schwartz, ERADCOM; MAJ G.W. Gaston, USAEHA; COL R.T. Wangemann, OTSG, HQDA.
19. COL F.L. Wergeland, M.D., MC, Chief, Ophthalmology Service, WRAMC, visited on 9 Nov 79 to review laser bioeffects research and discuss progress of the dark adaptometer.
20. Dr. A. McCreesch and LTC B. Joyce, USAEHA, Aberdeen Proving Ground, visited LAIR to discuss mutual cooperation on Cutaneous Hazards and Toxicology, 6-7 Aug 79.
21. Dr. F.C. Krakenbuhl, Cutaneous Leprosy Research Unit, Public Health Service Hospital, consulted with members of Division of Cutaneous Hazards, 30 Oct 79.
22. Dr. G.G. Krueger, Chairman, Division of Dermatology, University of Utah Medical School, consulted with the Division of Cutaneous Hazards and presented a seminar on monocyte chemiluminescence, 22 Aug 79.

23. Dr. W.A. Skinner, SRI International, Menlo Park, CA, visited LAIR to discuss cooperative work in the repellent program, 8 Feb 79.
24. Dr. W.B. Ezzell, The Citadel, Charleston, SC, visited LAIR on 13 Feb 79.
25. MAJ G.H.G. Eisenberg, CPT R.L. Hooper, CPT R.A. Wirtz and Mr. L.C. Rutledge visited SRI International, Menlo Park, CA, to discuss cooperative work in the repellent program, 12 Apr 79.
26. Dr. C.J. Weinmann, University of California, Berkeley, visited LAIR on 5 Jun 79.
27. Dr. E.E. Davis, SRI International, Menlo Park, CA, visited LAIR to discuss cooperative work in the repellent program, on 5 Jul 79.
29. J.V. Tyberg, MD, Ph.D., Assistant Professor in Residence, Dept. of Medicine and Physiology, and the Cardiovascular Research Institute, Univ. of California, San Francisco, visited the Division of Surgery for recruiting purposes, Apr 79.
30. Dr. Ejnar Eriksson, Karolinska Institute, Stockholm, Sweden, visited the Division of Surgery to have a short tour of the facilities and to discuss areas of mutual interest, 26 Oct 79.
31. J.R. Neville, Ph.D., DAC, traveled to HQ, USAMRDC, 22-27 Apr 79, and to WRAIR and NIH (Washington, DC) and ISR and USAFSAM (San Antonio, TX) 23-31 May 79 to contact cognizant personnel for briefing and coordination regarding the transfer to LAIR of the contract management function.
32. F. DeVenuto, Ph.D., DAC, GS-14, visited Arnar-Stone Laboratories, Inc. in McGaw Park, IL, to discuss stroma free hemoglobin and other resuscitating fluids, 11-13 Dec 79.
33. G.L. Moore, Ph.D., DAC, GS-13, consulted with McGaw Laboratories, Orange County, CA, on the development of optional additive system blood bags and solutions, 12-13 Feb 79.
34. Drs. G. Moss, K. Messmer, and M. Feola visited the Division of Blood Research 4 Sep 79 to discuss hemoglobin solutions.
35. Larry Button of Children's Hospital visited on 10 Jan 79.
36. Gunnar Strom of the Department of Clinical Physiology at University Hospital, Uppsala, Sweden, visited on 12 Feb 79.
37. Charles Typon, I. Jensen, and Dan Sasmore of SRI International conferred with Drs. Peck and DeVenuto on 14 Feb 79.

