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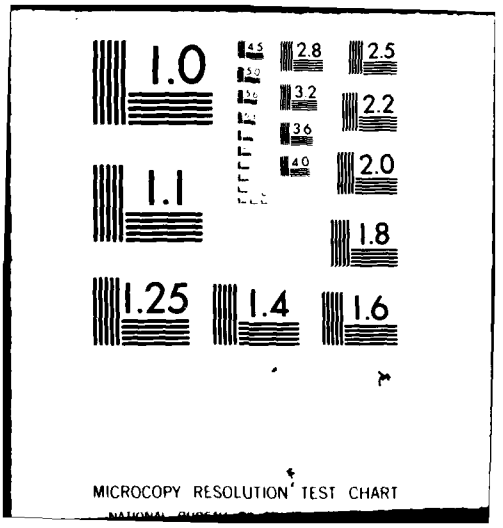
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LEVEL II

DEPARTMENT OF DEFENCE

DEFENCE SCIENCE AND TECHNOLOGY ORGANISATION

AERONAUTICAL RESEARCH LABORATORIES

MELBOURNE, VICTORIA

ENGINEERING FACILITIES TECHNICAL MEMORANDUM 6

TRADE STAFF IN RESEARCH ESTABLISHMENTS

P.H. TOWNSHEND

Approved for Public Release.

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DEPARTMENT OF DEFENCE

DEFENCE SCIENCE AND TECHNOLOGY ORGANISATION

AERONAUTICAL RESEARCH LABORATORIES

Engineering Facilities Technical Memorandum 6

TRADE STAFF IN RESEARCH ESTABLISHMENTS

P.H. TOWNSHEND

SUMMARY

Workshops in research establishments are beset by the persistent problem of high labour turnover. As soon as the tradesman has accumulated sufficient experience in his trade his skills are recognised by private industry with higher wage levels or establishment divisions attract him to the ranks of the technical grades. The career range available for the superior tradesman in research establishment workshops is far too restricted and it is suggested that a range of additional classifications is needed at levels higher than those used in production establishments and related to the Laboratory Craftsman grade used in C.S.I.R.O. This would have a powerful stabilising influence in retaining skilled tradesmen.

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16. ABSTRACT:

Workshops in research establishments are beset by the persistent problem of high labour turnover. As soon as the tradesman has accumulated sufficient experience in his trade his skills are recognised by private industry with higher wage levels or establishment divisions attract him to the ranks of the technical grades. The career range available for the superior tradesman in research establishment workshops is far too restricted and it is suggested that a range of additional classifications is needed at levels higher than those used in production establishments and related to the Laboratory Craftsman grade used in C.S.I.R.O. This would have a powerful stabilising influence in retaining skilled tradesmen.

CONTENTS

1. INTRODUCTION

In the early 1960's the Chief Superintendents of A.R.L. and D.S.L. (now M.R.L.), deeply concerned at the continuing exodus of skilled tradesmen from their laboratory workshops and aware of the underlying causes of these losses, made representation to the Controller R & D pointing out the special needs of research laboratories in relation to tradesmen (Ref. 1).

In the ensuing period the high rate of labour turnover has continued along with intermittent efforts to combat the drift away from laboratory workshops. This has been accompanied by investigations of laboratories by working parties, publication of reports and recommendations, voluminous correspondence and no results. In spite of the fact that general agreement was reached on the need for upgrading of the laboratory tradesman structure no action has been taken and no assistance has been forthcoming to reduce the needlessly excessive losses from research laboratory workshops.

This memorandum is an endeavour to present a concise account of the negotiations, submissions, working party activities and reports etc. involved in the efforts to establish improvements in the laboratory tradesmen career structure over the last twenty years and to call attention to the need to introduce a higher grade in the tradesmen category peculiar to research laboratories. While the comments apply particularly to A.R.L. they may well be applicable to other Government research laboratories.

2. HISTORICAL

Aeronautical Research Laboratories (as it is now called) was established in 1939 and was originally the Division of Aeronautics of the Council for Scientific and Industrial Research (CSIR), and shared the Fishermens Bend site with the Industrial Chemistry Division of CSIR.

In 1949, under pressure of problems with defence security, it was decided to transfer the establishment to the Department of Supply with a change in the name to A.R.L. but still continuing to share the site with CSIR.

This has provided a convenient and legitimate opportunity for a direct comparison to be made between both the establishments in relation to the conditions of employment of laboratory trades staff. In 1960 after some ten years separation from CSIR the differences between the labour turnover in the respective workshops could hardly be ignored. The A.R.L. and C.S.I.R.O. workshops were in close proximity, there was an interchange of staff (usually towards C.S.I.R.O.!) the conditions of service and the research environment were similar and yet

A.R.L. had a substantially higher labour turnover than C.S.I.R.O. (On average about 30% for A.R.L. compared with about 4% in C.S.I.R.O.). As the only significant difference in the employment of trades staff was the Laboratory Craftsman classification in C.S.I.R.O. the difference in labour turnover could only be attributed to the different system of classification. Labour turnover statistics for skilled tradesmen at A.R.L. are shown in Fig. 1 for the years available between 1959 to 1980. The labour turnover is measured by the number of separations expressed as a percentage of average employment during the period. Separations include resignations and transfers to other classifications - dismissals, retirements and deaths are not included. Percentage labour turnovers for specific years are shown and an average labour turnover line for 1959 to 1980 is also shown together with average labour turnover from C.S.I.R.O. and Commonwealth Bureau of Census and Statistics for manufacturing industry 1960-1970 for comparative purposes. The A.R.L. labour turnover rates are always double figure percentages and compare unfavourably with C.S.I.R.O. and manufacturing industry.

