

SUGGESTIONS FOR A RESEARCH PROGRAM FOR THE UNIVERSITIES AND COLLEGES OF THE PACIFIC NORTHWEST

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The war is having certain strong impacts on the economy of the people of the Pacific Northwest—impacts which undoubtedly will increase rather than decrease in number and strength as the war goes on. They will raise problems of reconstruction, readjustment, and development which must be faced in the post-war period. Under these conditions it is desirable that as much current and prospective research as is practicable should be directed toward the understanding and solution of these problems.

In an unpublished study of the National Resources Planning Board, the field of desirable research has been outlined under the following heads:

1. Plans for demobilization
2. Plans with private enterprise
3. Plans for public activity
4. Plans for economic security
5. Population and manpower
6. Plans for financing and fiscal policy
7. Plans for regional, state, and local participation
8. Plans for government
9. Plans for international collaboration

Many problems in post-war planning are so large that they can only be undertaken by the government—national or state, or both. Many of them will require the cooperative effort of several agencies, public and/or private, comparable with what is being done in the Columbia Basin Joint Investigations. The role that faculty members of the several institutions of higher learning may play is well demonstrated by what such scholars have done and are doing in the Columbia Basin Studies, and by the several projects now in progress that are being sponsored by the various planning commissions and the National Resources Planning Board. By work-

ing in cooperation with one of the established federal or state agencies, the mature research student can find an outlet for constructive work in any of a number of specialized fields concerned with post-war regional problems.

It is also possible to draw well trained graduate students into the picture. Such persons could, under proper guidance, work upon segments of problems as seminar training and/or thesis topics.

Post-war regional problems offer a fruitful field of study for graduate seminars in which qualified technicians might play an important role as consultants.

In line with one of its basic purposes, the Council would like to aid in fostering and correlating research that will contribute toward the solution of post-war problems and toward a better and more secure region in the post-war era. Accordingly, to promote thought and criticism, as well as to promote the development of research programs of maximum value in the region's Universities and Colleges, this memorandum has been prepared.

The following outline, suggestive rather than complete, deals with these fields of interest:

1. Problems relating to industry
2. Problems relating to land-use
3. Mining and mineral research
4. Urban studies
5. Problems affecting both urban and rural areas
6. Transportation facilities and problems
7. Hydro-electric power
8. Population and migration

A. PROBLEMS OF INDUSTRY

Significant, far-reaching changes are taking place in the industrial economy of the Pacific Northwest. Old established industries are booming.

New industries are being introduced. Of major import to the region is the problem of converting these "war babies" into "peace babies." Intensive industrial research designed to discover the nature of the industrial pattern that is best suited to the needs and resources of the Pacific Northwest is vitally important.

1. Analyses of the old established industries to determine war time trends, probable post-war conditions, and the desirable readjustments necessary to meet them.
 - a. Lumber
 - b. Plywood
 - c. Wood pulp
 - d. Airplane industry
 - e. Food processing
2. Analyses of war-induced industries, e.g., aluminum, magnesium, chemicals, shipbuilding, plastics, etc. to determine:
 - a. Factors affecting their survival:
 - 1) Labor market—numbers, skills
 - 2) Costs of labor, materials, power, transportation, etc., compared with those in eastern areas
 - 3) Relative costs and difficulties of financing industry in the Pacific Northwest
 - 4) Regional versus external controls
 - b. Conversion and reconstruction necessary to adapt them to peace-time demands
 - 1) New outlets for products of plants now engaged in war production
 - 2) Necessary changes in physical and human equipment to facilitate the transition from a war- to a peace-time economy.
3. Technical studies concerned with the development of new processes through which more effective use can be made of actual and potential resources of the region:
 - a. Wood products
 - b. Chemurgy
 - c. Food processing
 - d. Electro-chemical and electro-

metallurgical industries, with reference to low-grade ores and minerals that are to be found in the Pacific Northwest.

- e. Fuel studies particularly relating to Northwest coals
 - f. Flax
4. Analyses of Labor Force in the Pacific Northwest
 - a. Personnel studies of the major industries of the region:
 - 1) Age groupings
 - 2) Education
 - 3) Vocational training and experience
 - 4) Previous occupation or occupations
 - 5) Preference, if any, regarding future employment
 - 6) Nature of retraining to fit them for desired employment
 - b. Migration of labor:
 - 1) Occupational shifts
 - 2) Residential shifts
 - c. Labor-management relations in the several industries of the region.