38. A. Callahern of the Office of Naval Research and Dr. Mercer-Daly conferred on hemoglobin research, 30 Mar 79.
39. Alan Forest of the Univ. of Southern California consulted here in the area of pharmacokinetics on 20 Jun 79.
40. Leslie Lenert, a student at UC Riverside, began a summer internship at the Division of Blood Research as a Biomathematical Aid on 9 Jul 79.
41. Bill Fox, a medical student at the Uniformed Services University of the Health Sciences, began a summer of pharmacokinetics research in the Division of Blood Research on 9 Jul 79.
42. D.H. Buchholz, MD, from Travenol Laboratories consulted with LTC Peck, on 10 Sep 79.
43. COL P.K. Hildebrandt, VC, The Surgeon General's Consultant in Veterinary Pathology, visited LAIR 14-15 May 79 to assess LAIR's need for veterinary pathologists and capabilities for conducting a Preceptorship Training Program in veterinary pathology.
44. COL R. Welch, Chief, Dept. of Preventive Medicine, and Ms. Eiko Ashizawa, Occupational Health Nurse, Letterman Army Medical Center, toured Animal Resources Group facilities on 19 Jan 79.
45. LTC J.T. Fruin, VC, attended Toxicology Task Force Resource meeting, Washington, DC, 30 Jan-2 Feb 79.
46. LTC D.D. Schnakenberg, MS, made a liaison visit to observe the "Fast Food Service" on the USS Ranger, NAS North Island, San Diego, CA, 13 Feb 79.
47. H.L. Johnson, DAC, GS-14, made a liaison visit to coordinate nutrition research with Natick Research and Development Command, Natick, MA, 26-27 Apr 79.
48. LTC J.T. Fruin, VC, visited the International Research and Development Company, Matawan, Michigan, for an orientation visit and to observe their automated data collection system, 1 May 79.
49. LTC D.D. Schnakenberg, MS and M.J. Kretsch, DAC, GS-12, attended a meeting of the Committee on Food Service Systems, National Research Council - National Academy of Sciences Advisory Committee on Military Feeding, Palm Springs, CA, 1-3 May 79.
50. LTC J.T. Fruin, VC, liaison meeting with Natick Army Research and Development Command to coordinate nutrition and wholesomeness portion of the DOD Food Program, Natick, MA, 25-26 Jun 79.

51. LTC J.T. Fruin, VC, LTC D.D. Schnakenberg, MS, and H.E. Sauberlich, DAC, SES-IV, participated in a liaison meeting with Natick Army Research and Development Command to coordinate nutrition and wholesomeness portion of DOD Food program, Natick, MA, 4-5 Jul 79.
52. LTC D.D. Schnakenberg, MS, visited MRDC HQ Liaison Office, Pentagon, to confer on elements of the DOD Nutrition Program, Washington, DC, 26-31 Aug 79.
53. LTC J.T. Fruin, VC and H.E. Sauberlich, DAC, SES-IV, attended the meeting of the Joint Nutrition Research Planning Board, Washington, DC, 18 Oct 79.
54. LTC Duane Hilmas, VC, USAMRDC, Ft Detrick, MD, visited the Division of Nutrition Technology to discuss irradiated food projects, 24-25 Oct 79.
55. H.E. Sauberlich, DAC, SES-IV, reviewed status of progress on contract to develop a manual on nutritional assessment, University of Nebraska, Omaha, NE, 14 Nov 79.

SECTION XII - UNRESOLVED PROBLEMS

1. The manner and source of funding for the Nutrition Technology Division has not yet been determined.
2. A potential unresolved problem is the loss of manpower (12 spaces) because of reduction-in-force in Sep 79. If these personnel spaces are not authorized during the current manpower survey it will have an adverse impact on the Division of Logistics in the accomplishment of their mission.
3. Unfilled vacancies in MOS 01H20, Biological Sciences Assistant, have been a continuing problem. Efforts to recruit new personnel through the universities and the professional societies have been unsuccessful.
4. Disapproval of the clerk-typist position requested on the new TDA during the formation of the Division of Cutaneous Hazards continues to limit severely the ability to respond to requests for typing by staff members and increases response time to requirements for information by higher headquarters when the response must be typed. Typing backlogs of up to 400 pages and turn-around times of up to two months have been experienced during the past year. As a result, investigators are having to spend research time on typing, and submission of research protocols and manuscripts for publication has been delayed seriously.
5. The lack of an automated data management system for tabulating and analyzing pathology data generated by toxicology studies may pose a major problem if large scale, long-term testing is to be done. Extensive efforts to identify suitable systems that are readily available from commercial sources have failed. At this time an attempt to develop a complete system using in-house personnel and facilities is

considered too costly in money, man power, and time. Therefore, pathology data from toxicology studies will have to be tabulated manually, a procedure which may compromise accuracy and considerably extend the time required to complete these studies.

6. Personnel problems continue to be a serious difficulty in the Pathology Services Group. Failure to recruit a qualified electron microscopist seriously hampers efforts to develop viable research programs using these sophisticated techniques. Shortages of Board Certified Veterinary Pathologists Army-wide promise to create serious difficulties in research programs dependent on this specialty for the next few years.