Following the approach to Controller R & D by the Chief Superintendents in 1960 there was a period of four years of persistent activity and a summary of this is shown in Appendix I.

In 1962 a working party (Ref. 2) visited research establishments and certain production factories to establish whether tradesmen in research establishments were required to exercise trade skills and carry out work superior to that of normal tradesmen. It was found that the higher skills were required and superior work was carried out and an award was recommended. However, the recommended award was not implemented until 2 years later due to continuous pressure and then was reduced by 50% to $2 per week.

In 1964, a submission was made to the Public Service Board (Ref. 3) suggesting the introduction of the classification Laboratory Craftsman and Senior Laboratory Craftsman into the R & D Division of the Department of Supply. There was no response. In 1965 another working party visited establishments and duly reported (Ref. 4) that a Laboratory Tradesman structure should be introduced. No action was taken. In 1966 another "new trade structure" for Defence Standards Laboratories (now M.R.L.) was proposed as described in Ref. 5. No action was taken.

The working party compositions, terms of reference and recommendations made are summarised in Appendix II. Also included in Appendix III (to avoid monotony in the body of the report) are copies of two internal memoranda, one Department of Supply 1972 and one Department of Defence 1974 which are fair comment on the situation as it stands at present.

3. THE PRESENT CAREER STRUCTURE FOR TRADESMEN IN RESEARCH LABORATORIES

"Career structure" is, of course, a misnomer but is used for want of a better term.

The avenues for promotion for the tradesman with no academic qualifications are strictly limited. His salary band from tradesman to senior tradesman is approximately $1,000. Promotion to foreman grades is limited by the high tradesman/foreman ratio and the prerequisite for supervisory ability and some clerical aptitude.

There is little financial advantage in transfer to a Technical Assistant only the working hours are shorter and working conditions different. If promotion to a Technical Officer position is sought then a higher technician certificate is required or the ordeal (to many) of the Eligibility Test has to be tolerated. If the transfer to Technical Officer is to another Department or another Division within the establishment then the skills accumulated from years of experience are largely dissipated. As a point of interest it has been ascertained that many of the Technical Officers recruited from the trades staff at A.R.L. would have preferred to continue in their respective trades in the workshops if an adequate salary level and career structure had been available.

The skilled tradesman is usually recruited to the Technical Grades at the peak of his trades skills i.e. after about ten-fifteen years in the trade. He is selected by interview and is eventually, after some coaching, submitted to the Eligibility Test. The tradesman passes the test, but frequently with barely adequate marks due to his limited academic ability and lack of experience in examination technique. Consequently his work at Technical Officer level in the Research Divisions is often that of a glorified tradesman and <u>not</u> a sub-professional providing support for professional staff and performing technical work of a more routine nature, as was originally intended. Entry into the Technical Officer grade via Eligibility Tests should either be limited to special cases or terminated completely. Training for entry into Trades, Drafting and Technical Staff needs to be expanded and all staff in these categories should have a minimum of two years engineering workshop training - after two years suitable candidates with the intellectual capability should be streamed to the Drafting and Technical grades with concomitant schooling. Those suitable for Tradesmen would continue their workshops training for a further two years. The engineering workshop training is essential for all engineering Drafting and Technical Officers.

The limited salary band of $1000 between senior tradesman and tradesmen and the fact that the average skilled tradesmen with four years training and an indentured apprenticeship still only receives $20-25 per week more than an unskilled labourer, (who is untrained and

who may also be semi-literate), is hardly conducive to job satisfaction for the skilled tradesman who is solely interested in continuing to practice his trade. It must also be noted that the tradesman loses his skill allowance on promotion to a Senior Tradesman. (Fig. 2 shows the comparative salary scales as at 1.1.81). Why is it that in the Australian Public Service that Clerks, Technical Grades, Scientists and Engineers have a career structure and Tradesmen do not? Is he considered to be an inferior being because he works with his hands?

The present Australian Government policy of recruiting skilled tradesmen from overseas, the Government encouragement of employers to implement apprentice training schemes and the preferential expansion of TAFE colleges all indicate that there is an awareness of the problem of the shortage of skilled tradesmen in the 1980's. The Public Service Board should therefore provide a better career structure for tradesmen within its own ambit to encourage skilled tradesmen to continue working at the higher levels of their trades.

There already exists a tried and proven Laboratory Craftsmen career structure within C.S.I.R.O. which could be implemented in modified form in our own research laboratory workshops. It is in the national, as well departmental, interest that the drift of highly skilled tradesmen to less demanding but better paid work should be substantially reduced.