B. LAND-USE PROBLEMS

Among other things, the present war economy calls for increased production of foodstuffs. This may mean that farm soils will be subjected to mining and improper tillage; that lands unsuited to intensive agriculture will be cleared and plowed; that ranges will be too heavily stocked with animals. There is grave danger of losing much that has been gained in the way of better land-use practices; that some of the progress towards the development of a sound agricultural program will be lost. At the end of the war there may be a swing of people back to the land that may have some harmful results, if excessive or uncontrolled. Consequently, intensive research on land-use problems, regional, sub-regional, and local, from both a physical and economic point of view, is necessary.

1. An analysis and appraisal of present agricultural production in the

- light of probable post-war conditions and needs.
- a. Present land use
 - b. Changes in the agricultural program brought about by war-time demands
 - c. Means by which diversified cropping may be encouraged
 - d. Particular types of crops that should be encouraged
 - e. Measures for gearing agriculture into the regional industrial pattern, e.g., chemurgy, food processing, etc.
2. Detailed land-capability studies to provide information essential to a more effective utilization and management of land.
 - a. Detailed land-use, land capability studies of critical areas which would take into consideration both the physical and economic factors involved. These might duplicate on a small scale the techniques being used in the case of the Columbia Basin Joint Investigations. They might utilize the methods of community self-analysis as developed in the Elma and Skagit studies.
 - b. Cooperative comprehensive area-analyses designed to present an over-all picture of large areas and to provide the ground work for more detailed studies of sub-areas.
 - c. Detailed studies of critical drainage basins with a view to determining existing water supplies and the measures essential for their wise use and management.
 - d. Studies of land ownership—of the problems involved in the present ownership pattern with a view to the formulation and practice of more effective land management policies.
 3. Detailed studies of conservation problems from which should emerge concrete and practical measures for dealing with the problems of local areas—drainage basins, soil conservation districts, irrigation districts.

Similar studies in conservation are necessary in the case of range, forest, water, fish, wild life, and recreation resources, in order to promote effective management. All such studies should involve both the physical and the economic aspects.

 4. Land development in relation to needs in the post-war period
 - a. An estimate of the post-war need for farm land
 - b. Studies of specific areas in which reclamation should be given priority (based upon data now available)
 - 1) Determination of areas in which new or increased settlement facilities are desirable and practicable
 - 2) Capacity of land susceptible of reclamation to absorb settlement
 - 3) Desirable land use in areas to be developed, based upon land capability and economic considerations
 - 4) Formulation of definite settlement plans in advance of occupancy

C. MINING AND MINERAL RESEARCH

Detailed knowledge of the extent, quality, and geological circumstances of the region's mineral resources is lacking. This calls for intensive geological surveys. Known resources are, in general, of low grade or they occur in complex chemical combination. Their commercial use is, in part, dependent upon the development of special processes which will permit their economical production and more effective utilization. Particular emphasis should be directed to the heretofore untapped mineral resources of the region—high alumina clays for aluminum, magnesite for magnesium, chromite for ferro chromium, phosphates for fertilizer, and iron ores for local steel production, etc.

1. Intensive geological surveys of known mineral occurrences to determine:
 - a. The extent and richness of the deposits
 - b. Geological conditions under which the deposit occurs and their relation to mining operations, both physical and economic.
2. Laboratory research concerned with the development of economical processes for recovering the specific mineral in question
3. Pilot plant research to prove the commercial feasibility of laboratory techniques

D. URBAN STUDIES

Systematic urban and metropolitan studies, each identified with an immediate problem but forming a definite part of a comprehensive research program, should be undertaken. In many communities, the shift and/or expansion of industry, war and post-war migration, etc., will create serious problems of rehabilitation, reconstruction, and conversion. In addition, long delayed but necessary modernization and reconstruction not directly connected with the war effort, e.g., terminal facilities, blighted areas, etc., should receive thoughtful study. Together, these would all be basic to the development of a master plan for physical, social, and economic betterment.

