

**Naval Dental Research Institute**  
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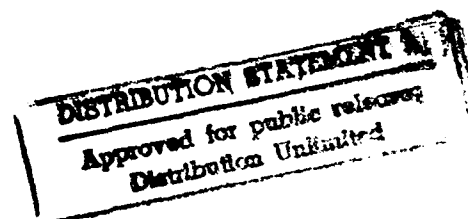


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**SUMMARIES OF RESEARCH  
FISCAL YEAR 1992**

**93-27629**



**Naval Medical Research and Development Command  
Bethesda, Maryland**

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NAVAL DENTAL RESEARCH INSTITUTE  
BUILDING 1-H  
GREAT LAKES, ILLINOIS 60088-5259

SUMMARIES OF RESESARCH  
Fiscal Year 1992

These summaries cover research carried out from 01 October 1991 through 30 September 1992.

This document has been approved for public release; its distribution is unlimited.

Approved and released by:



S. A. RALLS  
Captain, Dental Corps  
United States Navy  
Commanding Officer

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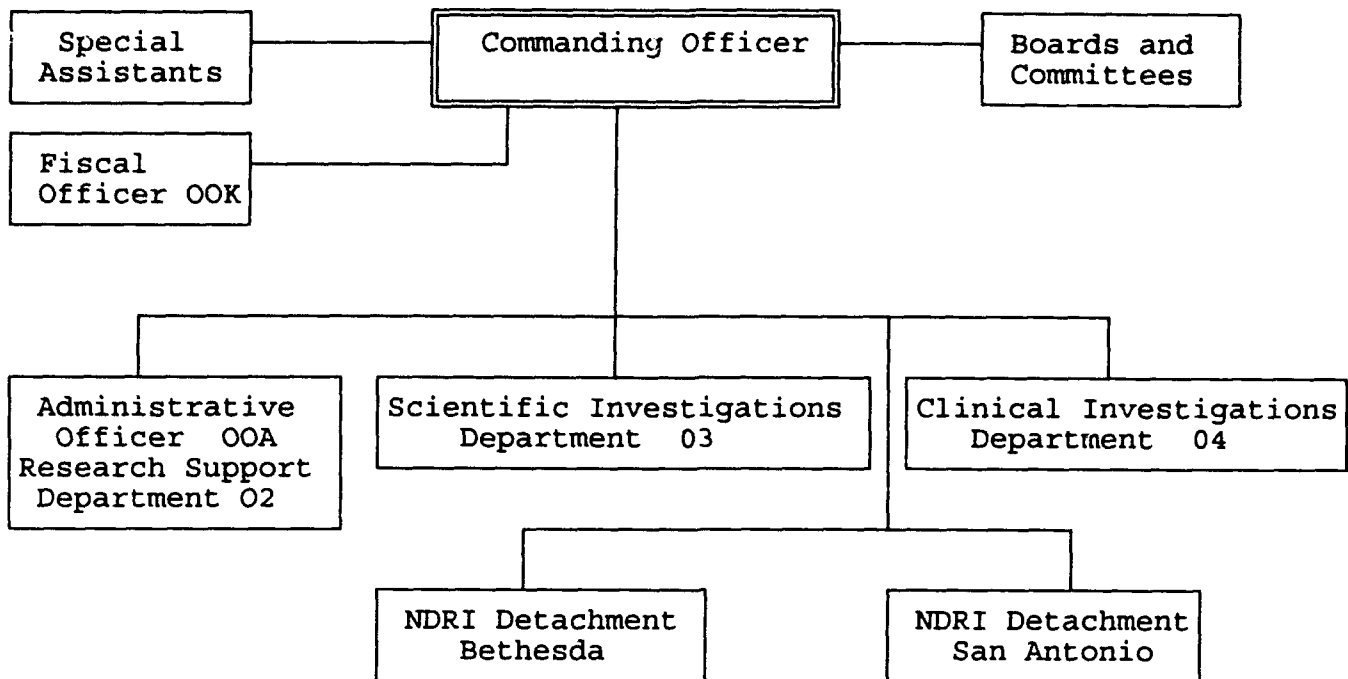
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NAVAL DENTAL RESEARCH INSTITUTE



## COMMAND OVERVIEW

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### COMMAND

The Naval Dental Research Institute was officially established on 01 January 1967 with an Officer-in-Charge. The Institute was developed from the Dental Research Facility, which was a division of the Dental Department, Naval Administrative Command, Naval Training Center, Great Lakes. The Institute became a fourth echelon command on 17 August 1969 under a Commanding Officer. The command is under the direction of the Naval Medical Research and Development Command.

### MISSION

The Institute is responsible for conducting research, development, testing and evaluation in dental and allied sciences, with particular emphasis on the problems of the fleet and field dentistry and on dental and oral health in Navy and Marine Corps populations.

### PERSONNEL

As of 30 September 1992, there are billets for eight commissioned officers and fourteen enlisted members. Additionally, ten civilians were employed at the Naval Dental Research Institute.

### ORGANIZATION

The Institute has undergone reorganization since 1967. The current organization of three major Departments is reflected on the preceding page. The Scientific Investigations Department consists of the Microbiology, Immunology and Molecular Biology Divisions. Respectively, they carry out required microbiological, immunological and bacteriological analyses; biochemical studies of etiological agents and of host factors involved in oral diseases; assistance, advice and preparation of specimens for histological analysis; and research in the field of laboratory animal medicine and dentistry. The Clinical Investigations Department conducts research related to prevention and treatment of infections, problems of dento-alveolar trauma and injury, and the delivery of optimal dental care for the naval population. The Research Support Department consists of Administrative, Veterinary Sciences, and Material Management Divisions. The Research Support Department provides the Institute with administrative, library, veterinary research, fiscal and supply services, and equipment and facility maintenance.

## STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS

### NAVAL DENTAL RESEARCH INSTITUTE

Objectives: Dental treatment needs and emergencies continue to afflict Navy and Marine Corps personnel and impact on operations. For over 20 years, annual lost-man days have remained essentially unchanged. The Clinical Investigations Department is currently evaluating oral health and treatment needs as well as new methods and materials which show potential to promote dental wellness and reduce the incidence and impact of dental emergencies. During FY92, the Scientific Investigations Department of NDRI has continued studies aimed at improving military readiness by identifying military patients that are at high risk of a dental emergency by the use of human host response factors, rapid immunodiagnostic assays with monoclonal antibodies, DNA probes, and microbial enzyme diagnostic indicators.

Approach: The problem of dental emergencies is currently addressed through the following three areas of study: (1) epidemiologic assessment of dental treatment needs, oral diseases and their complications (2) evaluation of current and alternate methods to assist in the diagnosis and documentation of orofacial disease entities and (3) evaluation of methodologies to promote dental wellness and improve dental readiness. Naval personnel provide oral health data through questionnaires, direct examinations and specimens.

### CLINICAL INVESTIGATIONS DEPARTMENT

- To evaluate third molar morbidity and mortality final examination data were collected from the dental charts of mid-shipmen, class of 1992. 590 dental charts were reviewed and 499 panoramic radiographs were duplicated. Analysis of the data from the class of 1992 is now in progress.

- Abstract presented at American Association for Dental Research 21st Annual Meeting, March 1992, "Tobacco Use and Periodontitis Among Naval Personnel." J.A. Weintraub, S. Stinnett, M. Chambless, L. Forgas, J.S. Arthur.

- A presentation of dental treatment needs data of Marine Corps reserve personnel entitled DENTAL RESEARCH AND OPERATIONAL FORCES was presented at the FY'92 CONFERENCE OF SENIOR DENTAL OFFICERS AT MAJOR MARINE CORPS COMMANDS held at NAB, Coronado, CA, 15 October 1991.

- An abstract entitled "The Non-periodontal Treatment Needs of Activated Marine Corps Selected Reserves" was presented at the 21st Annual Meeting and Exhibition of the American Association of Dental Research held in Boston, MA on 13 Mar 1992.

## STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

### CLINICAL INVESTIGATIONS DEPARTMENT

- A computerized digital subtractive radiography system has been designed to evaluate the clinical correlates of periodontal disease. Pilot studies are currently underway to apply CADIA to the early detection of periodontal bone loss. A relatively new system replaces the conventional silver-halide film with direct digital input to the computer. The use of a direct sensor input intraoral radiography system decreases patient radiation dose up to 95%.

- Data collection was completed on the relationship of AFQT scores and the dental treatment needs of incoming recruits. No significant correlation was found between AFQT scores and treatment needs, or between early exposure to fluoridated drinking water and treatment needs.

- Three hundred seventy four female recruits have been surveyed at the Naval Dental Center, Orlando, FL. No significant correlation was found between AFQT scores and treatment needs, or between early exposure to fluoridated drinking water and treatment needs. An abstract was presented at the 1992 AADR Annual Meeting and Exhibition, July 1-4, Glasgow, Scotland.

- Follow-up phase of sealant application study on 555 male recruits was begun. Postcards reporting status of sealed and control teeth are recorded onto EPIINFO program as they are returned from the field. This will continue for the three year follow-up duration of the project.

- Dental officers at Naval Dental Clinic, Orlando, FL collected and returned data from 78 examinations performed using the voice activated software. A list of modifications necessary to enable NDRI investigators to collect epidemiologic data using the Navy Standard Form 603 has been completed. The system has worked well within the environments of recruit dental inprocessing facilities at Great Lakes, IL and Orlando, FL.

- Parotid saliva C-reactive and total protein levels appeared to parallel humoral catecholamine response to physiologic stressor induced by environmental auditory stimulus. Cyclic AMP regulatory subunit electrophoretic patterns were found to be highly individual-specific. Abstract accepted for poster presentation at the International Association for Dental Research General Session, July 92: "Cyclic AMP-Receptor Protein Activity in Human Parotid Saliva" and "Cyclic AMP-Receptor Proteins (CARP) in Human Saliva", Mednieks M.I.

## STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

### CLINICAL INVESTIGATIONS DEPARTMENT

- An abstract entitled "Configural Frequency Analysis for Testing Oral Bacterial Sets" by M. E. Cohen was presented at the 70th General Session and Exhibition of the International Association of Dental Research held in Glasgow, Scotland, Jul 1992.

- A paper entitled "Specific Statistical Considerations Relevant to the Design and Analysis of Gingivitis Trials" by M. E. Cohen was published in the Journal of Periodontal Research.

- A study on the effects of vitamin E supplementation on alveolar bone loss was completed and suggested that vitamin E can reduce bone loss in the rice rat.

- Continued data analysis showed a significant difference ( $p < .002$ ) in subsequent root-canal (RCT) or extraction (EXT) when pulp capping was performed. When all caries could be removed (ACR) prior to restoration, 6 of 347 teeth (1.7%) subsequently required RCT or EXT. When all caries could not be removed and pulp-capping, either indirect (IPC) or direct (DPC) was performed prior to restoration, 9 of 140 (6.4%) subsequently required RCT or EXT. Abstract accepted for presentation at International Association for Dental Research General Session, July 92: "Retentive Pins as Risk Indicators for Root Canal Treatment or Extraction".

- In 27 discharge dental records, the mean number of years which teeth with supportive-pin restorations had thus far been in function was 5. Two had functioned more than 10 years. These records only showed presence or absence of the treated teeth and did not address pulp vitality.

- To evaluate HIV periodontal patients a Memorandum of Understanding (MOU) for collaboration between Oakland Naval Hospital and NDRI has been signed. Patients have been scheduled for sample collection during FY93.

- NIDR and the Jackson Foundation are currently conducting a 5 year longitudinal study with HIV subjects. Plaque samples and salivary samples are potentially available to NDRI for microbiological and immunological analysis.

## STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

### SCIENTIFIC INVESTIGATIONS DEPARTMENT

--- NDRI investigators were authors or coauthors of four papers referenced in "Spirochetes in periodontal disease", an editorial appearing in Lancet 338:1177-1178, November 9, 1991.

--- ELISA for host response factors in gingival crevicular fluid (GCF), saliva and gingival tissue: The recovery of IL-1,  $\alpha$ -1-antitrypsin, etc. from Periopaper<sup>R</sup> Gingival Crevicular Fluid (GCF) collection strips was greatly enhanced by the use of nonionic detergents Tween-20 and Triton-X 100 during the elution process. Efforts continued towards the development of sensitive enzyme assays for IL-1 $\alpha$  and IL-1 $\beta$ , and other cytokines found in GCF by means of biotinylated monoclonal antibody reagents. Improvements were made in assays for myeloperoxidase, elastase, C-reactive protein, cathepsin G, and IL-6. Several assays previously developed for determining host factor levels in GCF were adapted for use with whole saliva. Studies of potential disease markers in saliva were performed in collaboration with three graduate dental students in the Periodontology program at Northwestern University Dental School. A fourth graduate student worked on the effect of host enzyme inhibitors on PMN elastase. These studies resulted in the submission of 5 abstracts for the 1993 IADR/AADR meeting.

--- Solubilization of Gingival Tissue for assay for host response factors: Samples of gingival tissue have been received from the Naval Dental Center at Great Lakes in collaboration with Dr. Ja'ake, and from the periodontology clinics at Northwestern in collaboration with Dr. Cha, a graduate student. Additional samples remain to be collected before the assay phase of the studies begins.

--- Modulation of in vitro immune responses by bacterial products of periodontopathogens. Details of the methods were worked out for testing of the effects of bacterial products of suspected periodontal pathogens on an in vitro immune response. Initial tests of strain of *T. denticola* were performed in which a stimulatory activity was found when killed organisms were placed in mouse splenocyte cultures exposed to sheep erythrocytes in vitro in order to detect a plaque forming cell response.

--- A pilot study was commenced to determine the ability of two putative oral pathogens from human subgingival plaque to colonize the periodontal tissue of gnotobiotic Sprague-Dawley rats (*Rattus*). Three experimental groups, each consisting of 3 males and 3 females, 7 to 8 weeks of age, were established in separate germ-free isolators. Group 1 was inoculated, by means of an oral swab, with a strain of *Porphyromonas* (*Bacteroides*) *gingivalis* on

## STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

### SCIENTIFIC INVESTIGATIONS DEPARTMENT

days 0, 2, and 4. Group 2 was similarly inoculated with a strain of *Treponema denticola* and group 3 received inoculations of both oral microbes. Eight weeks following inoculation, the animals were anaesthetized and subgingival plaque samples were taken to determine by both culture techniques and immunofluorescence if colonization by the implanted organisms had occurred. Despite repeated samplings and reinoculations, none of the organisms inoculated into the experimental animals were recovered by culture or detected by immunofluorescence.

--- Southern Biotechnology Associates, Inc. supplied monoclonal antibodies to *Prevotella intermedia* and *Capnocytophaga* for testing and evaluation.

--- It has recently been demonstrated that *P. gingivalis* is sensitive to dietary sucrose concentrations greater than 5%. The diets utilized by investigators in previously reported studies have contained high concentrations of sucrose. As a result, pilot studies are planned to investigate the effects of diet on the establishment of human periodontopathogens in germ-free and conventional rats.

--- The identification of active periodontal disease remains a problem. Recent studies indicate that computerized digital subtraction radiography is sensitive enough to identify ongoing alveolar bone loss. In conjunction with a biochemical indicator, prediction of sites with active periodontal disease may now be possible. The equipment to perform digital subtraction radiography has been ordered, and pilot studies are underway to apply this technology to Sprague-Dawley laboratory rats.

--- Recent data suggest that colonization of the rat oral cavity with *P. gingivalis* must be preceded by the establishment of significant supragingival plaque. Preconditioning the oral cavity by infecting the rat with *A. viscosus* has been suggested, however *A. viscosus* is known to cause both root caries and periodontal disease in the rat. Pilot studies are planned to identify a supragingival plaque forming bacterium such as *Streptococcus mutans* which does not cause periodontal pathology in the rat.

--- A serum-free medium for growing *T. denticola* is being developed. A comparison of three media is under way. The three media include 1186 with serum; Spirolate with serum; and Spirolate with Bovine Serum Albumin. If the serum-free medium is successful, it will not only represent an easy method for growing

## STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

### SCIENTIFIC INVESTIGATIONS DEPARTMENT

*T. denticola*, but will allow the study of outer membrane fatty acids not contaminated by serum fatty acids.

--- A collaborative study with Temple University demonstrated Kininogenase activity in *Treponema denticola*. Both arginine and lysine preferring amidolytic activity was shown for this oral spirochete. An abstract was submitted on this work indicating that kininogenase is associated with periodontal pathogenesis.

--- A study of other virulence factors of *Treponema denticola* revealed that there were effects of the growth media used upon "trypsin-like" enzyme production, and an abstract was submitted for the 1993 IADR/AADR meeting.

--- Seven genomic  $\lambda$  clones of *T. denticola* ATCC 33521 were characterized by western blot and DNA restriction mapping. Six of the seven clones are siblings with 11-20kb DNA inserts flanking a common ~1 kb fragment coding for a 35kd antigen recognized by Western Blot.  $\lambda$  clone 1 is being subcloned as two BamHI fragments, 3 and 8 kb respectively. The 3 kb fragment does not code for the antigen. Cloning of the 8kb fragment is in progress.

--- The Genomic library has been rescreened. Ninety-four positive  $\lambda$  clones have been selected for purification and characterization. Twenty have been plaque purified so far.