4. THE REQUIREMENTS FOR RESEARCH LABORATORY TRADESMEN

With workshops serving research establishments there are a number of special features which call for initiative, ingenuity and other qualities in tradesmen, these features include the following:

The work is diverse in character.

Almost everything is made on a prototype basis, frequently from rough sketches made by scientists not experienced in workshop practice. Even if proper drawings are made they are frequently modified in the progressive development of the project. Very high standards of accuracy are frequently required for research purposes, for example, wind tunnel models.

Some of the materials to be machined or processed are experimental and machining information is not available. In some instances the materials are irreplaceable, in others they represent the results of weeks or months of work on the part of the scientific staff who produce them. This means that the tradesmen are continually working at the fringe of available knowledge of their trade. When some unusual technique or material becomes more widely known the tradesman will be working with some further new technique and another new material possibly using a technique which he may take a major part in developing.

The standards of workmanship required are consistently higher than those required from normal production workshops and a flexibility of approach is required in developing of special test equipment which has to be manufactured and developed in the laboratory workshops. Such equipment is rarely available commercially. Features such as these call for a markedly different approach and outlook from the tradesman. The demands on the tradesman are for versatility, adaptability and a capability for highly skilled work in a number of trades. These characteristics of versatility, adaptability etc are precisely those on which the C.S.I.R.O. Laboratory Craftsman structure is based.

5. THE C.S.I.R.O. LABORATORY CRAFTSMAN STRUCTURE

This Laboratory Craftsman structure is based upon nine grades. The non-supervisory grades, Laboratory Craftsman, Grades 1 & 2, Senior Laboratory Craftsman, Grades 1, 2 and 3, are determined on the basis of demonstrated on-the-job performance on grounds essentially independent of establishment constraints.

The supervising grades, Supervisor Laboratory Craftsman Grades 4, 5, 6 and 7, are based on managerial demands of a particular position and reflect an establishment system of classification.

The base grade is established at Laboratory Craftsman Grade 1 level and is dependent on the successful completion of an appropriate apprenticeship. The next grade requires at least three years experience as a qualified tradesman and further progression depends on individual merit, increased specialisation and versatility. Advancement through the supervisory grades is dependent on a supervisory component correlated with the size of group responsible to the supervisor.

The assessment of the Laboratory Craftsman depends on several factors; the all round development in respect of specialisation, versatility, design involvement, inventiveness, improvising ability etc. Another consideration is levels of skill and knowledge in the particular trade speciality. Managerial considerations would only relate to a small number of Craftsmen.

Typically the Laboratory Craftsman grading criteria for a Toolmaker/Fitter and Turner/Instrument Maker are extracted from Ref. 6 in Appendix IV.

Comparative salary scales are shown in Fig. 2.

6. CONCLUSIONS AND RECOMMENDATIONS

Aeronautical Research Laboratories is one of the laboratories of the Defence Science and Technology Organisation which includes laboratories which were formerly known as the Australian Defence Scientific Service.

Broadly, these laboratories undertake research and development work on specific defence projects, act as consultants and make investigations for the Services, other government departments and industries engaged in defence work. The D.S.T.O. laboratories make a significant and important contribution to the support of all branches of the Defence Forces by the establishment and maintenance of scientific and technical expertise in the relevant fields.

However, over the past thirty years, the valuable contribution made by the skilled tradesman to the successful prosecution of many vital projects and the solution of many challenging problems has been largely unrecognised. Whereas the majority of the P.S.B. classifications in the D.S.T.O. laboratories have an attractive and realistic career structure the skilled tradesman has none. There is little incentive for the enterprising tradesman to develop his manual skills to the high standards required in the research laboratories if he is faced with the ultimate prospect of changing his classification to maintain a reasonable living standard. More encouragement needs to be given to the skilled tradesman who chooses to develop his trade skills commensurate with the demands of the research laboratory environment rather than dissipate these skills by reclassification.

A recent grading assessment based on the requirements for C.S.I.R.O. Laboratory Craftsmen shows that within A.R.L. workshops there are several tradesmen who are sufficiently well qualified in terms of trade skills, versatility and design involvement to justify grading at SLC 3 - SLC 4 level. It is probable that a similar situation prevails in other D.S.T.O. Laboratory workshops. It is recommended that the top salary level for these highly skilled tradesmen should be extended to be equivalent to the top level of the Technical Officer Grade II scale.

The development and retention of the highly skilled tradesman is of vital importance to the successful implementation and prosecution of the research and development work of research laboratories.

It is therefore recommended that urgent action is taken to reduce the excessive labour turnover of highly skilled tradesmen from our workshops by the introduction of higher trade classifications similar to the C.S.I.R.O. Laboratory Craftsman.

7. ACKNOWLEDGMENT

Appreciation is expressed to Mr. A.F. Poulter, Principal Engineer A.R.L. for discussions and comment during the preparation of this memorandum. Appreciation is also due to Mr. A.G. Jones former Principal Engineer A.R.L. for his continuing past efforts in highlighting the plight of tradesmen in Research Establishments and his voluminous written documentation on this subject.

REFERENCES

1. COOMBES, L.P. and FOX, F.A.
   Trades Staff in Research Laboratories. Memorandum to Controller R & D Department of Supply April 1960.

