

1964

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

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PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS

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REPORT

RELATING TO THE PROPOSED CONSTRUCTION OF A

REGIONAL LABORATORY

FOR THE

COMMONWEALTH SCIENTIFIC AND  
INDUSTRIAL RESEARCH  
ORGANIZATION

AT

SHENTON PARK, WESTERN AUSTRALIA

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*Presented pursuant to Statute; ordered to be printed, 7th May, 1964*

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[*Cost of Paper* :—Preparation, not given; 902 copies; approximate cost of printing and publishing, £55.]

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Printed and Published for the GOVERNMENT of the COMMONWEALTH OF AUSTRALIA by  
A. J. ARTHUR, Commonwealth Government Printer, Canberra  
(Printed in Australia.)

No. 44 [GROUP H].—F.5841/64.—PRICE 2s.

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(NINETEENTH COMMITTEE.)

(Senators and Members of the House of Representatives appointed 4th March, 1964.)

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EXTRACT FROM THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES, No. 14,  
DATED 9TH APRIL, 1964

7. PUBLIC WORKS COMMITTEE—REFERENCE OF WORK—REGIONAL LABORATORY FOR COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION, SHENTON PARK, WESTERN AUSTRALIA.—Mr. Freeth (Minister representing the Minister for Works) moved, pursuant to notice, That, in accordance with the provisions of the *Public Works Committee Act* 1913–1960, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for investigation and report:—Construction of Regional Laboratory for Commonwealth Scientific and Industrial Research Organization at Shenton Park, Western Australia.

Mr. Freeth presented plans in connexion with the proposed work.

Question—put and passed.

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# THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS C.S.I.R.O. REGIONAL LABORATORY, SHENTON PARK, WESTERN AUSTRALIA

## REPORT

By Resolution on 9th April, 1964, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report, the proposal to construct a Regional Laboratory for the Commonwealth Scientific and Industrial Research Organization at Shenton Park, Western Australia. The Committee have the honour to report as follows:—

### GENERAL

1. The Committee visited the site for the proposed building and inspected the accommodation in which the Regional Laboratory at present carries out its research programme. The inquiries were aided by evidence from representatives of the C.S.I.R.O. and the Commonwealth Department of Works, from agriculturalists and from interests concerned with secondary industry. Plans and a model were also available to the Committee.

### ROLE OF THE REGIONAL LABORATORY

2. The Western Australian Regional Laboratory is established to serve the particular needs of the south west of Western Australia. It conducts research related to problems of special significance to the region, the results of which are not necessarily confined to the area and may well have application in other parts of Australia.

3. Because of the economic importance of agriculture in Western Australia, staff and resources have been concentrated in the divisions of Plant Industry and Soils. However, there is also activity in the fields of entomology, fisheries, wild life and mathematical statistics.

4. Fields in which useful results have been achieved include the whaling and crayfish industries, soil survey, the lucerne flea, the red-legged earth mite, the hill kangaroo, introduced plants, mineral deficiencies of pastures, high stocking rates and the mutton bird industry.

5. As a consequence of acceleration in the rate of industrial development in Western Australia, a modest start has been made in the establishment of a secondary industries laboratory. This involves prolonged discussion with industrial interests, the examination and selection of problems and the selection and recruitment of staff. Of necessity, this is a slow process and it will be some time before staff needs, laboratory size, extent of facilities and type of building are known in detail.

6. The Western Australian Regional Laboratory embraces all the activities which have been mentioned.

### EXISTING ACCOMMODATION

7. The headquarters and main laboratories of the Western Australian Regional Laboratory are at present situated in the grounds of the University of Western Australia. There are two main buildings of timber frame with asbestos and brick veneer finish. Since they were erected in 1954, these buildings have been modified and extended in order to cope with increasing staff. In addition, some minor buildings have been constructed. Some officers are located in buildings away from the University and some are working in space in University departments.

8. The total floor space occupied by C.S.I.R.O. is 15,000 square feet, of which 7,000 square feet is in the two main buildings and 8,000 square feet is in borrowed or rented space around the University or elsewhere. The average amount of space per person is 200 square feet for the 75 people on the staff. Part of this space is occupied by equipment.

9. Buildings are overcrowded and the need to adapt structures not designed for the activities now carried out in them has resulted in some research being conducted under makeshift and primitive conditions.