7. Replacement of the floor in the cage washing area, Animal Resources Group, continues to be an unresolved construction deficiency. The entire floor on the "dirty" side of the cage washer should be replaced with particular attention given to proper sloping and improved resistance to acid. This represents a major construction effort and is being coordinated by the LAIR Division of Logistics.

8. Unresolved problems concerning radioactive waste shipment are as follows: (1) present disposal sites are closed; (2) rapid changes are occurring in regulations concerning shipping and disposal; (3) the present storage area at LAIR has been designated for a LAMC laboratory; and (4) communications with the disposal authority (ARRCOM) have not been productive.

SECTION XIII - OTHER

1. Information Sciences Group received approval for a trial of Flex-Time. Records maintained within the Group show no violations, and an overall improvement in morale resulting from the adaptation of Flex-Time.

2. SP5 T.J. Nemeth received a Biological Electron Microscopy Technician Certification from the Electron Microscopy Society of America, Aug 79.

3. A protocol entitled "Military Toxicology I. Toxicology of 2,4, di-nitro-toluene (2,4-DNT)" was prepared to initiate in-house, multidisciplinary studies of acute, subacute, and chronic toxicology consistent with classical procedures and to train staff to achieve proficiency in toxicology assessment and evaluation procedures. This included the development and preparation of Standing Operating Procedures for animal handling and care, pathology evaluations, clinical chemistry tests, quality control procedures, and budget and personnel requirements, as well as detailed experimental designs for conducting LD50 determinations, 14-day subacute feeding studies, and 90-day subchronic studies. Personnel and laboratory reorganization was implemented to assure compliance with the Good Laboratory Practices Act as it applies to toxicity testing.

4. The research mission of the Animal Resources Group was officially terminated on 1 Oct 78. On 30 Sep 79, the colony of Aotus trivigatus monkeys, being utilized in the project, "Studies to Assure a Supply of Non-Human Primates," was released to Walter Reed Army Institute of Research. These animals are currently being held at LAIR pending finalization of plans to transfer the colony to WRAIR.
5. During May 79, the laboratory facilities and office space of Pathology Services Group was moved to new locations in the laboratory wing of LAIR. This was the second relocation of the group in a six-month period. Histopathology, histochemistry, and clinical pathology laboratories were moved to the first floor, adjacent to the electron microscopy laboratories. The Hitachi transmission electron microscope was moved from the second floor and offices for the Chief, Pathology Services Group and two officers assigned to that group was also relocated on the first floor. These changes were made in anticipation of increased laboratory space requirements necessitated by implementation of toxicology studies. At year's end, these changes were complete except for refurbishing the room for the Hitachi electron microscope and a darkroom to support electron microscopy functions.
6. H.E. Sauberlich, DAC, SES-IV, appointment to membership in the Colorado State University Nutrition Institute, Ft. Collins, CO, 29 Oct 79.
7. H.E. Sauberlich, DAC, SES-IV, selected as member of the Editorial Board, Journal of Nutrition of the American Institute of Nutrition for period of 1980-1984.
8. LTC J.T. Fruin, VC, as a consultant of TSG in Food Hygiene made an evaluation of the food preparation facilities of the new WRAMC, 12 Sep 79. He also participated in a review of data collected by Ralston Purina in the conduct of a wholesomeness evaluation of irradiated chicken.
9. S.T. Omaye, DAC, GS-12, serves as adjunct professor of Pharmacology, Dept. of Physiology-Pharmacology, University of the Pacific, Stockton, CA.
10. H.E. Sauberlich, DAC, SES-IV, serves as affiliated professor, School of Public Health, Univ. of California, Berkeley, CA.
11. S.T. Omaye, DAC, GS-12, elected membership to the American College of Toxicology and membership in the Society of Toxicology, 1979.