2. VOSTI, A.R., MAHONY, T.J. and HOLLINGSWORTH, J.
   Report of Committee set up to examine certain aspects of Tradesmen functions at Research Establishments June 1962.

3. JONES, A.G.
   Proposed introduction of classification of Laboratory Craftsmen and Senior Laboratory Craftsmen in the R & D Division of Department of Supply.
   Submission to The Public Service Board November 1964.

4. VANTHOFF, G.N. et al
   Report of working party re "Supra Tradesmen".
   Arbitration Division Public Service Board February 1965.

5. McCARTHY, B.W. and STEEPER, D.
   Proposal for new trade structure for Defence Standards Laboratories based on Management Systems Branch Study.
   Dept. of Supply December 1966.

6. Laboratory Craftsmen - Senior Laboratory Craftsmen Grading Criteria.
   Staff Section Head Office C.S.I.R.O. October 1977.

APPENDIX I

Memorandum from Supervising Engineer, Engineering Facilities Division to Acting Chief Superintendent A.R.L. 11/9/64.

Subject: Trade Staff and Research Laboratories.

Summary of actions on the above matter

Date	
12. 4.60	Original memo to Controller, Research & Development asking for Laboratory Craftsmen - No reply received.
25. 5.60	Further data. - No reply received.
1. 9.60	Memo asking for reply - No reply received.
21.10.60	Memo asking for reply - No reply received.
25.11.60	Memo asking for reply. Handed copies of correspondence from C.I.O. to P.S.B.
7.12.60	Memo pointing out C.I.O. memo to P.S.B. was grossly in error, and asking for inspection of work involved - No reply.
14. 2.61	Memo from C.S./D.S.L. to Controller giving details of higher payment at P.M.G.
20. 2.61	Memo reporting visit of P.M.G. engineers to A.R.L.
8. 3.61	Reply from Controller saying that C.I.O. would discuss the matter with A.R.L.
23. 6.61	Memo to Controller stating no news from C.I.O. yet.
6. 4.61	Visited by C.I.O. who promised immediate action.
17. 4.61	List of tradesmen recommended for upgrading sent to C.I.O. No reply.
26. 6.61	Survey of Trade turnover and losses sent to Controller.
11. 8.61	Copy of memo Controller to C.I.O. asking for urgent reclassification of nominated trade staff.
12. 9.61	Memo to Controller reporting visit from A.N.U. officers - No reply.
31.10.61	History of case to date sent to Controller.
Jan 1962	Advised that C.I.O. would be talking to P.S.B. on matter Controller nominated officers to attend, but these were not invited to be present.
26. 1.62	Reply received from First Asst. Secretary, Management Services, regretting delays, pointing out difficulties, and promising action as rapidly as possible.
4. 6.62	Visit by committee of industrial officers to inspect work at A.R.L.
14. 9.62	Report from Committee recommending $3.85 p.w. higher pay for certain tradesmen.
18. 9.62	A.R.L. agreed to proposals.
15.11.62	All Laboratories agreed with proposals. Controller, Research and Development asked for immediate action.

APPENDIX I (CONTD.)

19. 2.63	Controller, Research and Development asked First Assist Secretary, Management Services for action.
2. 4.63	Memo to C.I.O. asking for urgent action based on Report - No reply.
2. 5.63	Visited Mr. R.W. Davies - First Assistant Secretary, Management Services. Showed him the file and Departmental Report. He rang C.I.O. and told him to give it top priority.
30. 5.63	Rang C.I.O. - No result.
23. 8.63	Rang C.I.O. - No result.
13. 9.63	Rang C.I.O. He reported matter in the hands of Mr. R. Hoopell P.S.I. office.
16. 9.63	Visited Mr. Hoopell. He had not received papers.
14.10.63	Visited by Mr. Hoopell and Mr. A. Vosti who inspected work done by individual tradesmen.
23.10.63	Visited by Mr. A. Vosti who outlined entirely new proposal.
28.10.63	Rang by Mr. A. Vosti. Still trying to write something to P.S.B.
18.11.63	Memo C.I.O. to P.S.B. pointing out that at A.R.L. no Departmental Authority existed for payment of $2 p.w. allowance to Senior Tradesmen existed, as at all other Department of Supply establishments, and asking for this authority to be extended to cover A.R.L.
9. 1.64 28. 1.64 10. 2.64	Telephone chasers - No reply.
13. 1.64	Telephone chasers TSK to C.I.O. regarding impending resignation of Meadows.
19. 2.64	Memo to Controller pointing out that C.I.O. was endeavouring to have A.R.L. placed on level considered unsatisfactory at D.S.L.
2. 3.64	Verbally asked to check situation at W.R.E.
10. 3.64	Visited W.R.E. Situation totally different and hence little interest in Lab. craftsmen scheme.
5. 3.64	A.E.U. list of overaward payments sent to Controller - No reply.
16. 4.64	Meeting with Controller. Action promised.
28. 4.64	Visited by C.I.O. to see Laboratory Craftsmen Scheme as operated by C.R.L. (C.S.I.R.O.). At time of visit they had 2 vacancies in staff of 45. A.R.L. had 20 vacancies in staff of 50.
15. 5.64	Memo to Controller pointing out possible disastrous effects on A.R.L. of introduction of production performance bonus at production establishments.
22. 5.64	Above referred by Controller to Industrial Engineering Section.