--- *Treponema denticola* plasmids, pTd-2 and pTd-3, newly discovered at NDRI, have been restriction mapped. Plasmid pTd-1 (reported in the literature), as well as pTd-2 and pTd-3 have been cloned into *E. coli* plasmid pUC19. Anomalies have been observed between the reported sequence and restriction map of pTd-1 and our restriction map.

--- All three *T. denticola* plasmids are homologous, closely related, based on Southern blots using each native plasmid as probe vs. all three plasmids, native or cloned. Our data demonstrates these plasmids have single stranded components (ssDNA replication) as suggested in the literature for pTd-1.

--- Monoclonal antibodies have been produced to *Treponema socranskii* and are now being evaluated for antigenic specificity.

## STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

### SCIENTIFIC INVESTIGATIONS DEPARTMENT

--- Cell-free culture filtrates of *Porphyromonas gingivalis* grown in Wilkins-Chalgren broth stimulated the growth of six strains of *Treponema denticola* in 1186 broth when compared with the effect of uninoculated WC. Growth was also stimulated by factors precipitated from the culture filtrate with 90%  $(\text{NH}_4)_2\text{SO}_4$ , 50% cold ethanol, or 50% cold acetone and by factors retained after dialysis of the culture filtrate through a membrane with a molecular weight cutoff of 50 Kda. The results of this study have been accepted for publication.

### NDRI DETACHMENT SAN ANTONIO, TEXAS

Research projects in clinical and military dentistry as well as the Navy representative are being conducted for evaluating dental material at the USAF Dental Investigation Service. These evaluations provide dental clinics of all federal services with technical and product information in support of their mission.

Laboratory research into the longevity of new high speed autoclavable handpieces is being conducted in the DIS Laboratory.

The study of longevity of sonic periodontal scalers is continuing at the Naval Dental Center, Pearl Harbor, Hawaii.

A project investigating the performance and clinical longevity of low speed dental handpieces is continuing at Branch Dental Clinic, Brunswick, Maine.

The development of a Portable Field Dental Unit is still ongoing.

### NDRI DETACHMENT BETHESDA, MARYLAND

A long term study to evaluate release kinetics of fluoride from various composite materials is continuing. To date, fluoride-release data over a 10 to 13 month period has been collected on the ten different materials that were initially entered into the study.

In collaboration with the National Institute of Standards and Technology (NIST), an ongoing project to investigate novel dentin bonding agents is continuing. Three studies were completed and presented at the 1992 International Association of Dental Research (IADR) meeting. These studies showed that increasing steric hindrance at the  $\alpha$ -methylene carbon of N-phenylglycine (NPG) decreased molar efficiency, that substitution of electron-donating groups to NPG reduced the bonding effectiveness of NPG and that torsion testing of dentin bonds

## STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

### NDRI DETACHMENT BETHESDA, MARYLAND

results in significantly higher bond strength measurements than either shear or tensile testing. Two new studies were initiated. One will examine the effect of electron withdrawing and electron donating moieties at the para position of NPG on bonding capacity and the other will examine the effects of aging on the bond strengths mediated by NPG.

A major research effort was begun to investigate host responses to periodontopathogens. A major goal of this project is to identify polyclonal B cell activators and T-cell superantigens from a variety of microorganisms that are known to be related to periodontitis. To meet this and other goals, the microbiology laboratory was set up for culturing aerobic and anaerobic microorganisms. The tissue culture capabilities were expanded to allow for culturing of fibroblasts, peripheral blood mononuclear cells (PBMC) and other cell types. Examination of the proliferative response of PBMC to crude homogenates of select periodontopathogens was begun.

Four dental materials related projects were completed and presented at the 1992 IADR meeting: 1. "Compressive and diametral tensile strength of a  $\beta$ -quartz glass ceramic" demonstrated a positive correlation between heat treatment and compressive strength of the glass ceramic, but no correlation between heat treatment and diametral tensile strength; 2. "Shear bond strength of composite resin to 4-META treated DICOR" showed that within pairs of similar treatment groups, the bonds between DICOR and  $\text{NH}_4\text{F}_2$ /silane/resin were significantly stronger than those between DICOR and Etch-Free/C&B Metabond/resin; 3. "Microleakage of dental amalgam alloy bonding agent" showed that microleakage in 4-META preparations that were aged for 30 days in water at  $37^\circ\text{C}$  was significantly greater at both the enamel and dentin margins than in the analogous non-aged group and that non-aged 4-META preparations showed significantly less microleakage at enamel and dentin margins than copalite or unlined preparations.

The antimicrobial activity of the third generation dentin bonding systems Syntac, Universal Bond 3 and Gluma, and the glass ionomer liners Fuji LC and Ketac Bond was evaluated with an *in vitro* modified cylinder drop plate assay. This study demonstrated that Syntac, Universal Bond 3 and the Gluma primer were antibacterial, and that the Syntac primer, Universal Bond primer and Gluma cleanser were also antibacterial. This study was presented at the 1992 IADR Meeting.

STATEMENT OF SIGNIFICANT ACCOMPLISHMENTS (Continued)

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NDRI DETACHMENT BETHESDA, MARYLAND

Two studies investigating the fracture behavior of InCeram and PFM crowns and examining the dimensional accuracy of dentures prepared by different denture processing techniques were completed and presented at the 1992 IADR Meeting.

ADDENDUM TO  
SUMMARIES OF RESEARCH - FISCAL YEAR 1992

# WORK UNITS -----

61102A 3M161102.BS10.DA440-0 - Development and Evaluation of  
Methods to Prevent or Intercept Acute Dental Conditions

61153N MR04120.002 0051 - Host Responses to Periodontopathic  
Microorganisms in Navy and Marine Corps Personnel

62787A 3M1762775A825 - Development of an Animal Model to Study  
Periodontal Disease

63706N M0095 006 003 - Evaluation of New Methods to Prevent and  
Treat Dental Emergencies in Naval Personnel

## SCIENTIFIC JOURNAL PUBLICATIONS

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Simonson, L.G., Robinson, P., Pranger, R., and Morton, H. *Treponema denticola* and *Porphyromonas gingivalis* as prognostic markers following periodontal treatment. Journal of Periodontology 63:270-273, 1992.

