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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

R E P O R T

Relating to the Proposed

erection of

FOOD RESEARCH LABORATORY BUILDINGS

at

NORTH RYDE, NEW SOUTH WALES.

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C O N T E N T S

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R E P O R T

The Parliamentary Standing Committee on Public Works to which the House of Representatives referred for investigation and report the question of the construction of Food Research Laboratories at North Ryde, New South Wales, has the honour to report as follows:-

S E C T I O N I - INTRODUCTION.

Historical.

1. The work of the Division of Food Preservation of the Commonwealth Scientific and Industrial Research Organisation is concerned with the solution of major technical problems involving all forms of processing and preservation of meat, fish, eggs, fruits, and all vegetables. Other institutions in Australia have the responsibility of investigations on cereals, milk, and milk products.

2. The three main aims of the Division's work are to -

(a) discover suitable ways of reducing wastage and deterioration;

(b) improve the quality of various foods received by the consumer, both in Australia and overseas; and

(c) increase the efficiency of various technical operations in preservation and processing.

3. In order to fulfil these aims the Division has formed a number of food technology sections to study long-term problems confronting various branches of the industry. The research workers in these food technology sections must have at their disposal a wide

range of basic knowledge on the physical and chemical properties of foods, and the changes they undergo when subjected to various forms of preservation. To supply such information the Division has groups of research workers in chemistry, physics, microbiology and botany.

4. Something like 95% of the food one eats has been processed or preserved, and there are now only a few exceptions such as fresh fruits, vegetables and eggs, while, in some cases, even these are being processed. There is, therefore, a rapidly increasing growth of food processing and preservation industries in this country, and an increasing demand for sound scientific information to guide existing procedures, or establish new techniques.

5. The establishment and expansion of the work of the C.S.I.R.O. Division of Food Preservation has been in line with development overseas, and many instances can be quoted of outstanding achievements, resulting in substantial financial gains. It is difficult to estimate financial gains, but in the year 1938-39 they were stated to be over £800,000.

Early Activities.

6. In 1936 two bays at the Sydney Metropolitan Meat Board's buildings at Homebush were lent, so that some work could be done on the problems facing the meat industry at that time. The bays were altered to serve as a sort of laboratory in 1937-38, the original area of floor space occupied being approximately 14,000 square feet.

7. Extensions built mainly during the war have brought the total floor area to 27,000 square feet, of which approximately 6,500 square feet are occupied by cold rooms and pilot plant.

8. Occupancy of the present premises is on the basis of a 21 years' lease which expires in June, 1958. The expansion of research work undertaken by the C.S.I.R.O. in this particular field will demand considerable extensions to the laboratories, and there is no further space for this purpose at Homebush. As the existing premises are already proving both inadequate for the work, and costly in operation and maintenance, comprehensive plans have been drawn up for completely new laboratories.

S E C T I O N II - THE PRESENT PROPOSAL.

The Buildings.

9. The building groups planned in this project before the Committee comprise the Main Laboratory block, the Food Canning block, the Administration block, and the Workshop block. In addition, provision is made for miscellaneous minor buildings such as sulphur shed, chemical process shed, oil store, etc., with a caretaker's cottage to be added later.

10. The buildings are to be constructed on a site at North Ryde, on an area of land adjacent to the present Coal Research establishment of C.S.I.R.O., on the south side of Delhi Road.

Estimated Cost.

11 The estimated cost of the project, including site preparation, buildings, services, and miscellaneous items, is set down as £650,000.

S E C T I O N III - THE COMMITTEE'S INVESTIGATIONS.

General.

12. The Committee studied the plans of the proposal, and visited Melbourne and Sydney to obtain evidence from various departmental and independent witnesses interested in the work and the planning of the future activities. Visits of inspection were made to the proposed site at North Ryde, and to the existing laboratories at Homebush where it was possible to see work in progress, and the cramped, unsatisfactory conditions obtaining there at the present time.

Need for the Building.

13. Research space - A considerable amount of detailed study has been made in connection with the appropriate amount of space needed for research workers in this type of work, and advantage has been taken of experience reported from other parts of the world. An

analysis of space required for research laboratories in Canada shows that the gross floor area per person in physical, chemical, and biological laboratories should be not less than 350 square feet per person, and should preferably be 400 square feet. A floor area of less than 350 square feet per person results in severe overcrowding and less efficiency. The floor area at Homebush is 260 square feet per person, and experience has shown that this area is quite inadequate for the needs of the Division, with the result that many services cannot be installed because of lack of space.

14. The area planned in the proposed buildings is 67,000 square feet, of which 15,000 square feet is for cold rooms and pilot plant. The remaining 52,000 square feet will provide 371 square feet per person for the staff of 140 expected to use the laboratories, and this figure, therefore, approximates that stated as the optimum for the purpose.