APPENDIX I (CONTD.)

1. 6.64 Memo to Controller listing salaries to be paid to tradesmen at Royal Mint. All approx. $10 p.w. over A.R.L. salaries.

23. 6.64 Memo to Controller regarding impending resignation of Aitcheson - No reply.

24. 6.64 Memo to Controller on ratio of trade staffs at A.R.L. D.S.L. and W.R.E.

30. 6.64 Visited by A. Sharpe who discussed possible reorganisation of Workshops to enable planning and payment of Production Efficiency Bonus at A.R.L. Stated that I thought this would be very difficult to organise.

1. 7.64 Reply from C.I.O. listing nine tradesmen to whom P.S.B. had agreed payment of $2 p.w. as from 23.6.64. This raised A.R.L. to standard of D.S.L.

3. 9.64 Memo to Secretary through Controller pointing out that $2 had not stopped losses, we still require Lab. Craftsmen gradings.

APPENDIX II

WORKING PARTY COMPOSITION, TERMS OF REFERENCE AND RECOMMENDATIONS

1. Title: Report of Committee set up to examine certain aspects of Tradesmen functions at research establishments (AUGUST 1962) (Ref 2)

1.1 Composition of Working Party

A.R. Vosti	Assistant Industrial Officer Central Administration
T.J. Mahony	Staff and Industrial Officer Ordnance Factory, Maribyrnong
J. Hollingworth	Staff and Industrial Officer Government Aircraft Factories Fishermens Bend

1.2 Terms of Reference

Visit research establishments and certain production factories of Department of Supply to examine the work of tradesmen to determine whether tradesmen in research establishments are required to exercise trade skills and carry out work superior to that required of normal tradesmen and to make appropriate recommendations.

1.3 Recommendations

i) Certain tradesmen do perform work requiring higher skills and have greater responsibilities than normal tradesmen.

ii) Provision already exists within the Department to determine higher rates in such circumstances to personnel employed under the provision of the Supply and Development Act.

iii) Similar principles to those that exist in the Department to fix appropriate rates are used by the P.S.B. and the approval of the Board should be sought to extend them to specific personnel at A.R.L.

iv) Consideration should be given to establishing an additional margin for the Senior Tradesman type.

v) Introduction of the C.S.I.R.O. Laboratory Craftsman structure is not recommended.

2. Title: Report of Working Party re "Supra Tradesmen". (FEBRUARY 1965) (Ref 4)

2.1 Composition of Working Party

Mr. G.N. Vanthoff, Inspector, Arbitration Division

Postmaster-General's Department

Mr. R.C. Lamb, Engineer, Class 4, Engineering Division, Victorian Administration.

Mr. T.A. Pinkney, Industrial Officer, Establishments Branch, Central Administration.

Department of Civil Aviation
Mr. K. Wylie, Engineer Class 3, New South Wales Region.

Mr. K.H. Toakley, Senior Inspector, Establishments and Personnel Branch, Head Office.

Department of Supply
Mr. A.G. Jones, Engineer Class 5, Aeronautical Research Laboratories.

Mr. M. Walsh, Chief Industrial Officer, Central Office.

2.2 Terms of Reference:

1. Examine the work of tradesmen in the P.M.G. Department, the Department of Supply and the Department of Civil Aviation in Melbourne

   (a) in establishments associated with Research;
   (b) employed as Electrical Fitters and/or Mechanics (including Technicians (Electrical));
   (c) employed as Motor Mechanics.

2. Define the work appropriate to a base grade tradesman in the trades encountered.

3. Identify work performed at the base grade level which is above the normal scope of a tradesman.

4. Ascertain practices in industry in similar situations.

5. Develop definitions including lines of control to be used as criteria for establishing positions above the base grade on the basis of the value of the work (but excluding factors associated with supervision).

6. Suggest an appropriate designation for application to the new grade.

7. Consider the need to prescribe qualifications and/or a period of experience as a prerequisite to appointment to the new grade and, if so, the qualifications and/or experience which would be appropriate.

8. Consider whether the definitions and criteria developed under 5 above, are appropriate for application to other trades areas in the Service.

2.3 Recommendations

(c) Research Establishments

"That the designations Laboratory Tradesman 1-4 be adopted with general attributes, for grading purposes, as outlined in Appendix". There follows the qualifications and duties of the four levels of Laboratory Tradesman.

3. Title: Proposal for a new trade structure for D.S.L. trade staff based on a Management Systems Branch Study. (DECEMBER 1966)

3.1 Composition of Working Party:

B.W. McCarthy	Engineer III	Management Systems Branch
D. Steeper	Engineer II	Dept of Supply

3.2 Terms of Reference

A representative sample of work performed over a six month period was examined and categorized into normal or unusual experimental work.

The conclusion reached was that sufficient unusual or experimental work was performed to justify a case for a more detailed examination of the trade structure.