Simonson, L.G., McMahon, K.T., Childers, D.W., and Morton, H.E. Bacterial synergy of *Treponema denticola* and *Porphyromonas gingivalis* in a multinational population. Oral Microbiology and Immunology 7:111-112, 1992.

Riviere, G.R., Elliot, K.S., Adams, D.F., Simonson, L.G., Forgas, L.B., Nilius, A.M., and Lukehart, S.A. Relative proportions of pathogen-related oral spirochetes (PROS) and *T. denticola* in supragingival and subgingival plaque from patients with periodontitis. Journal of Periodontology 63:131-136, 1992.

Barron, S.L., Riviere, G.R., Simonson, L.G., Lukehart, S.A., O'Neil, D.W., Tira, D.E., and Cobb, C.M. Use of monoclonal antibodies to enumerate spirochetes and identify treponemes in dental plaque of children, adolescents and young adults. Oral Microbiology and Immunology 6:97-101, 1991.

Turner, D. W., Pederson, E. D. and Lamberts, B. L. A sensitive method for the detection of immune complexes in human gingival crevicular fluid. Journal of Clinical Periodontal Research 19:601-603, 1992.

Underegg, C. R., Martin, S. J., Gary, J. L., et al., Clinical Evaluation of the use of Decalcified Freeze Dried Bone Allograft with Guided Tissue Regeneration in the Treatment of Molar Furcation Invasions. Journal of Periodontology 62:684-689, 1991.

Bex, R. T., Parker, M. W., Judkins, J. T., and Pelleu, G. B., Effect of Dentinal Bonded Resin Post-Core Preparations on Resistance to Vertical Root Fracture. Journal Prosthetic Dentistry 67:768-772, 1992.

Flanary, D. B., Twohey, S. M., Gray, J. L., Mellonig, J. T., and Gher, M. E., The Use of a Synthetic Skin Substitute as a Physical Barrier to Enhance Healing in Human Periodontal Furcation Defects: A follow-up report. Journal of Periodontology 62:684-689, 1991.

Kinderknecht, K. E., Wong, G. K., Billy, E. J., et al., The Effect of a Deprogrammer on the Position of the Terminal Transverse Horizontal Axis of the Mandible. Journal of Prosthetic Dentistry 68:123-131, 1992.

**SCIENTIFIC JOURNAL PUBLICATIONS**  
**(Continued)**

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McMaster, D. R., House, R. C., Anderson, M. H., and Pelleu, G. B., The Effect of Slot Preparation Length on the Transverse Strength of Slot-Retained Restorations. Journal of Prosthetic Dentistry 62:472-477, 1992.

Metzler, D. G., Seamons, B.C., Mellonig, J. T., et al., Clinical Evaluation of Guided Tissue Regeneration in the Treatment of Maxillary Class II Molar Furcation Invasions. Journal of Periodontology 62:353-360, 1991.

Palmer, D. S., Barco, M. T., and Billy, E. J., Temperature Extremes Produced Orally by Hot and Cold Liquids. Journal of Prosthetic Dentistry 67:325-327, 1992.

Sallustio, F. W., Waskewicz, G. A., and Billy, E. J., The Effect of Venting on the Strength of Dicor and Hi-Ceram Ceramic Crowns. International Journal of Prosthodontics 5:463-469, 1992.

Turck, M. D., Lang, B. R., Wilcox, D. E., and Meiers, J. C., Direct Measurement of Dimensional Accuracy with Three Denture-Processing Techniques. International Journal of Prosthodontics 5:367-372, 1992.

## RESEARCH PROGRESS REPORTS

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- NDRI-PR 92-01    Relative Proportions of Pathogen-Related Oral Spirochetes (PROS) and *Treponema denticola* in Dental Plaque of Children and Adolescents and Young Adults
- NDRI-PR 92-02    Bacterial Synergy of *Treponema denticola* and *Porphyromonas gingivalis* in a Multinational Population
- NDRI-PR 92-03    Performance and Durability of Autoclavable High-Speed Dental Handpieces
- NDRI-PR 92-04    *Treponema denticola* and *Porphyromonas gingivalis* as Prognostic Markers Following Periodontal Treatment
- NDRI-PR 92-05    Summaries of Research Fiscal Year 1991
- NDRI-PR 92-06    Discussion: Specific Statistical Considerations Relevant to the Design and Analysis of Gingivitis Trials

**FORMAL PRESENTATIONS MADE AT MEETINGS OF SCIENTIFIC  
SOCIETIES/GROUPS**

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**MARCH 1992**

The following presentations were given at the 21st Annual Session of the American Association for Dental Research held March 11 - 14 in Boston, Massachusetts.

Esquire, R. G., Covill, P. J., and Pederson, E. D.,  
Relationships Among CRP Levels of Parotid Saliva, Whole Saliva  
and Serum.

Schade, S., Yotis, W., Gopalsami, C., Keene, J. and  
Simonson, L. G., Mitogenic Activity in Outer Membrane from  
*Treponema denticola*.

Steele, M. G., Pederson, E. D. and Covill, P. J.,  
Interleukin-1 Detection in GCF Using a New Antibody Competition  
ELISA.

Gopalsami, C., Yotis, W., Corrigan, K., Schade, S., Keene,  
J. and Simonson, L. G., Effect of Outer Membrane of *Treponema*  
*denticola* on bone resorption.

Llodra, C. and Simecek, J., Relationships Among AFQT,  
Fluoridation Exposure, and Treatment Needs of Naval Recruits.

Yotis, W., Keene, J., and Simonson L. G., Quantitation of  
Saturated Fatty Acids of the Outer Membrane of *Treponema*  
*denticola*.

