Scientific Coordination in the South Pacific

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THE WELFARE of the island peoples in the South Pacific has become the objective of a six-nation coordinated undertaking known as the South Pacific Commission. Recognizing the mutual nature of many of the problems in the areas they administer, Australia, France, the Netherlands, New Zealand, the United Kingdom, and the United States have joined in organizing this commission to ". . . encourage and strengthen international cooperation in promoting the economic and social welfare and advancement of the peoples of the non-self-governing territories of the South Pacific region. . . ."

A Research Council has been established as an integral part of the commission. Four specialists have been engaged to devote full time to the undertaking: *L. G. M. Baas Becking,* a distinguished Dutch scientist, is research director; *E. Massal,* a French medical expert, is head of the health section; *H. G. MacMillan,* an economics specialist from the United States, is head of economic development; and *H. E. Maude,* anthropologist and former British colonial administrator, is head of social development. Other specialists will be retained to implement specific projects as the need arises.

Projects to further the aims of the commission are proposed after research by the council experts. They not only investigate personally the needs of the area but also call on administrators and others cognizant of the needs in the various territories to make recommendations. One such extracouncil source of suggestions was the Seventh Pacific Science Congress held in New Zealand early in 1949. Council members are also guided by recommendations outlined by the commissioners representing member governments. Proposals made for projects are submitted for final approval to the commissioners, who assemble for sessions twice a year. Projects which receive concurrence of the commissioners are referred back to the Research Council and the secretariat for implementation. The four full-time members of the council are further assisted by a body of associate members; the full council meets annually to consider problems and needs of the South Pacific and to pass on projects to be submitted to the commissioners. The Council at present includes *Sir Peter Buck,* director of the Bishop Museum, Honolulu, honorary consultant; and five members each of three sections: Health—*J. M. Cruickshank,* inspector-general, South Pacific Health Service, Suva; *J. A. C. Gray,* medical officer, U.S.N., American Samoa; *J. C. Lopdell,* chief medical officer, Western Samoa; *J. T. Gunther,* director of public health, Papua-New Guinea; and *M. E. J. M. Heckenroth*; Economic Development— *F. Bugnicourt,* director, Institut francais d'Oceanie, Noumea; *J. G. Crawford,* director, Bureau of Agricultural Economics, Canberra; *D. R. Eden,* general manager, New Zealand Reparation Estates, Western Samoa; *B. E. V. Parham,* senior agricultural officer, Fiji; and *K. A. Ryerson,* University of California; Social Development— *E. de Bruyn; Maurice Grangié,* director of education, New Caledonia; *F. J. Grattan,* secretary of Samoan affairs, Western Samoa; *W. C. Groves,* director of education, Papua-New Guinea; and *Howard Hayden,* director of education, Fiji.

Present associate members have been appointed for the calendar year 1950. The annual meeting of the Research Council for 1950 is tentatively set for August.

At the May 1949 session of the commissioners 28 research projects submitted by the Research Council following its annual meeting in April were approved for action. Some of the projects are of an immediate nature; others will be developed on a long-time basis. The projects in brief are as follows:

Health

H.1. Project for improving, extending, and speeding up the collection and dissemination of epidemiological intelligence in using temporarily the facilities of the South Pacific Health Service in Suva. The adoption of the project was made subject to the concurrence of the inspector-general of the South Pacific Health Service. Project for standardization of the quarantine regulations.

H.2. Research in the preparation of suitable infant food during the weaning period; food to be prepared safely in a village community from the usual staples and accessories.

H.3. Appointment of a special team to compare (1) the different antigens and methods used in tuberculin tests and (2) the radiographic appearances in different races at different ages, with a view to producing simple techniques suitable for use under field conditions.

H.4. Establishment of liaison between the various

field groups actually working on filariasis and elephantiasis problems and research to determine further the specific investigations needed on these diseases.

H.5. Collection of the existing data on diet and nutrition of communities and individuals.

Economic Development

E.1. The introduction of economic plants from without the area or transfer from within for study and improvement in special gardens and arboretums looking to improvement, saving, and availability of such plants for distribution.

E.2. Review and summary of the information on cash crops to make available the accomplishments in production, cultural, and processing techniques, and their place in area economy, with an estimate for the future of cacao, rice, and the coconut and its principal product, copra.

E.3. Improvement in tropical pasture grasses leading to improved animal nutrition and associated mixed farming to the end of broadening and raising standards in human diet and nutrition.

E.4. Preliminary to a general land-use project in connection with conservation of resources, a pilot land-use survey is to be undertaken to point the way in the establishment of hydrological and forestry reserves, erosion control, identity of crop and pasture lands, and possible soil classifications.

E.5. An attempt by cooperative agreement to secure area standards in the grading and quality of plant products to the end of improvement in quality and a protection of grower, shipper, carrier, and buyer in transactions involving perishable or semiperishable plant products. Adoption made on understanding that it referred to all agricultural products.

E.6. A study of atoll and low island economy, designed to improve cash and subsistence crops and handicrafts to widen commercial opportunity and provide greater security for island peoples.