3.3 Recommendations

It is recommended that a trade structure be instituted at D.S.L. with five classes of tradesmen defined as follows:

Tradesman Grade 1
Tradesman Grade 2
Laboratory Tradesman Grade 1
Laboratory Tradesman Grade 2
Senior Laboratory Tradesman

There follows a work value classification to assist in the assessment of the various classes.

APPENDIX III

INTERNAL MEMORANDA

The Department of Supply Memorandum (19-12-72) gives a "potted history" of negotiations from 1960-72.

1) Dept. of Supply Internal Memorandum dated 19-12-72.
From: Principal Engineer A.R.L. To: Chief Superintendent A.R.L.
Subject:- Trade Staff and Research Laboratories
(A.R.L. negotiations 1960-72)

"The first approach on this topic was made to Controller R&D jointly by Chief Superintendent, A.R.L. and D.S.L. on 26th May 1960, pointing out the special needs of research laboratories, and the increasing rate of labour turnover at both establishments, then about 25 per cent per annum.

The reply from Chief Industrial Officer stated that he had 'protested very strongly against the general application of sub professional gradings within R&D establishments, and it is no wonder to me or to the P.S.B. (Arbitration Section) wh o share my views on this matter that the situation has been reached where men decline to accept tradesmen's rates of pay when they see other personnel performing substantially the same work classified and paid within the technical structure'.

In the 28 months period to 30th October 1960, the A.R.L. tradestaff turnover was 30 per cent p.a., whereas, from figures supplied by Industrial Branch, other figures were - OFM 12%, GAF 20%, AFF 18%.

Correspondence continued through 1961, when we had visits from officers of P.M.G. research laboratories, and of A.N.U. Canberra, all of whom assessed work at A.R.L. as of higher calibre than they were performing, generally on higher (but to them unsatisfactory) gradings.

In January 1962, we were advised that, following on our representations, negotiations were starting between P.S.B., Director Industrial and C.S.I.R.O. to determine the basis on which the Department could best present a submission to the Board for special classifications for A.R.L. When this stage was reached, then the establishments would be invited to help.

In May-July 1962, a committee consisting of Vosti (Industrial Branch) Mahoney (Industrial Officer, OFM) and Hollingsworth (Industrial Officer, GAF) inspected ARL and DSL and subsequently reported that:

(1) Certain research tradesmen do perform work requiring high skills and have greater responsibility than normal tradesmen.

(2) Provision already exists enabling the Department to determine higher rates for personnel under the S&D Act.

(3) Approval of the Board should be sought to extend these rates to ARL.

(4) Consideration should be given to establishing an additional margin for the Senior Tradesmen type.

(5) Introduction of the CSIRO Lab Craftsmen Structure was not recommended.

DSL strongly disagreed with the report, which named individuals who should be considered as better tradesmen (and omitted others) and suggested that they be paid an allowance of $3.85 p.w. WRE accepted the report in full. ARL disagreed with the conclusion that CSIRO gradings were not appropriate, agreed to accept the proposed allowance, but pointed out that this still left ARL tradesmen below the level of equivalent staff at PNG research laboratories.

Later in 1963, Commonwealth Serum Laboratories discussed with ARL their unsatisfactory salary scales for trade-staff.

In October 1963, ARL was visited by Vosti and Hoopell (PSB) to examine cases recommended by the Vosti Committee following its June 1962 visit. Hoopell stated that no submission had yet been received from the Department. Then in November 1963, Director (Industrial) suggested a completely new approach, using a 'skill allowance' available under the S&D Act, but never before used by PSB tradestaff.

Early in 1964, P.P.A., allowing bonus payment of up to $4 per week was proposed for Small Arms Factory, Lithgow. Then, in June 1964, the Mint in Canberra introduced 'Mint Craftsmen' whose salary levels appeared to be about $10 per week over those of tradestaff at A.R.L.

After further correspondence, in June 1964, approval was granted to pay a special allowance of $110 per annum to nine nominated ARL tradesmen. Our best model maker promptly resigned, and ARL again protested to Controller R&D.

In September 1964, ARL wrote to Controller R&D on the likely effect of the introduction of P.P.A. into GAF and asking again for some action.

At a meeting on 18th November 1964, under Eric Cook, as Chairman, the situation was discussed further. Walsh (Director Industrial) was directed to forward a submission to the Board seeking Lab Craftsmen gradings for ARL/DSL. A submission was drafted by ARL/DSL and sent to WRE for concurrence. In his reply, Deputy Director, Engineering stated that, where outlook and skills were not normally considered those of a tradesman, they would use technical grades, and that he favoured bonus payment system based on performance standards.

In February 1965, the PSB initiated a 'Working Party on Super Tradesmen', consisting of an engineer and industrial officer from Supply, PMG, and DCA. It was stated that this arose from representations from the ACTU who had proposed that a certain percentage of skilled staff at each Commonwealth establishment should be classified as Establishment Craftsmen, to cater for work requiring higher duties or skills. The

Board had agreed, but required that levels of work be identified. This was done, and four levels of trade skill were identified and defined. The report was written by the Working Party Chairman, Mr. J. Vanthoff (PSB) and was ultimately pigeon holed and is now probably lost.