SECTION XIV - PUBLICATIONS

MATERIAL PUBLISHED BY PERSONNEL OF THE LABORATORY FOR CY 1979

LETTERMAN ARMY INSTITUTE OF RESEARCH
PRESIDIO OF SAN FRANCISCO, CA

INSTITUTE REPORTS

63. KRZYWICKI, H.J., J.A. TILLOTSON, and H.L. JOHNSON. Human body composition during riboflavin depletion of brief but sufficient duration to produce biochemical evidence of deficiency. May 1979
64. KRZYWICKI, H.J., E.M. BAKER III, J.L. CANHAM, and J. HOOD. Body composition in experimental human scurvy: A partial study. May 1979
65. KRETSCH, M.J., D.D. SCHNAKENBERG, R.D. FULTS, R.A. NELSON, Y.C. LeTELLIER, and J.E. CANHAM. Nutrient intakes and some socio-anthropometric characteristics of Twentynine Palms Marine Corps personnel before food service system modifications. June 1979
66. ESGANDARIAN, G.E., J.S. SURINCHAK, and P.A. O'MARA. Behavioral effects in rats following massive transfusion with plasma protein solution. July 1979
67. SPENCER, T.S., K.L. ZELLER, W.A. AKERS, and W.H. LANGLEY. Data storage and retrieval system for a mosquito repellent test program (Interim Report). July 1979
68. DeVENUTO, F., H.I. FRIEDMAN, J.R. NEVILLE, and C.C. PECK. Appraisal of hemoglobin solution as a blood substitute. July 1979
69. SCHUSCHEREBA, S., B. STUCK, and P. SHAWALUK. Corneal endothelium after infrared laser exposure: Evaluation of techniques to study corneal lesions. (Revised version, in process)
70. SCHUSCHEREBA, S., B. STUCK, and P. SHAWALUK. Corneal endothelium after infrared laser exposure: Results of techniques to study corneal lesions. (Paired with No. 69)
71. McGOWN, E.L., C.M. LEWIS, and P.P. WARING. Investigation of possible antithiamin properties in irradiation sterilized beef. August 1979

72. MCGOWN, E.L., C.M. LEWIS, and P.P. WARING. Investigation of possible anthithiamin properties in irradiation sterilized chicken. August 1979
73. KRZYWICKI, H.J., C.F. CONSOLAZIO, H.L. JOHNSON, and N.F. WITT. Metabolic aspects of caloric restriction (500 calories) body composition changes. August 1979
74. FRUIN, J.T., H.F. ALISHOUSE, and A.L. DUNGAN. Summary of food microbiological data from the central food preparation system evaluation Fort Lee 1976 - 1978. August 1979
75. DONG, M.H., E.L. MCGOWN, B.W. SCHWENNEKER, and H.E. SAUBERLICH. Vitamin assay data on food samples obtained from Naval Air Station, Alameda, CA and Marine Corps Base, Twentynine Palms, CA: Thiamin, riboflavin and vitamin B-6. August 1979
76. CONSOLAZIO, C.F., H.L. JOHNSON, R.A. NELSON, R. DOWDY, H.J. KRZYWICKI, T.A. DAWS, L.K. LOWRY, P.P. WARING, W.K. CALHOUN, B.W. SCHWENNEKER, and J.E. CANHAM. The relationship of diet to the performance of the combat soldier. Minimal calorie intake during combat patrols in a hot humid environment (Panama) October 1979
77. FRUIN, J.T., W.H. LANGLEY, and A.K. REGH. Report of 1977 microbiological data collection program. October 1979
78. WISE, W.R., R.S. HARDING, J.H. SKALA, and H.E. SAUBERLICH. Semiautomated determination of serum lipids. September 1973
79. KNUDSEN, J.J., J.H. SKALA, and H.E. SAUBERLICH. A semi-automated method for the determination of total nitrogen in urine, feces and diets. In press
80. HANNON, J.P. Microdetermination of sucrose in plasma with the anthrone reagent. November 1979
81. BLANCHARD, J.M., G.M. WARD, H.J. KRZYWICKI, and J.E. CANHAM. A visual appraisal method for estimating body composition in humans. November 1979

TECHNICAL NOTES

- TN-1 LHOTA, J., P.A. O'MARA, and J.P. HANNON. Yellow phosphorous toxicity: Pilot experiments to detect alterations in operant behavior, voluntary activity, and visual evoked potentials. June 1979
- TN-2 DeVENUTO, F., and D.A. JESS. Absence of toluene in solution of hemoglobin prepared by crystallization. June 1979