15. Present conditions. - Apart from severe restrictions to the space essential for efficient work, the conditions existing at present at Homebush are particularly unsatisfactory. In that area it is stated to be practically impossible to obtain suitable surroundings in which to carry out bacteriological tests. In Summertime, particularly, the atmosphere carries a great deal of pollution, and it is extremely difficult to obtain control of hygienic conditions. It was pointed out that there is no further room for expansion at Homebush laboratories, and conditions are so cramped that valuable work is being hampered.

16. Overcrowding.- While all sections of the Division located at Homebush are overcrowded, this overcrowding is particularly severe in the sections of micro-biology, chemistry, canning and frozen foods, and the workshop. It is difficult to attract good research workers under the present conditions, and it is difficult to maintain the work at a high level of efficiency. It is pointed out that, even to adequately accommodate the existing number of officers, the floor space needs to be doubled.

17. The present work.- In order to carry out the aims of the Division, a number of food technology sections have been formed

such as meat, fish, eggs, and fresh fruit preservation, together with all forms of canning and dehydration. To supply these sections with the essential range of basic knowledge on the physical and chemical properties of foods, and the changes they undergo when subjected to various forms of preservation, the Division has groups of research workers in chemistry, physics, microbiology and botany.

18. Local consumption.- For local consumption, large quantities of highly perishable foods must be transported over long distances, and large quantities must be processed and preserved at the time of production for later consumption in seasons of scarcity. Figures quoted in evidence indicated the many millions of pounds worth of food produced in this country.

19. Export.- The kinds of food with which the Division is mainly concerned can be exported only in a preserved or processed condition, and the value of such exports is now about £88,000,000 per annum.

20. It is not generally realised that the maintenance of our competitive position in overseas markets is dependent on our ability, not only to maintain exacting standards of processing and preservation, but also to discover and perfect improved or new methods. The Food Division has the responsibility for doing this, and there are few other bodies which carry out any work at all in relation to food preservation techniques.

21. Defence.- The Division has had a great deal of responsibility for carrying out research into development of food stuffs for the armed forces. Representatives of the Division are members of the Defence Food Research Advisory Committee, and therefore have an important place in the essential defence food plans.

22. Achievements.- Although it was pointed out that it is impossible in most cases to give precise figures of the results of the research work, there are, nevertheless, most impressive figures available to show the huge amounts which have been saved, both in various totals and per annum, through successful research work in the laboratories.

Outstanding achievements are quoted in the case of chilled beef, rot in eggs, canned peas, rotting in citrus fruits, and many others. In connection with the chilled beef the gains estimated in the year 1938-39 were stated to be over £800,000. In connection with rot in eggs there has been both a gain in confidence of the British buyers, as well as a financial gain to the extent of at least £75,000 per annum, against the cost of investigations from 1939 to 1951 of £20,000, for that period.

23. The study of canned peas is a fascinating story revealing how a great many more peas to the acre can be grown as a result of the scientific control of harvesting and processing, while the gain to the farmers alone exceeds £80,000 a year, the total cost of the investigations having been £52,000.

24. Many other instances of extremely valuable results and great financial gains were referred to, including storage of apples and pears, deterioration in prawns, refrigerated rail transport, and others, all of which help to demonstrate the practical results of the research work.

25. Future expansion.- At the proposed food research laboratories at North Ryde it is proposed to provide, in addition to adequate accommodation for the present staff, sufficient space to allow for expansion in several sections, and in certain general facilities. It has been the national policy of many countries recently to establish national food research institutions wherein the resources of the State, aided sometimes by industry, are devoted to many important long range problems concerned with food. The establishment and expansion of the work of the C.S.I.R.O. Division of Food Preservation has, therefore, been in line with developments overseas, and it is the aim here to pursue similar research in connection with the products specially important to this country.

26. General facilities.- Workshop facilities are totally inadequate to cope with the essential construction of new equipment; a number of investigations cannot be started because the number and size of the cold rooms are inadequate; and the library, which is the central

core of the research facilities, must have greatly increased accommodation.

27. Physics, Chemistry and Microbiology.- A steady expansion in the number of people engaged in these sections, and in the facilities provided for their work, must take place if Australian food industries are to receive the most reliable information necessary to increase their efficiency.

28. Frozen foods.- A rapid expansion of the newly established industry for the preservation of fruits and vegetables by freezing is taking place. Additional staff and facilities will be essential in order to cope with the larger number of technical problems which inevitably arise in the phase of rapid expansion.

29. Ionizing radiations.- Certain sources of ionising radiations are now becoming available, and can be used for such purposes as sterilization of foods. So far, the Division has not had the facilities for exploring the possibilities of using these new tools, but it is proposed to investigate their use at the projected laboratories at North Ryde.

30. The Colombo Plan.- In the last few years the Division has been a research training ground for South Asian students supported under the Colombo Plan auspices. From 2 to 7 students have been studying at any one time, for periods ranging from 6 months to 2 years. In the new building it will be possible to accommodate up to about 12, the limiting factor being, not so much space in the new building, as the staff required to supervise and look after them.