ARL tradestaff turnover rate from November 1963 to April 1965 averaged 50% per annum, with a rate of 100% per annum for Instrument Makers and Electricians. Fifty per cent of losses were of staff with two years or more service.

In August 1965, Superintendent, Aerodynamics Division, WRE (R.L.B.) wrote complaining about the pay of model makers and the lack of action in Industrial Branch after WRE representation.

On 13th September 1965, P.P.A. was introduced in GAF. This gave a toolmaker a maximum of $56 35 per week, compared with the ARL toolmakers pay of $49.35 per week. Even holiday pay for GAF tradesmen was increased to include "the prevailing allowance". A report of mid 1966 indicates that, of 24 separate shops in various departmental factories, 17 had achieved the full bonus rate of 12.5%.

Early 1967, GAF were included under the Aircraft Industry Award, giving their staff an additional $4.50 per week. With the P.P.A. System, GAF tradesmen then received about $11.00 per week more than equivalent ARL staff. After discussions with Chief Superintendent ARL (TFCL) I agreed that no case could be established for its extension to ARL.

Throughout 1967 discussions were held regarding the possible extension of P.P.A. to ARL/DSL. However, at his meeting of 24th November 1967, the Secretary reported on a meeting with the PSB and Department of Labour and National Service on this topic at which he stated the Board strongly opposed it. He thought that we should start with 'some new concepts'. Both ARL and DSL wrote on this, and sought guidance. It was then proposed that ARL staff be employed by GAF and 'farmed out' to ARL whilst DSL staff should be employed by OFM. Both establishments turned this proposal down for many reasons.

In July 1968, a meeting was held with Messrs. Burnett and Vosti, at which we were asked to supply information on work which could be placed on private industry or in departmental factories. An analysis indicated that about 20% only of the work could be placed outside ARL, the rest requiring urgent day-to-day action, or skills limited to ARL. Also in July 1968, a letter was sent to the Secretary ACTU from Secretary Department of Supply stating that P.P.A. schemes in Research Establishments were impossible, and that employees in these establishments would continue 'to be paid the appropr-ate rates'.

Following representations from ARL in November 1968, approval was given in March 1969 for payment of the 'Special Skill Allowance' (now $141 per annum) to a further 11 tradesmen. Since that date, some of those receiving this allowance have resigned, retired, or been promoted,

and other have been awarded it. As at December 1972 six tradestaff still receive this award, and another six are in classified 'senior' trades positions.

In August 1970, the grading of Electrician, Special Class was introduced into the S&D gradings. In this, an extra margin of $8.50 was given for electricians who are required to acquire and use knowledge in excess of that gained by satisfactory completion of the appropriate college trade course. Writing to Controller R&D on this, ARL pointed out that, as the result of frequent advertisements, during 1969/70 ARL had interviewed 56 applicants for trade jobs, of whom 30 had refused jobs offered on the grounds of salary, and only 8 had been recruited.

Reporting to Deputy Secretary, Management and Supply on the situation as at April 1971, we advised that over the two years 1969-1970 staff turnover rate had been 40% per annum, that 40% of our trades positions were unfilled, that, of 16 apprentices who had completed their time during those two years. only three remained, and that the current ARL wages were $10.60 less than those being paid by GAF, and $10.85 less than those of CAC (for toolmakers).

Throughout all this period, and probably since ARL was established, a policy of offering overtime working had helped to retain tradestaff. All overtime was stopped in early 1971, and we lost 23 skilled tradestaff within three to four months. That tradestaff have remained with us since then, on the reduced overtime now paid, is due more to the difficulties of getting work in private industry, rather than any attractiveness of working at ARL.

In June 1971, the Department proposed to the ACTU a change in the P.P.A. scheme, to be introduced when salaries of tradestaff were being reviewed. Under the new scheme, P.P.A. was split into two parts, being a Work Practices Allowance of $3.50 per week and a Performance Achievement Allowance of $4.00 per week. The Work Practices Allowance would be payable in all (nominated) establishments.

In August 1971, the Unions turned down this proposal, but the Department did not withdraw its offer."

2) Dept. of Defence Internal Memorandum dated 1-7-74
From: Chief Superintendent ARL To: Chief Superintendent MRL
Subject:- Trade Staff in Research Laboratories

"Over the past 14 years there has been correspondence between the ADSS Laboratories and central office on the work and gradings of trade staff employed in those laboratories. ARL and DSL have repeatedly put forward the view that, each establishment having only a small trade force, some members of which are required to be highly skilled in

specialized activities, it would be more appropriate to use a trade structure similar to that developed by CSIRO (of laboratory craftsmen) rather than that developed for the former Dept. of Supply factories.

The current situation on trade staff at A.R.L. is far from satisfactory, since we have to compete in a locality in which, in Government and private industry factories, take home pay is much higher than is possible under P.S.B. scales. In spite of this, our industrial staff must develop skills and initiatives which we feel are beyond those expected of a normal tradesman.

As you are probably aware, industrial staff are employed under the P.S. Act at A.R.L. and staff so employed are not prepared to change to employment under the S&D Act without some guarantee of preservation of rights, coupled to some immediate benefits.