### THE NEED FOR NEW ACCOMMODATION

10. Arising from the use of differing quantities of apparatus, there can be a wide variation in the amount of space required by staff engaged in research. An area of 350 square feet per person is widely accepted overseas as a reasonable average amount of space for staff engaged in research work, although there can be wide variation depending on the quantities of apparatus required. The space available in the buildings now occupied (200 square feet per person) falls far short of this average.

11. Our observations confirmed evidence about overcrowding and sub-standard conditions and left us with a feeling of admiration for the staff obviously dedicated to their work.

12. Under existing conditions, no opportunity exists to expand the activities of the laboratory within or adjacent to the existing buildings and the need for alternative accommodation is emphasised by the knowledge that the staff is to be increased to 84 when a new building is available and to 115 about five years later.

13. The occupancy by the C.S.I.R.O. of part of the University campus is creating difficulties for the University of Western Australia. Because of the existence of the C.S.I.R.O. buildings, it has been necessary to place a new wing for the University department of agriculture some 60 feet further south than originally planned. The C.S.I.R.O. buildings occupy an area which the University authorities wish to develop for the departments of agriculture, botany and zoology by 1966.

14. The increasing demands of tertiary education and the consequent need for universities to expand, is placing pressure upon the C.S.I.R.O. in Perth and elsewhere to modify their policy of being established as close as possible to universities. It would be unrealistic for university expansion to be jeopardised by the C.S.I.R.O. resisting pressure to find alternative sites.

15. There is an urgent need to provide a new building for the Western Australian Regional Laboratory of C.S.I.R.O. in order to provide the staff with more adequate and better standard accommodation in which to carry out their important and expanding research programme and to permit the University of Western Australia to carry out planned expansion to cope with increasing enrolments.

### THE SITE

16. The inability to obtain ground within the campus of the University of Western Australia necessitated the search for another site. A comparatively large area of land was needed within reasonable distance of the University in order to facilitate close collaboration and co-operation with it and to permit the use of common facilities.

17. The C.S.I.R.O. has been most fortunate in obtaining an area of 27½ acres at Shenton Park about four miles from the University. It is adjacent to the field station of the University Institute of Agriculture and was previously university endowment land. Other university activities will be developed nearby. It is large enough for the initial and future requirements of primary industrial research and for the establishment of facilities for secondary industrial research later.

18. To the north, the site has a frontage of 1,200 feet to Underwood Avenue and to the east, 950 feet to Brockway Road. It is opposite the Empire Games stadium and is 4½ miles from the Perth G.P.O.

19. The site will be eminently suitable for C.S.I.R.O. purposes.

### THE LABORATORY BUILDING

20. The proposed laboratory will form the first stage of a three stage development of the area and will provide accommodation, facilities and services for primary industrial research. As such, it will be the first consolidated C.S.I.R.O. project in Western Australia. Some subsidiary structures will be associated with it.

21. *The design.*—The laboratory building will be a four storey structure planned on clean lines with a single storey entrance for which the main block will act as a background. Advantage has been taken of the natural fall of the land to the east to provide a lower ground floor at comparatively low cost.

22. The building has been oriented with its long axis in an east-west direction which will give the maximum of natural light to the laboratories on the southern side. Treatment of the northern face will minimise sun penetration by providing a deeply recessed window head and small hoods at the middle sashes.

23. *Accommodation.*—The building will have a gross area of about 41,000 square feet, providing an average of 360 square feet per person but this average is reduced since cold rooms, growth cabinet rooms, power plant and machinery rooms are included.

24. The lower ground floor will provide space for plant room, workshop, dehydrator, stores, soil preparation, cool rooms, ovens, duplicating and photography, first aid and toilets.

25. The ground floor will include the entrance lobby, administrative offices, conference room, laboratories, canteen and toilets.

26. The first and second floors will accommodate twenty-one laboratories, associated stores, controlled temperature rooms and toilets.

27. *Structure.*—The structure will be of reinforced concrete construction throughout. Longitudinal beams will support concrete floor slabs spanning between the column lines. A metal deck roof will be supported by timber purlins on steel trusses which will span between the outside columns leaving the upper floor free of columns. A general floor loading of 60 lbs. per square foot live load will be used in the design of the building plus an allowance for lightweight partition walls.

28. *Materials and finishes.*—The external walls of the building will consist of brick and precast concrete slabs. Window frames will be of aluminium.

29. Corridor walls and permanent partitions will be brick with either plaster finish, face brickwork or painted brickwork, depending on the area. Reinforced concrete structural walls will be finished off the form except on the ground, first and second floors where they will be rendered and painted.