E.7. A study of fishery methods in their many indigenous and commercial aspects. The Indo-Pacific Fisheries Council will be asked for guidance in the several divisions of fishery improvement.

E.8. An examination of the diet of indigenous peoples with the objective of amplifying it; and the study of the kinds of working tools needed for mechanical skills, both with the aim toward better subsistence economies.

E.9. The expansion of biological controls by cooperative and other means, to effect the control of the mosquito, of insect pests that attack economic plants, and of weeds, and to develop plant hygiene and extend rodent control.

E.10. A proposal to discover ways of making available commercial credit for the development of agricultural, industrial, and commercial enterprises, in the hands of indigenous peoples.

E.11. Cooperative acceptance of the proposed Food and Agriculture Organization plan to carry out an agricultural census in 1950.

E.12. Solicitation of favorable consideration by authorities of the Colonial Development Fund for certain new research projects to be carried out by the Fiji and Western Pacific Research Council.

E.13. Request directed to member governments for a statement of the principal research investigation now in progress or contemplated by their recognized institutions, particularly in the field of animal husbandry, and all technical aspects of land use having implication to the area of the South Pacific Commission.

Social Development

S.1. A survey of the facilities for professional and technical training in the South Pacific, with a view to future development.

S.2. The use of visual aids in education among island peoples.

S.3. A study of the most suitable techniques for teaching reading and writing in the area.

S.4. The convening of a Conference of Educationists, to study educational needs and problems in the various territories.

S.5. A review of research in social anthropology, with emphasis on what still needs to be done.

S.6. A survey of work done and still required in the field of linguistic research.

S.7. The cooperative movement in the South Pacific and its development.

S.8. Determination of the most suitable building types for the various climatic zones and conditions in the area.

S.9. Pilot projects for community development in two selected areas.

S.10. The preservation of archaeological sites.

In addition to the foregoing projects, the commission decided that expert statistical assistance was needed and authorized the appointment of a qualified statistical officer.

Steps were undertaken during 1949 to implement the various projects, progress in some cases being delayed by lack of qualified personnel and in others by the need for further study and research. Three projects in social development and one in health were put into operation, however, during 1949.

The project for dissemination of epidemiological information (H.1) was started in November 1949 through cooperation with the South Pacific Health Service. This coordination of effort is in keeping with the definite policy of the commission to work through existing services and organizations wherever possible in order to avoid duplication of effort.

In social development the project in anthropology (S.5) has been undertaken by A. P. Elkin, of the University of Sydney and the Australian Research Council. Project S.6, involving linguistic research, is being carried out by A. Capell, of the University of Sydney, a world authority on oceanic languages. The project on visual aids (S.2) is being done by A. L. Moore, consultant on visual aids for the Office of Education, on loan from the Commonwealth of Australia.

Project S.1, which has to do with investigating the facilities for professional and technical training in the South Pacific, was begun in January 1950, R. W. Derrick, supervisor of technical services in Fiji, having been obtained to undertake the survey. Howard Hayden, director of education in Fiji, who is also an associate member of the South Pacific Commission Research Council, will undertake the mass literacy project (S.3).

Territory	*Number of Delegates*	*Number of Alternates and Advisers*
American Samoa	2	2
British Solomon Islands Protectorate	2	2
Cook Islands (including Niue)	2	2
Ellice Islands	2	2
Fiji	2	2
French Oceanic Establishments	2	2
Gilbert Islands	2	2
Nauru	1	2
Netherlands New Guinea	2	2
New Caledonia and Dependencies	2	2
New Guinea (Australian Trust Territory)	2	4
New Hebrides	2	2
Papua	2	4
Tokelau Islands	1	...
Western Samoa	2	2
Kingdom of Tonga	2	2
Totals	30	34

At the head of the South Pacific Commission is a body of commissioners, two designated by each member government. Each member government has one vote under terms of the agreement, the senior commissioner casting the ballot. Sessions of the commission are held usually in May and October. The May 1950 session is scheduled to be held in Suva, Fiji, immediately following the first South Pacific Conference.

The South Pacific Conference was designed to bring the peoples of the area directly in contact with the commission. Delegates are chosen from among the island peoples of the non-self-governing territories of the region. For the first conference, to be convened at Nasinu, near Suva, Fiji, in April 1950, the total number of delegates and advisers to be sent by each administration has been limited. Selection of delegates from each territory will be made by the administration concerned.

Although the independent Kingdom of Tonga is outside the scope of the commission, invitation has been extended to the government of the kingdom to participate in such commission activities as may be mutually beneficial. By virtue of this policy, Tonga has been invited to join in the South Pacific Conference. Territories and allotted delegates and advisers for the first conference are shown.

Delegations will prepare introductory papers on area problems for presentation at the conference. Exhibitions of portable items, such as handicrafts, fishing gear, photographs, and the like, will be arranged for display during the conference by the delegations. Background papers have been allotted for preparation by delegates from various administrations as follows: under public health—"Mosquito Control," Australia; "The Healthy Village," United States; under social development—"The Village School," New Zealand; "Vocational Training," the Netherlands; "Cooperative Societies," United Kingdom; under economic development—"Fisheries Methods," France; "Improvement and Diversification of Food Crops," Australia.