- TN-3 JESS, D.A., and F. DeVENUTO. Plasticizers in hemoglobin solution. June 1979
- TN-4 KLAIN, G.J., and J.P. HANNON. Yellow phosphorus toxicity: In vitro lipid synthesis in the rat. June 1979
- TN-5 ROBBINS, D.O., and H. ZWICK. Changes in spectral acuity following brief laser (647 nm) exposure. August 1979
- TN-6 ZWICK, H., D.O. ROBBINS, and A. KNEPP. Changes in tectal spectral sensitivity and receptive field organization following coherent light exposure. In Final Draft
- TN-7 ZWICK, H., E.S. BEATRICE, and T.A. GARCIA. Long-term and progressive changes in rhesus spectral sensitivity after low level coherent light (514 nm) exposure. In Final Draft
- TN-8 ZWICK, H., and D.L. JENKINS. Coherency effects on retinal neural processes (ERG) of pseudemys. In Final Draft
- TN-9 BLOOM, K.R., and H. Zwick. Rhesus spectral acuity for static and moving targets. August 1979
- TN-10 OMARA, P.A., D.A. STAMPER, E.S. BEATRICE, D.J. LUND, R.L. JONES, R. SERENBETZ, and J.P. HANNON. Blaser: A simulator for the laboratory investigation of biomedical factors influencing laser designator operator performance. July 1979
- TN-11 LHOTA, J., and J.P. HANNON. Yellow phosphorus toxicity: Body weight changes of young and mature rats during the early stages of chronic exposure. September 1979
- TN-12 OMAE, S.T., R.A. WIRTZ, and J.T. FRUIN. Acute oral toxicity of substituted p-benzoquinones and 1-pentadecene in the rat. November 1979

PAPERS IN MEDICAL AND SCIENTIFIC BOOKS/JOURNALS

- 79-020 CHILDS, G.E., K.A. POSTER, and M.J. McROBERTS. Insect cell culture media for cultivation of New World Leishmania. Int J Parasitol 8: 255-258, 1978
- 79-021 CABAUD, H.E., and W.G. RODKEY. Use of a lightweight, durable, thermoplastic cast material. Am J Sports Med 6: 409, 1978
- 79-022 WIRTZ, R.A., S.L. TAYLOR, and H.G. SEMEY. Concentrations of substituted p-benzoquinones and 1-pentadecene in the flour beetles Tribolium madens (Charp.) and Tribolium brevicornis (Lac.) (Coleoptera, Tenebrionidae). Comp Biochem Physiol [C] 61: 287-290, 1978

- 79-023 LIEBER, E.R., and S.L. TAYLOR. Comparison of thin-layer chromatographic detection methods for histamine from food extracts. J Chromatogr 160: 227-237, 1978
- 79-024 MCGOWN, E.L., C.M. LEWIS, M.H. DONG, and H.E. SAUBERLICH. Results with commercial radioassay kits compared with microbiological assay of folate in serum and whole-blood. Clin Chem 24: 2186-2191, 1978
- 79-025 KERBS, S., and A.M. ALLEN. Effect of occlusion of Trichophyton mentagrophytes infections in guinea pigs. J Invest Dermatol 71: 301-304, 1978
- 79-026 FOSTER, J.F., L.S. GUTHERTZ, R.C. HUNDERFUND, and J.L. FOWLER. Comparison of bacterial species isolated from ground beef, textured soy protein and ground beef extended with textured soy protein. J Food Prot 41: 961-964, 1978
- 79-027 DeVENUTO, F., A.I. ZEGNA, and K.R. BUSSE. Lyophilization of crystalline hemoglobin solution and exchange transfusions with lyophilized, reconstituted hemoglobin. Surg Gynecol Obstet 148: 69-75, 1979
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- 79-029 STUCK, B.E., and D.J. LUND. Extrapolation of pulsed light data in scanned displays. Proc Soc Photo-Opt Instrum Eng 162: 107-111, 1978
- 79-030 BEATRICE, E.S., and S. VELEZ. Laser safety bioeffects research: Histopathology of retinal effects. Proc Soc Photo-Opt Instrum Eng 162: 103-106, 1978
- 79-031 RUTLEDGE, L.C., R.K. SOFIELD, and M.A. MOUSSA. A bibliography of diethyl toluamide. Bull Entomol Soc Am 24: 431-439, 1978
- 79-032 DeVENUTO, F. Stability of hemoglobin solution during extended storage. J Lab Clin Med 92: 946-952, 1978
- 79-033 TAYLOR, S.L., L.S. GUTHERTZ, M. LEATHERWOOD, F. TILLMAN, and E.R. LIEBER. Histamine production by food-borne bacterial species. J Food Safety 1: 173-187, 1978
- 79-034 TILLOTSON, J.A. Ascorbate metabolism in the trained monkey. Int J Vitam Nutr Res 48: 374-381, 1978
- 79-035 LUND, D.J., and E.S. BEATRICE. Ocular hazard of short pulse argon laser irradiation. Health Phys 36: 7-11, 1979

