

BPR 10-8 FALL 1967

Bulletin of Prosthetics Research

PROSTHETIC AND
SENSORY AIDS
SERVICE

DEPARTMENT OF MEDICINE AND SURGERY
VETERANS ADMINISTRATION · WASHINGTON, D.C.

BPR 10-8 FALL 1967

Bulletin of Prosthetics Research

PROSTHETIC AND
SENSORY AIDS
SERVICE

DEPARTMENT OF MEDICINE AND SURGERY
VETERANS ADMINISTRATION • WASHINGTON, D.C.

CONTENTS

Articles

	Page
Editorial—Biomedical Engineering for the Future—J. R. Ragazzini	1
Engineering in Medicine—R. Contini	4
A Preliminary Report on Dynamic Socket Pressures—F. A. Appoldt and L. Bennett	20
An <i>In Vivo</i> Study of the Axial Rotation of the Human Thoracolumbar Spine—G. G. Gregersen and D. B. Lucas	56
Materials and External Prostheses—A. Staros	77
Sensory Motor Control System for an Externally Powered Artificial Arm—L. F. Lucaccini, A. Freedy, P. Rey, and J. Lyman	92
Information and Control Analysis of Externally Powered Artificial Arm Systems—A. Freedy, L. F. Lucaccini, and J. Lyman	112
An Adaptive Approach to Optimum Switching Control of Artificial Arms—A. Freedy, L. F. Lucaccini, and J. Lyman	132
Research and Development in the Field of Artificial Limbs—H. A. Mauch	143
Annual Summary Report, Activities for Year Ended June 30, 1967—Committee on Prosthetics Research and Development, Division of Engineering-National Research Council, National Academy of Sciences—National Academy of Engineering	170
CPOE Chairman's Newsletter—H. E. Pedersen	191
Materials and Equipment for Immediate Postsurgical Prosthetics	194
Prosthetic, Sensory, and Rehabilitative Aids Furnished to Eligible Veterans Upon Medical Determination of Need—W. H. Talley	203
VA Prosthetics Center Research	
Introduction—A. Staros	205
Report—E. Peizer et al.	208
Highlights of VA Contractual Research Program	
Prosthetics—E. F. Murphy and W. M. Bernstock	300
Sensory Aids—H. Freiburger	306
Departments	
Notes and News	315
Reported Abroad	325
Recent Patents	327
Publications of Interest	329
Calendar of Events	333
Cumulative Contents	334

EDITORIAL BOARD

ROBERT E. STEWART, D.D.S., *Chairman*

WILLIAM M. BERNSTOCK, *Editor*

EUGENE F. MURPHY, Ph. D.

ANTHONY STAROS

EDWARD PEIZER, Ph. D.

WILLIAM H. TALLEY

Managing Editor: Rhoda Beiser

Medical Consultant: C. F. Mueller, M.D.

Editorial Consultant: Earl A. Lewis; Frank A. Witteck; Howard Freiburger

Illustrators: John Beagles; Phillip S. Carson

Photographer: William J. Romahn, Jr.

Researcher: Steven L. Purka

The *Bulletin of Prosthetics Research* is a publication of the Prosthetic and Sensory Aids Service, Department of Medicine and Surgery, Veterans Administration. The opinions expressed by contributors are their own and are not necessarily those of the Veterans Administration. Address correspondence to Editor, *Bulletin of Prosthetics Research*, Research and Development Division, Prosthetic and Sensory Aids Service, Veterans Administration, 252 Seventh Ave., New York, New York 10001.

Library of Congress Catalog Card No. 66-60273.

Distribution: CO: (00)(001)(10)(10A)(10E1) RMD
SS (121B) (11)(11A1)(11A3)(11F)(111)(112)
SSD-PRR (113)(117)(118)(121)(122)(126)
(15)(151)(152) 1 ea.

FLD: HA, DO, OC, OCRO in varying quantities

EX: P, DL