Weintraub, J. A., Stinnett, S., Chambless, M., Forgas, L.  
and Arthur, J. S., Tobacco Use and Periodontitis Among Naval  
Personnel.

Simecek, J. and Llodra, C., Non-Periodontal Treatment Needs  
of Activated Marine Corps Selected Reserves.

Prusinski, L., Hall, E. H., Bajsucak, R. and Arthur, J. S.,  
Glutaraldehyde Immersion Disinfection of Artificially  
Contaminated Polysulfide Impressions.

Mednieks, M., Zaki, A., Nilius, A. and Esquire, R. G.,  
Cyclic AMP-Receptor Proteins (cARP) in Human Saliva.

Pederson, E. D., Nilius, A. and Encabo, S. Effects of  $\alpha_1$ -  
Antitrypsin Pancreatic Trypsin and Bacterial Trypsin-like  
Enzymes.

Cohen, M. E., Testing for Periodontal Associations When  
Inconsistent Among Subjects.

**FORMAL PRESENTATIONS MADE AT MEETINGS OF SCIENTIFIC SOCIETIES/  
GROUPS (Continued)**

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MARCH 1992 (Continued)

Gher, M. E., Quintero, G., Sandifer, J. B., Tabacco, M. and Richardson, A. C., Combined Dental Implant and Guided Tissue Regeneration Therapy in Humans.

Kuehne, J., Weiner, D. and Morgan, L., Dentists' Evaluation of Autoclavable Sonic Periodontal Scalers.

JULY 1992

The following presentations were given at the 70th General Session of the International Association for Dental Research held July 1-4 in Glasgow, Scotland.

Cohen, M. E., Configural Frequency Analysis for Testing Oral Bacterial Sets.

Mednieks, M., Zaki, A., Cutler, L., Hand, A., Nilius, A. and Esquire, R., Cyclic AMP-Receptor Protein Activity in Human Parotid Saliva.

Nelson, L., Reedy, E. A., Simonson, L. G. and Zablen L. B., Plasmids in *Treponema denticola*: Survey, Isolation and Characterization.

Pederson, E. D., Covill, P. J. and Llodra, C. Y. A Sensitive ELISA-Based Assay for PMN Myeloperoxidase.

Steele, M. G., Covill, P. J. and Pederson, E. D., Alpha-1-Antitrypsin and Total Protein in GCF as Clinical Indicators for Adult Periodontitis.

Mills, S., Kuehne, J. and Bradley, D., Microbial Contamination of High-Speed Handpiece Turbines.

Anderson, D. M., Esquire, R. G., Clark, G. E. and Galich, J. W., Retentive Pins as Risk Indicators for Root Canal Treatment or Extraction.

Simonson, L., Cohen, M., Cook, G., Meyer, D., and Morton, H., Quantitative Associations of Microbial Antigens with Severity of Localized Juvenile Periodontitis.

Pederson, E. D., Covill, P. J., Bolden, J. A. and Steele, M. G., Gingival Crevicular Fluid Elution from Filter Paper Strips: Buffers and Methods.

**FORMAL PRESENTATIONS MADE AT MEETINGS OF SCIENTIFIC SOCIETIES/  
GROUPS (Continued)**

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JULY 1992 (Continued)

Simecek, J. and Rodden, J., Dental Emergency Visits of  
Garrisoned and Deployed Marine Corps Personnel.

Llodra, C., Simecek, J. and King, D., Relationships Among  
AFQT, Fluoridation Exposure, and Treatment Need of Naval  
Recruits.

## **PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS**

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### OCTOBER 1991

CECIL III, J. C., attended the Surgeon General's Conference in Washington, D. C.

HOGAN, W. M., attended Introduction to Lotus 1-2-3 computer training in Rolling Meadows, Illinois.

LEE, Y. S., attended Windows computer training in Rolling Meadows, Illinois.

The following personnel attended the American Academy of Periodontology 77th annual meeting Vancouver, B. C. Canada.

LLODRA, C. Y.                      SIMONSON, L. G.

The following personnel attended the FY92 Conference of Senior Dental Officers at Major Marine Corps Commands in San Diego, California.

MEYER, D. M.                      SIMECEK, J. W.

### NOVEMBER 1991

CECIL III, J. C., attended the Association of Military Surgeons of the United States Conference in San Antonio, Texas.

PORTIS, M. J., attended Advanced DOS computer training in Rolling Meadows, Illinois.

REEDY, E. A., attended a Recombinant DNA Methodology training course in Columbia, Maryland.

The following personnel attended a Genetic Analysis Revolution, Applied Biosystems Conference in Chicago, Illinois.

REEDY, E. A.                      ZABLEN, L. B.

The following personnel attended Harvard Graphics computer training in Rolling Meadows, Illinois.

BERGENER, C. G.                      MEYER, D. M.

### DECEMBER 1991

CECIL III J. C., attended the International Dental Congress in Cairo, Egypt.

**PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS**  
**(Continued)**

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DECEMBER 1991 (Continued)

ENCABO, S. D., attended Navy Leadership and Development Program training at Great Lakes, Illinois.

MEEKER, D. R., attended a Medical Logistics Seminar in Gaithersburg, Maryland.

SIMONSON, L. G., attended the Commanding Officer's meeting at Naval Medical Research and Development Command in Bethesda, Maryland.

The following personnel attended OSHA's Chemical Spill Cleanup conference in Milwaukee, Wisconsin.

COVILL, P. J.

PEDERSON, E. D.

JANUARY 1992

CECIL III, J. C., attended an NIDR Conference in Bethesda, Maryland.

LEE, Y. S., attended Wordperfect Macro and Merge Programming computer training in Geneva, Illinois.

FEBRUARY 1992

BRYANT, E., attended a Bloodborne Pathogens Workshop in Milwaukee, Wisconsin.

REEDY, E. A., attended a workshop on OSHA's New Bloodborne Diseases Law in Chicago, Illinois.