- 79-036 ZUCK, T.F., F. DeVENUTO, J.R. NEVILLE, and H.I. FRIEDMAN. Oncotic and oxygen transport effects of hemoglobin solutions. In: Blood Substitutes and Plasma Expanders, edited by G.A. Jamieson. New York: Alan R. Liss, 1978
- 79-037 HERMAN, R.H., and L. HAGLER. Food intolerance in humans. West J Med 130: 95-116, 1979
- 79-038 CABAUD, H.E., W.G. RODKEY, and J.A. FEAGIN. Experimental studies of acute anterior cruciate ligament injury and repair. Am J Sports Med 7: 18-22, 1979
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- 79-041 RUTLEDGE, L.C., M.A. LAWSON, L.L. YOUNG, and M.A. MOUSSA. Rearing of Diamanus montanus (Siphonaptera: Ceratophyllidae) and Hoplopsyllus anomalus (Siphonaptera: Pulicidae) J Med Entomol 15: 304, 1979
- 79-042 KEITH, W.A., R.J. SMILJANIC, W.A. AKERS, and L.W. KEITH. Uneven distribution of aerobic mesophilic bacteria on human skin. Appl Environ Microbiol 37: 345-347, 1979
- 79-043 TAYLOR, S.L., L.S. GUTHERTZ, M. LEATHERWOOD, and E.R. LIEBER. Histamine production by Klebsiella pneumoniae and an incident of scombroid fish poisoning. Appl Environ Microbiol 37: 274-278, 1979
- 79-044 FRUIN, J.T., L.S. GUTHERTZ, and W.S. CLARK. The precision, consistency and speed of automatic colony counting devices in the enumeration of bacterial colonies on agar plates. (Abstract No. P9) In: Abstracts of the Annual Meeting of the American Society for Microbiology (Los Angeles, CA, 4-8 May 1979
- 79-045 FRUIN, J.T., L.S. GUTHERTZ, and H.E. SAUBERLICH. Survival of pathogenic bacteria in foods prepared in a microwave oven. (Abstract No. P34) In: Abstracts of the Annual Meeting of the American Society for Microbiology (Los Angeles, CA, 4-8 May 1979
- 79-046 FRUIN, J.T. Food microbiological criteria. In: Memorandum for: Each Army Veterinary Corps Officer, Letter of March 1979, Subject: Army Veterinary Corps Information (2-79) 4 pp

- 79-047 BIKLE, D.D., L. HAGLER, L.O. LOLLINI, S.F. HULL, and R.H. HERMAN. Work-induced muscle hypertrophy in vitamin D-deficient rats. *Am J Clin Nutr* 32: 515-516, 1979
- 79-048 SHROYER, E.L., S.T. KELLEY, P.C. TAYLOR, P. VANDERLOO, and T.L. LESTER. Three serologic types of adenovirus infections of owl monkeys. *Am J Vet Res* 40: 532-536, 1979
- 79-049 BIBEL, D.J., and R.J. SMILJANIC. Interactions of Trichophyton mentagrophytes and micrococci on skin culture. *J Invest Dermatol* 72: 133-137, 1979
- 79-050 OMAYE, S.T., and J.D. TURNBULL. Heme oxygenase activity, drug metabolism, and ascorbic acid distribution in the livers of ascorbic acid-deficient guinea pigs. *Biochem Pharmacol* 28: 1415-1419, 1979
- 79-051 GUTHERTZ, L.S., and J.T. FRUIN. Colony count accuracy using selective media: Analysts versus automatic colony counters. *J Food Prot* 42: 420-423, 1979
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