It would be desirable for these studies to be carried out in cooperation with the local, state, and regional planning commissions. Such studies might include:

1. The economic base
2. Blighted areas and rehabilitation
3. Housing
4. Sanitation
5. Traffic and transportation
6. Utilities
7. Health and recreation
8. Planning and zoning
9. Urban studies (urban-rural fringe)
10. Consolidation and simplification of government functions

E. STUDIES OF PROBLEMS AFFECTING BOTH URBAN AND RURAL AREAS

These might be concerned with problems such as sanitation and pollution abatement, inter-urban transportation, public utilities and essential services. Illustrative of this group might be a series of pollution abatement studies in critical areas such as the Lower Willamette River, Cowlitz River, and Puget Sound.

1. Pollution abatement studies

With numerous of the Northwest's new industries attracted to tide-water and river locations, and the output of established stream-bank industries greatly increased due to the war, research by the engineering personnel of the Universities might well be undertaken into the pollution problems, if any, occasioned by this industrial expansion. On selected streams, for example, studies could be made of pollution due to (a) industrial causes (b) community influences. Technical studies looking not only toward pollution abatement and public health, but also to the conservation of waste materials, wild life, recreation, etc., are particularly needed. A careful scientific survey of the Pulp and Paper industry in relation to stream pollution will illustrate this type of investigation.

F. TRANSPORTATION FACILITIES AND PROBLEMS

Detailed studies of the transportation web of the Pacific Northwest should be made with a view to determining the readjustments that are necessary (a) to promote effective coordination of the various types of facilities available, (b) to eliminate uneconomic duplication, and (c) to reduce freight rates, in order that the region may be more adequately and economically serviced as a whole. Such studies might include the following aspects:

1. A critical analysis of railroad facilities of the region.

2. The development and potentialities of Columbia River navigation.
3. Detailed analyses of transportation facilities and problems in major urban centers in the light of present day requirements. Such studies should take into consideration modernization of equipment, unification of competing systems, and coordination of all facilities, with a view to securing optimum public convenience in both service and operation.
4. A critical appraisal of existing air communications within the region to determine the pattern for future development in keeping with the needs of the area.
5. The movement of freight by air—intra-regional, inter-regional, and international aspects—in the post-war period.
6. Coast-wise transportation facilities and trade—desirable readjustments.
7. Inter-coastal transportation facilities and trade—desirable readjustments.
8. The Alaska trade routes.
9. The coordination of rail and road transportation for the more effective and economical movement of regional commodities.

G. HYDRO-ELECTRIC POWER—ITS DEVELOPMENT, MANAGEMENT, AND UTILIZATION

The expansion of hydro-electric power facilities is intimately bound up with the present and with post-war industrial development. The role which hydro-electric power will play in the post-war economy needs detailed study.

1. The management of these power facilities, whether by the government alone or by government and private agencies, is a vital concern of the region. Every aspect of this problem should be carefully examined with a view of determining the most effective policy for the production, distribution, manage-

ment, and ownership of this major resource.

2. The utilization of power needs continuing study, particularly with a view of determining how Columbia River power can be employed to the fullest extent over the widest area possible after the war. This problem is intimately linked with post-war industrial development, with rural electrification, and with the expansion of domestic demands. These aspects call for technical as well as marketing research.

H. POPULATION AND MIGRATION

1. Studies of the extent and distribution of the war-time migration to the Pacific Northwest. Data of this nature will be invaluable to the formulation of sound post-war rehabilitation problems.
2. Character and composition of Northwest population. This would include the following statistical information:
 - a. Birth rates
 - b. Proportion of children under five years of age to total
 - c. Population
 - d. Marriage rates
 - e. Divorce rates
 - f. Age groupings of population
3. Resettlement problems resulting from post-war industrial readjustments.
 - a. Urban (major urban agglomerations)
 - b. Rural

Such studies would have as their starting point the research already done by the Pacific Northwest Regional Planning Commission on the development of economic opportunity in the Pacific Northwest. Such studies will undoubtedly call for cooperative action on the part of several local, state, and federal agencies.
4. Resettlement problems of the dispossessed enemy aliens
 - a. Japanese rehabilitation problems
 - 1) Urban
 - 2) Rural