RODDY, W. C., attended the Academy of Operative Dentistry meeting in Chicago Illinois.

The following personnel attended the Chicago Dental Society Midwinter meeting in Chicago, Illinois.

CECIL III, J. C.

MEYER, D. M.

The following personnel attended Industrial Bar Coding training in Chicago, Illinois.

LEE, Y. S.

MEYER, D. M.

**PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS**  
**(Continued)**

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**MARCH 1992**

ESQUIRE, R. G., attended Harvard Graphics computer training at Great Lakes, Illinois.

MEYER, D. M., attended Lotus 1-2-3 computer training in Rolling Meadows, Illinois.

MEYER, D. M., attended Wordperfect computer training in Rolling Meadows, Illinois.

MORGAN, L. G., attended Introduction to Wordperfect computer training at Great Lakes, Illinois.

RODDY, W. M., attended Total Quality Leadership Facilitator training in Bethesda, Maryland.

RODDY, W. M., attended Harvard Graphics computer training at Great Lakes, Illinois.

SIMONSON, L. G., attended the American Society for Microbiology in New Orleans, Louisiana.

The following personnel attended the American Association for Dental Research in Boston, Massachusetts.

STEELE, M. G.  
SIMONSON, L. G.  
COHEN, M. E.  
SIMECEK, J. W.

ZABLEN, L. E.  
PEDERSON, E. D.  
LLODRA, C. Y.

**APRIL 1992**

CECIL III, J. C., attended NIDR Conference in Bethesda, Maryland.

MEYER, D. M., attended Interim Wordperfect 5.1 computer training in Rolling Meadows, Illinois.

RODDY, W. C., attended Wordperfect for Windows computer training in Rolling Meadows, Illinois.

The following personnel attended the 5th National Forum on AIDS, Hepatitis and Other Blood Borne Diseases in Atlanta, Georgia.

REEDY, E. A.

SIMECEK, J. W.

## **PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS**

**(Continued)**

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### **MAY 1992**

BERGENER, C. G., attended The Exceptional Assistant Seminar in Arlington Heights, Illinois.

CECIL III, J. C., attended the Illinois Public Health Association annual meeting in Chicago, Illinois.

CECIL III, J. C., attended a NIDR Council Meeting and JTCG-1 Meeting in Bethesda, Maryland.

COHEN, M. E., attended the semi-annual meeting of Task Force on Design and Analysis in New Brunswick, New Jersey.

HOGAN, W. M., attended Introduction to Windows computer training in Deerfield, Illinois.

MEYER, D. M., attended the American Association of Endodontists annual meeting in San Francisco, California.

MORGAN, L. G., attended Advanced Wordperfect computer training at Great Lakes, Illinois.

PORTIS, M. J., attended Introduction to Windows computer training in Deerfield, Illinois.

RODDY, W. C., attended Introduction to DOS computer training in Rolling Meadows, Illinois.

SPENCER, S. C., attended Smith College Molecular Biology Summer Workshop in Hampton, Maine.

The following personnel attended the Third Annual Dental Research Symposium at Northwestern Dental School in Chicago, Illinois.

ESQUIRE, R. G.  
SIMECEK, J. W.

LLODRA, C. Y.

The following personnel attended an NMRDC Strategic Planning Working Group in Washington, D.C.

BOZANT, B. I.  
REEDY, E. A.  
SIMECEK, J. W.

PEDERSON, E. D.  
MEEKER, D. M.

**PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS**  
(Continued)

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JUNE 1992

HOGAN, W. M., attended Interim Lotus 1-2-3 computer training in Rolling Meadows, Illinois.

RODDY, W. C., attended Advanced DOS computer training in Rolling Meadows, Illinois.

RODDY, W. C. attended a Vantage Expo 92 Imaging Technology Training Conference in Bedford, Maine.

JULY 1992

KING, D. A., attended Introduction to Lotus 1-2-3 computer training in Great Lakes, Illinois.

MORGAN, L. G., attended the Transition Assistance Program Training in Great Lakes, Illinois.

RODDY, W. C., attended Windows 3.1 computer training in Rolling Meadows, Illinois.

The following personnel attended the 70th General Session of the International Association for Dental Research in Glasgow, Scotland.

|                 |                 |
|-----------------|-----------------|
| Covill, P. J.   | Simonson, L. G. |
| Llodra, C. Y.   | Simecek, J. W.  |
| Pederson, E. D. | Steele, M. G.   |
| Reedy, E. A.    | Kuehne, J.      |

AUGUST 1992

COHEN, M. E., participated in Epidemiology Indices and Statistic Seminar at NNDC in Bethesda, Maryland.

ESQUIRE, R. G., attended Total Quality Leadership Upper Level Management Course in Long Beach, California.

LEAL, F. R., attended Intermediate Wordperfect computer training in Rolling Meadows, Illinois.

RODDY, W. C., attended Harvard Graphics computer training in Rolling Meadows, Illinois.

RODDY, W. C., attended Introduction to OPTIMUS - Bioscan computer training in Washington, D. C.

**PARTICIPATION IN PROFESSIONAL PROGRAMS AND OTHER MEETINGS**  
**(Continued)**

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**SEPTEMBER 1992**

CECIL III, J. C., attended the National Advisory Dental Research Council meeting in Bethesda, Maryland.

PEDERSON, E. D., attended NMRDC's Strategic Planning Working group in Bethesda, Maryland.

REEDY, E. A., participated in the Scientist at Sea Program aboard the USS O. H. Perry (FSG-7), New York.

SIMECEK, J. W., attended International Conference on Computers in Clinical Dentistry in Los Angeles, California.

## DISTINGUISHED VISITORS

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### NOVEMBER 1991

LDCR M. D. Gilberts, DC, USN, Naval Dental Center, Great Lakes, Illinois.

### JANUARY 1992

CAPT J. C. Caron, DC, USN, Bureau of Medicine and Surgery, Washington, D.C.