30. Except for a minimum of permanent partition walls of brick construction, internal partitions will be timber framed and generally sheeted with fibrous plaster. In wet locations they will be lined with ceramic tiles on hardboard.

31. Ceilings will be fibrous plaster except in the isotope laboratory where protective construction against radiation will be in the form of poly vinyl acetate coating sprayed on walls and ceilings. Granolithic finish will be provided to the lower ground floor areas and vinyl tiles will be provided to floors elsewhere in the building.

32. *Laboratory fittings.*—Standard benches will be provided in all laboratories with service outlets for hot and cold water, deionized water, compressed air and electric power.

### POTTING SHED

33. The potting shed to provide approximately 2,400 square feet of space is to be a single storey brick structure with a concrete floor and a corrugated asbestos cement roof supported on metal trusses. An electrical sub-station and transformer is to be incorporated at one end of the building, conveniently located in relation to the laboratory and in such a position that it can be expanded easily.

34. *Accommodation.*—Apart from the sub-station, the building will provide accommodation for a switch room, electrical workshop, soil preparation area and storage bins, fertiliser store, pot store, washing and grading area, machinery room and toilets.

35. *Materials and finishes.*—The external walls will be finished in brick while louvres and window frames will be of timber.

36. Internal walls will be either brick or timber. The brick walls will be fair faced brickwork and the timber stud partitions will be lined with hardboard. In "wet areas" brick walls will be rendered and timber walls will be lined with ceramic tiles. Where ceilings are required, hardboard, secured to the underside of the rafters, will be used.

### ANIMAL HOUSE

37. The Animal House is to be a single storey structure of similar construction and with similar external finishes to the potting shed.

38. *Accommodation.*—The building will accommodate a feed store, dissecting and operating rooms, mouse room, animal pens and laboratories.

39. *Internal finishes.*—Brick internal walls will be fair faced brickwork except in the laboratories, operating room and dissecting room where they will be rendered.

40. Timber stud partitions will be lined with hardboard except in "wet areas" where there will be ceramic tile finish. Ceilings will be hardboard attached to timber ceiling joists. The floors of the laboratories and operating and dissecting rooms will be covered with vinyl tiles. Elsewhere they will be steel trowelled concrete.

### CARETAKER'S COTTAGE, GLASS HOUSE AND WORKSHOP

41. A brick three bedroom caretaker's cottage designed to harmonise with the main buildings is to be provided.

42. There is also to be a glass house of pre-fabricated steel framed construction with brick and glass walls, a concrete floor and a glass roof. A general workshop and bulk store of 2,400 square feet will also be provided.



## ENGINEERING SERVICES

43. Electrical engineering services will include power supply, electric light and power, thermal and early warning fire detectors and an electro-hydraulic type goods/passenger lift.

44. Mechanical engineering services will incorporate air-conditioning for twelve constant temperature rooms, mechanical ventilation for fume cupboards and the lift machinery room, refrigeration to serve two cold rooms, hot water supply, compressed air, reticulated gas, softened and deionized water, kitchen equipment, refrigerated drinking water coolers, sanitary incinerators, fire extinguishers and a hydrant booster pump.

45. Discussions with local authorities have revealed that the design of the proposed buildings is acceptable.

46. The Committee recommend construction of the laboratory and associated buildings to the sizes and designs proposed.

## AIR-CONDITIONING

47. The proposal, as referred to the Committee, provides for the air-conditioning of twelve rooms, which, for scientific purposes, need to be maintained under critical atmospheric conditions. It is also proposed to air-condition the computer room when the equipment is installed. Except for mechanical ventilation of fume cupboards, no "manufactured" ventilation or conditioning is proposed for the rest of the building, although sufficient head room has been provided for the introduction of duct work necessary for full air-conditioning in the future with a minimum of structural alterations.

48. A considerable amount of evidence was devoted to the question whether the whole of the building should be air-conditioned at this stage and there was general agreement that, apart from added comfort, this would contribute to the efficiency of the staff. The two most recently erected Commonwealth buildings in the City of Perth—the Repatriation building in William Street and the A.B.C. Studies—are air-conditioned as is the whole of the operations section of the Terminal Building at the Perth Airport.

49. The estimated cost of air-conditioning the whole of the building is £73,000. Competing demands for the capital works funds of C.S.I.R.O. are strong and in the judgment of their officers, this money would be better spent on other laboratories, leaving the installation of air-conditioning until the time when there is less demand on the Organization's financial resources.