31. Urgency of the present need.- Members of the Committee studied the whole proposal in detail, and were particularly interested in the actual research work being carried out, and are impressed with the value of the work being undertaken.

32. The whole of the investigations indicate that the organisation of present work, as well as the planning of future activities, have been carefully carried out with due regard to economy, and demonstrate the urgent need for the proposed buildings.

33. The results of the work of the Division are of tremendous potential value both to the internal economy of the country as well as to

our export trade,

and the proposals making it possible to extend the work should, therefore, be given the highest priority.

The Site.

34. The site for this proposal is at North Ryde, on an area of land adjacent to the site of the present Coal Research establishment on the south side of Delhi Road. The combined areas of the two sites comprise approximately 19 acres under the control of the C.S.I.R.O., and are portion of a total area of 70 acres held by the Commonwealth. The site has a frontage to Delhi Road on the north and Epping Road on the south; and it adjoins the Commonwealth Experimental Building Station on the east.

35. The site is conveniently situated in relation to other C.S.I.R.O. activities in the locality, and test borings have indicated that the foundations should present no engineering difficulties. The Committee is satisfied from its evidence and inspection of the locality that the site should be suitable for the purpose.

36. Acquisition:- The Committee was informed that the main portion of the site was Commonwealth property, and that resumption of some surrounding allotments to complete the site are in the final stages of completion. In order to minimise the risk of any delay when the plans are brought to the construction stage, the Committee recommends that immediate action for the completion of resumption of the whole area required should be taken as an urgent measure.

Construction.

37. The system of construction generally for the Main Laboratory Block will be load-bearing corridor walls, with supporting piers at 12 feet centres on external walls. External cladding will be "curtain walling" of glass and sheet metal. Cool rooms will be especially constructed and insulated in order to maintain the various designed temperatures required. Internal partitions, wherever possible, will be demountable modular type to facilitate internal re-arrangements for the changing needs of the research work from time to time.

38. Engineering services.- A feature of the plans is the complexity of engineering services required for the laboratory work,

and specialised evidence was submitted for the Committee's information. Special study was given to this aspect of the inquiry, and the Committee feels confident that the essential services for the establishment have been carefully planned, and the difficulties associated with some of them are being satisfactorily handled by the departmental officials concerned.

39. Emergency plant.- Inquiry was made into the advisability of providing emergency generating plant for use in possible cases of breakdown in the electric supply. It was explained to the Committee that some of the experiments and research work demand continuous services, but it was also pointed out that for some time now the supply had proved to be very reliable. It was felt, however, that some provision should be made to ensure that, as very valuable experiments involving long periods of research, could be ruined by a break of continuity of supply, some alternate source of emergency power should be provided. Some of the existing equipment will be available for this purpose when the new building is completed, and it is recommended that sufficient space be set aside for installation of the appropriate machinery.

40. General planning.- Evidence was sought in connection with the planning for the whole establishment, particularly in relation to the disposition of the various buildings involved, and the distances which separate them, in view of the specialised requirements for engineering services in the different structures. Evidence from all the witnesses, in their various spheres, indicates that the proposed buildings are well planned in accordance with essential needs, and the Committee considers that they will be eminently satisfactory for the work to be carried out at the new establishment.

Cost.

41. The estimated cost of the proposal is £650,000, which is made up as follows:-

	£
Site preparation	21,700
Buildings, Groups 1 to 4 and miscellaneous	353,700
Hydraulic engineering services	115,000
Mechanical engineering services	108,700
Electrical engineering services	38,900
Miscellaneous	12,000
	£ 650,000

S E C T I O N IV. THE COMMITTEE'S CONCLUSIONS.

Summary of Recommendations.

42. The following is a list of the Committee's conclusions in summary form only, arrived at after study of the proposal, model, evidence and the problems involved. The full recommendations are contained in the paragraphs of the Report referred to at the close of each of the following summarised recommendations:-

1. The Committee is impressed with the research work being carried out under difficult conditions by the Food Preservation Division at Homebush. (Paragraph 31.)
2. The whole of the investigations indicate that the organisation of present work, as well as the planning of future activities, have been carefully carried out, with due regard to economy, and demonstrate the urgent need for the proposed buildings (paragraph 32).
3. The results of the work of the Division are of tremendous potential value, both to the internal economy of the country as well as to our export trade, and the proposals making extensions to the work possible should be given the highest priority (paragraph 33).
4. The site is conveniently situated in relation to other C.S.I.R.O. activities, and is suitable for the purpose (paragraph 35).

5. Immediate action to complete the resumption of the whole of the area required should be taken as an urgent measure (paragraph 36).

6. The essential engineering services which are of a complex nature, have been carefully planned (paragraph 38).

7. It is not considered necessary to provide new emergency generating plant, so long as space is reserved for the use of appropriate plant available from the existing equipment (paragraph 39).

8. Evidence from all the witnesses, in their various spheres, indicates that the buildings have been well planned, and should be eminently suitable for the research work projected for some years to come (paragraph 40).

W. R. Lawrence.

Chairman.

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