CONTENTS

PERSONNEL

Director:

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Full-time Staff:

Osamu Fujimura (D. S.) Professor of Speech Science
Masayuki Sawashima (M. D.) Associate Professor
Hajime Hirose (M. D.) Research Associate
Shigeru Kiritani (B. S.) Research Assistant

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Miss Fumiko Mitsuya (B. A.) Secretary

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Zyun'ichi Simada (M. D.), Division of Medical Science
Hisao Kameda (M. S.), Division of Science

Special Students:

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Sumiko Sasanuma (Ph. D.) (April 1969 -)

Guest Researchers:

Jan K. -G. C. Lindqvist (~~Ph. D.~~ Civ. Ing.) Research fellow of Nathorst Foundation for Science Research, Research Staff Member at the Royal Institute of Technology, Sweden (Sept. - Oct. 1968)

Shigeyuki Kuroda (Ph. D.) Research fellow of the American Council of Learned Societies, Assistant Professor at the University of California (Oct. - Dec. 1968)

John J. Ohala (Ph. D.) NSF postdoctoral fellow (May 1969 - March 1970)

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Shinobu Iwamura (M. D.), Tatsujiro Ushijima (M. D.)
Hiroko Yonekawa (M. D.)

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INTRODUCTION

A year has elapsed since we published the second issue of the Annual Bulletin. The period to be covered by the present issue has been particularly difficult for us because of the abnormal campus situation. Our Medical Building 3, as well as many other buildings on the campus, was under the control of student activists for a period of three and a half months, during which our laboratories were forced to be closed. On recovery, fortunately, we found all experimental facilities intact, and we could resume our research activity within a few months with even more than normal vigor. With some delay, our projects are progressing according to schedule.

Assuming the directorship which Professor Kirikae left with me on his retirement, I shall now continue his efforts towards completion of our organization. It is obviously necessary to add new sections, particularly one devoted to physiological research, in view of the range of our research efforts and the fruitful work that is emerging from the laboratory.

We are happy to present in this issue, in spite of all these difficulties and restrictions, further results of the previously reported research projects, as well as on some new projects. The project on dynamic radiography has progressed to the point that the usefulness of the on-line computer is obvious. We have made substantial improvements in certain details of the x-ray microbeam generator system, and the present condition of the apparatus is even somewhat better than what we had expected in its accuracy in locating a small lead pellet. We feel now that the method of on-line computer control of an x-ray microbeam has been experimentally attested by the preliminary studies we have conducted so far. Various special tracking techniques are being developed in the form of computer programs, and we have some preliminary results for simpler objects in the report in this issue. We are now proceeding to dealing with biological objects, hopefully including, very shortly, some parts of the human articulatory organism. It is concluded, however, that we need a specially designed microbeam generator with a shorter wavelength for use in practical measurements of general articulatory movements. A new x-ray generator-detector system is being designed for

the extension of the present project to work on articulatory data collection and model construction.

Dr. Masayuki Sawashima is now on a year's leave from the university, being engaged in physiological studies of speech production at the Haskins Laboratories in New York. International cooperation is not unidirectional, however. We enjoyed working with Dr. Shige-yuki Kuroda, who was on leave from the Department of Linguistics of the University of California, San Diego. Although his stay for five months happened to be during the most difficult time for the laboratory, we enjoy carrying in this issue quite a noteworthy paper of his on some crucial points of linguistic theory. An understanding of this aspect of language must be of particular import for studies of speech and language behavior, whether normal or pathological, and even within our narrow sphere of research efforts, this topic appears as a quite relevant and interesting one.

After the VIth International Congress on Acoustics in Tokyo and the Speech Symposium in Kyoto, both held last summer, many distinguished speech experts from all over the world honored us by personal visits at our laboratory. Among those specialists, Dr. Cecil H. Coker of Bell Telephone Laboratories and Mr. Jan K.-G. C. Lindqvist of the Royal Institute of Technology, Stockholm, stayed with us for one to two months periods collaborating in particular on studies involving fiberoptic laryngoscopy and dynamic palatography. Since May this year, we have had Dr. John. J. Ohala as a guest researcher at our institute, supported by a National Science Foundation post-doctoral research fellowship for a ten-month tenure. We also had the cooperation of Miss Suzanne L. Hanauer, on leave from Bell Telephone Laboratories for about five months who worked on a computerized language teaching experiment supported by a Tec scholarship. My paper in this issue, prepared for the forthcoming International Congress of Applied Linguistics in Cambridge, England, includes reports on some points of design of her program and related experimental results.

As in the previous years, we have close cooperation with other research groups in the Tokyo area. Inside the university at the University Hospital, the speech group at the Otorhinolaryngology Department share some cooperative projects in speech, as indicated in the publications. We

enjoy receiving advice from Professor Tadashi Miyakawa and Dr. Eiichi Takenaka at the Department of Radiology on the x-ray experiment. We are also obliged to Professor Hidetosi Takahasi of the Physics Department, Faculty of Science, for his constant advice and suggestions in this project. Outside the campus, University of Electro-Communications has a speech research group which is essentially integrated with this institute. Dr. Haruhisa Ishida, in particular, is one of the key members in our x-ray project, and also in many other computer projects in the laboratory. Mr. Ryôhei Kagaya, now research assistant at the Institute for the Study of Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies, works on the problem of Chinese characters in cooperation with us.

These research activities are supported financially by the national government of Japan and in part by some outside sources. In particular, the project of Dynamic Cineradiography has been to a large extent supported by PHS Research Grant No. 07233-01 and 07233-02 from the National Institute of Neurological Diseases and Blindness, U. S. A. Cooperation was maintained with the Japan Broadcasting Corp. (Radio and Television Culture Research Institute). Some financial support has been contributed in the form of gifts from Nippon Electric Co. and Tec Corp.

Osamu Fujimura

Director
Professor in charge of
the Speech Science Section