50. It would be difficult to predict when this demand will diminish and we believe it would require a different approach to the question rather than a diminishing demand for money by C.S.I.R.O. activities for a decision in favour of air-conditioning to be achieved.

51. We are conscious of the fact that Commonwealth employees in the A.B.C. building, the Repatriation building and the airport terminal building have the benefit of air conditioning, we know that part of the building needs to be air-conditioned for scientific purposes and we are aware of the extremes of summer climate in Western Australia. We believe it should be in relation to these factors that a decision whether or not to air-condition should be considered. On the grounds of consistency, in the interests of the comfort and efficiency of the staff and for the better preservation of equipment and scientific records, we recommend that the whole of the building be air-conditioned at an estimated additional cost of £73,000. In reaching this conclusion, we are conscious of the fact that an inter-departmental committee on air-conditioning will soon be reaching its conclusions and making its recommendations. We believe that the case for air-conditioning all of this building is sufficiently strong to counter any thought that we should have left this question in abeyance.

## FIRE PROTECTION

52. The fire alarm system is to consist of thermal fire detectors generally, and early warning fire detectors in the computer room and similar areas housing electrical equipment. The officers of the C.S.I.R.O. are satisfied that this is preferable to an automatic sprinkler system.

53. No features have been included in the building to permit special precautions to be taken for the preservation of scientific records. Some disastrous losses of irreplaceable scientific records, sometimes involving research over many years, have been suffered as a consequence of fires in scientific institutions and we believe more attention should be given to this problem.

54. Whether this can be achieved by the provision of fire-proof safes of sufficient fire rating or by the provision of strong rooms in sufficient numbers and readily accessible to the various laboratory groups, we would leave with the appropriate authorities.

55. Our intention here is to point to the need for this matter to have close attention.

## FUTURE DEVELOPMENT

56. The actual form of the second and third stages of development of the Regional Laboratory has not been determined in detail, although it is intended that the second stage will consist of a multi-story laboratory wing to the west and a single story feature, incorporating the entrance to Stage I and accommodating a library, an administrative unit and the conversion of the area occupied initially by the library for use as a canteen.

57. Development in the third stage will allow for the easterly expansion of the Primary Industries laboratory and the provision of a Wild Life laboratory. Further development would be possible to the south of the laboratories which will comprise the first and second stages.

58. Adequate provision has been made for future development of the site.

## CONSTRUCTION TIMETABLE

59. The estimated time required to complete contract documents, invite tenders and let a contract, is 50 weeks, and a period of 65 weeks will be required for the completion of the building.

## ESTIMATES OF COST

60. The estimated cost of the work proposed in the first stage is £464,000 made up as follows:—

	£
Building work including caretaker's cottage .. .. .	237,000
Electrical .. .. .	28,000
Lift installation .. .. .	10,000
Fire alarms .. .. .	5,000
Mechanical services .. .. .	37,000
Sanitation, water fire service, including connector to main sewer .. .. .	78,000
Site works, paving, drainage and fencing	29,000
Ancillary buildings—glass houses, potting shed, animal house, workshop ..	40,000
	<hr/>
	£464,000

61. The recommendation for air-conditioning the whole of the building increases this figure to £537,000.

# SUMMARY OF RECOMMENDATIONS AND CONCLUSIONS

62. A summary of the recommendations and conclusions of the Committee is set out below and alongside each is shown the paragraph to which it refers. Recommendations appear in bold type.

	Paragraph
(1) Existing buildings are overcrowded and some research is being conducted in makeshift and primitive conditions	9
(2) There is an urgent need to provide a new building for the Western Australian Regional Laboratory of C.S.I.R.O. . . . .	15
(3) The site will be eminently suitable for C.S.I.R.O. purposes . . . .	19
(4) <b>Construction of the laboratory and associated buildings to the sizes and designs proposed is recommended</b> . .	46

	Paragraph
(5) <b>Air-conditioning of the whole of the building at an estimated additional cost of £73,000 is recommended</b> . .	51
(6) <b>Special precautions should be taken for the preservation of scientific records</b>	53-55
(7) Adequate provision has been made for future development of the site . .	58
(8) The estimated cost of the work proposed, as referred to the Committee, is £464,000 . . . . .	60
(9) The estimated cost of the work, as recommended by the Committee is £537,000 . . . . .	61

R. L. DEAN, Chairman.

Office of the Parliamentary Standing Committee  
on Public Works,  
Parliament House,  
Canberra, A.C.T.  
7th May, 1964.