LCDR L. Netzer, USNR, Naval Health School of Education and Training Command, Bethesda, Maryland.

CDR K. Wright, DC, USN, Naval Medical Quality Institute, Washington, D. C.

### FEBRUARY 1992

CAPT R. L. Kjome, DC, USN, Chief of Naval Education and Training Command, Pensacola, Florida.

LT Y. V. Crentsil, MSC, USN, Naval Education and Training Command, Pensacola, Florida.

CAPT(RET) R. P. Whitlock, DC, USN of Brunswick, Maine.

LCDR J. C. Kuehne, DC, USN, Officer in Charge, Naval Dental Research Institute Detachment in San Antonio, Texas.

CDR C. L. Doherty, USN, Northern Division Naval Facilities Engineering Command, Philadelphia, Pennsylvania.

### MARCH 1992

Mr. Ronald Jean-Louis, Northern Division Naval Facilities Engineering Command, Philadelphia, Pennsylvania.

### MAY 1992

Dr. Monty Herron, Geo Centers, Inc., Fort Washington, Maryland.

### JULY 1992

CAPT M. T. Barco, DC, USN, Commanding Officer, Naval Dental Center, Great Lakes, Illinois.

CAPT M. W. Patterson, DC, USN, Executive Officer, Naval Dental Center, Great Lakes, Illinois.

DISTINGUISHED VISITORS (Continued)

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JULY 1992 (Continued)

CAPT (RET) R. P. Whitlock, DC, USN, Brunswick, Maine.

AUGUST 1992

Dr. M. Herron, Geo-Centers, Inc., Fort Washington, Maryland.

SEPTEMBER 1992

CAPT S. A. Ralls, DC, USN, Bureau of Medicine and Surgery  
(BUMED-532) Washington, D. C.

CTICM(NAC) D. R. Browning, Command Master Chief, Naval  
Training Center, Great Lakes, Illinois.

**HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS/  
DEPARTURES AND REENLISTMENTS**

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OCTOBER 1991

DT3 D. A. King received a Letter of Commendation from the Commanding Officer for his selection as Sailor of the Half-Year.

NOVEMBER 1991

LCDR J. W. Simecek was awarded a Navy Achievement Medal.

LCDR C. Y. Llodra was awarded a Navy Achievement Medal.

DT2 F. T. Smith was awarded a Navy Achievement Medal.

DN J. M. Thompson was awarded a Navy Achievement Medal.

DTC D. L. Jones promoted to her present rate.

The following personnel received a Letter of Commendation from Commander, Naval Training Center for their efforts as Assistants to the Chairman of the Great Lakes, 1991 Navy-Marine Corps Relief Society Fund Drive:

DT3 D. A. King

DT2 L. G. Morgan

DECEMBER 1991

The Southwest Asia Service Medal was presented to:

SKCM B. I. BOZANT

HM1 L. Nelson

DT3 D. A. King

JANUARY 1992

Dr. M. E. Cohen received a Letter of Commendation from the Commanding Officer for Civilian of the Half Year.

DT1 W. M. Hogan received a Letter of Commendation from the Commanding Officer for Sailor of the Half Year.

DT2 R. G. Kivley reported aboard from the Naval School of Dental Assisting and Technology, Administrative "C" School, San Diego, California.

Dr. A. M. Nilius resigned her position in the Microbiology Division.

**HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS/  
DEPARTURES AND REENLISTMENTS (Continued)**

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**MARCH 1992**

DT2 F. Smith received a Letter of Commendation from the Commanding Officer upon his transfer to the USS Belleau Wood.

**APRIL 1992**

LCDR C. Y. Llodra received a Letter of Appreciation from the Commanding Officer, Naval Dental Center, Great Lakes, Illinois.

SKCM B. I. Bozant received the Kuwait Liberation Medal by the Government of Saudi Arabia.

HM1 L. Nelson received a Letter of Commendation from the Commanding Officer upon his retirement from the U. S. Navy.

**MAY 1992**

HM2 S. D. Encabo received a Letter of Commendation from the Commanding Officer upon his transfer to U. S. Naval Hospital Yokosuka, Japan.



Captain J. C. Cecil III, DC, USN, reenlisting  
DT3 D. A. King in the U. S. Navy.

**HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS/  
DEPARTURES AND REENLISTMENTS (Continued)**

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Captain J. C. Cecil III, DC, USN promoting  
Captain D. M. Meyer to his present rank

JUNE 1992

HM2 B. J. Sarauer reported aboard from the USS Abraham Lincoln (CVN 65).

DT3 L. A. Puckett reported aboard from BDC, London, England.

JULY 1992

DT3 Dale A. King reenlisted in the United States Navy for two years.

DT3 Lance A. Puckett received a Navy Achievement Medal from the Commanding Officer, Branch Dental Clinic, London, England.

HM2 B. J. Sarauer received a Navy Achievement Medal from Commanding Officer, USS Abraham Lincoln (CVN 65).

**HONORS, AWARDS, POSITIONS HELD, CEREMONIES, STAFF ARRIVALS/  
DEPARTURES AND REENLISTMENTS (Continued)**

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AUGUST 1992

DT1 E. J. Schmitt received an Air Force Commendation Medal and the Navy Achievement Medal upon his retirement from the U. S. Navy.

The following personnel received Performance Awards for Outstanding Performance:

Bergener, C. G.

Cohen, M. E.

Lee, Y. S.

Pederson, E. D.

Portis, M. J.

Simonson, L. G.

Stewart, S. P.

SEPTEMBER 1992

CAPT D. M. Meyer promoted to his present rank.

LCDR J. C. Kuehne and DT1 E. J. Schmitt received the Air Force Organizational Excellence Award for services in 1992.

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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br><br>Brief summaries of research carried out from 1 October 1991 to 20 September 1992, including presentations, publications and distinguished visitors. |                       |                                                                |

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