Eight observers from outside groups have been authorized to attend the conference. Priorities will be given in this order: Missions (4), Pacific Science Board, Institut francais d'Oceanie, United Nations, Australian National Research Council, World Health Organization, Food and Agriculture Organization.

Since the conference is a body auxiliary to the commission with advisory powers, it is anticipated that out of the discussion and interchange with the delegates will come suggestions of value in planning future projects in the area. Under the provisions of the agreement signed at Canberra, Australia, February 6, 1947, establishing the South Pacific Commission, the South Pacific Conference will be held every three years.

The area served by the conference includes those territories east of and including Netherlands New Guinea and south of the equator, and in addition the Gilbert Islands. New Zealand and Australia are not included in the scope of the commission and Easter Island is also excluded. Between two and three million non-self-governing islanders are concerned, the

most of them being on the vast island of New Guinea, which comprises 330,000 of the 371,000 square miles of land in the conference area.

Financial support for the commission comes from the member governments, contributions being fixed by the agreement which created the commission. Contributions to the annual budget are made as follows: Australia, 30 percent; France, 12½ percent; the Netherlands, 15 percent; New Zealand, 15 percent; the United Kingdom, 15 percent; the United States, 12½ percent. The budget for 1950 is slightly in excess of 144,000 pounds sterling.

Technical assistance to the various territories in its area is of vital concern to the commission. Although the organization is entirely separate from the United Nations, liaison is maintained with the UN and such of its affiliated and subsidiary bodies as will have common concern in the South Pacific. This is particularly true in regard to the World Health Organization, the Food and Agriculture Organization, and the Indo-Pacific Fisheries Council. The S.P.C. is patterned after its successful prototype in the Western Hemisphere, the Caribbean Commission, several of the same member governments being concerned.

Now that the South Pacific Commission has gone through its organizational period and has established a concrete program of activity, it can be expected that there will be an accelerated attack on the problems of the peoples of the South Pacific. Within the present year results should be increasingly evident, although many of the problems of the area are of such a nature that solving them will require cumulative effort over a period of years rather than months. The significant fact is that six nations are working cooperatively to meet the common needs of the island peoples in the territories of the South Pacific in which they hold political responsibilities.

Technical Papers

The Recovery of Auditory Nerve Action Potentials after Masking

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The action potentials of the auditory nerve as recorded from the round window of the cochlea in the anesthetized cat or guinea pig are subject to masking by other sounds. This is most easily demonstrated in the response to clicks of low intensity, where the action potentials are well developed and sufficiently separated in time from the aural microphonic for the two components to be readily distinguished. In the presence of a tone or noise of suitable intensity the neural component is immediately reduced in amplitude, whereas the microphonic remains unaffected.

Masking has been explained by Stevens and Davis (*6*) as a necessary consequence of the properties of the auditory nerve: the masking sound excites the nerve fibers and keeps them refractory, so that they are unable to respond synchronously to the clicks. The authors qualify this explanation, however, by stating that such a "line-busy" effect is not necessarily the only mechanism involved in masking.

We have recently observed that when a brief noise or tone is sounded during stimulation of the ear by a train of clicks, the action potentials of the click response, which must represent the sum of the activity in many fibers, recover their full amplitude only after 0.1 sec or more, a period far in excess of the maximum possible duration of the refractory period of the nerve fibers. Here, then, is a phenomenon which must represent a continuation of the masking process, but which cannot be explained on the basis of the refractory state alone. In

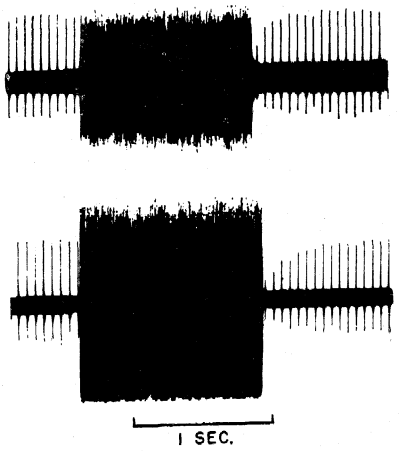

FIG. 1. Photokymograph records of recovery of action potentials of click response from round window after masking by thermal noise for 1.3 sec. Above, noise at 50 db relative to 0.0002 dyne/cm²; below, noise at 70 db. Clicks about 30 db above threshold for action potential. Cat, pentobarbital anesthesia.

Fig. 1 the action potentials return to full size approximately 0.3 sec after a thermal noise[1] of 50 db (as measured at the cat's ear by the General Radio sound level meter) has been turned off, and approximately 1 sec after a noise of 70 db. The rate of recovery after masking at 50 db is independent of the duration of the noise and is unaffected by repetition. When the intensity of the masking sound is increased recovery becomes slower,

[1] That is, noise of wide frequency spectrum, often called "white" noise.