As a result of the above circumstances, our trade force consists largely of ex apprentices who stay until they can obtain more lucrative employment or promotion, and elderly tradesmen who wish to get away from pressures of commercial work. Thus our current "age profile" of trade staff is:

under age 30 years	38%
30-40	9%
40-50	19%
over 50	34%

From this, it will be seen that we lack the experience and skills expected from men of the middle age group.

With the transfer of our establishments to Department of Defence, it may be opportune to raise once again this matter of trade levels. The last time this was seriously considered was during the reviews of the Public Service Board Working Party on "Supra Tradesmen" under Mr. G.N. Vanthoff of the Public Service Board, in 1965-66.

From a copy of their draft report, I read (para 57) that "the working party were agreed that the work done by supporting trade staff in a research and development laboratory demands a combination of skills and ability of a different order from those of basic tradesmen in a production establishment. More importantly in this exercise, these required skills and abilities are in many cases above those which can reasonably be regarded as falling within the normal scope of a tradesmen". The draft report goes on to recommend a four level structure of trade staff.

For some reason, the report was not published, and therefore, for your information, I enclose some relevant pages from a copy of the draft report held at A.R.L. It seems to me that, if it is felt desirable to raise this issue once again, then material from this draft report could be used.

Before raising the matter with Controller R & D, I would like to learn your views on the topic."

The Chief Superintendent MRL agreed that the matter should be raised again and quoted from Vanthoff (Ref 4). However, at this time a reorganisation of the ARL workshops was in progress and the matter was deferred indefinitely as some senior trade positions were recommended for the reorganisation. (It should be noted that the ARL workshops reorganisation was started in 1971 and was finally approved by the PSB in 1977).

APPENDIX IV

(Extracted from Ref. 6)

Typical LC/SLC Duties; Skills and Knowledge

Toolmaker/Fitter and Turner/Instrument Maker

1. Laboratory Craftsman

- General fitting
- Operation of machine shop equipment to general tolerances and specifications from drawings supplied; includes lathes, pedestal drills, pedestal grinders, power saws, planing machines, miling machines, horizontal and cylindrical grinders.
- Routine maintenance of machine tools and other workshop plant, including lubrication to a schedule and replacement of commonly worn or broken components such as bearings, ball races, oil seal gaskets, belts.

2. Senior Laboratory Craftsman Grade 1

As for LC, but also such additional demonstrated skills as:

- Turning, milling, shaping and/or grinding to more precise tolerances.
- Designing and making simple press tools and moulds.
- Marking out, fitting, machining and assembling using more difficult materials such as stainless steel, plastics, machinable glass.
- Generation of gears using either gear-hobbing machines or milling machines with rotary tables and differential drives.
- Welding of mild steel (both oxy and arc), hot air welding of plastics.
- General maintenance (lubrication, adjustment and checking components) of standard items of laboratory equipment (centrifuges, autoclaves, microscopes, pumps, fans, compressors, etc), including the manufacture of difficult-to-get parts.

3. Senior Laboratory Craftsman Grade 2

As for SLC 1, but also such additional demonstrated skills as:

- Use of all machine shop/toolroom equipment to set up and set out diverse mechanical projects using precision measuring equipment such as vernier height gauges and centricators; includes advice to other laboratory craftsmen as required.
- Responsibility for all phases of construction, including assembly and, where appropriate, initial adjustment of equipment.
- Frequent involvement in projects where the required finished standard is governed as much by the craftsman's skills as by the quality of the machines used.
- Hand scraping to precise tolerances.
- Heat treatment and stress relieving of tool steels.

- Silver soldering and soft soldering for Vacuum and cryogenics.
- Flat or cylindrical lapping.
- More complex maintenance jobs on standard items of laboratory equipment; e.g. dismantling of microscopes to repair worn slides, cleaning of optics and reassembly, and the complete dismantling and re-building of pumps, generators, air conditioning units, etc.
- Maintenance of, and repairs to, gauge room equipment and the complete dismantling, adjustment, realignment and reassembly of machine tools and other workshop plant.
- Less complex maintenance and repairs to cameras and projectors.

4. Senior Laboratory Craftsman Grade 3
As for SLC 2, but also such additional demonstrated skills as:

- Specialization in, and attainment of a very high degree of expertise in, a particular field within his trade, evident from wide consultation by other SLCs, draftsmen, technical and scientific staff.
- Turning, milling, shaping, grinding and/or drilling extremely small holes to the highest level of precision, frequently in materials which are difficult to work (e.g. stainless steel, niobium, tantalum, ceramics, gold).
- Specialized complete overhaul of complex and non-standard items of laboratory equipment, e.g. precision measuring devices, analytical chemical equipment, and of cameras, projectors, etc.
- Maintenance and repair of components of highly complex laboratory equipment such as electron microscopes (e.g. drive train gear for e.m. stage).
- Complete responsibility for part-programming, setting-up of tooling and manufacture of components on numerically controlled machines.
- Complete responsibility for operation of electric discharge machine tools, including design and manufacture of electrodes for machining components to a high degree of accuracy.

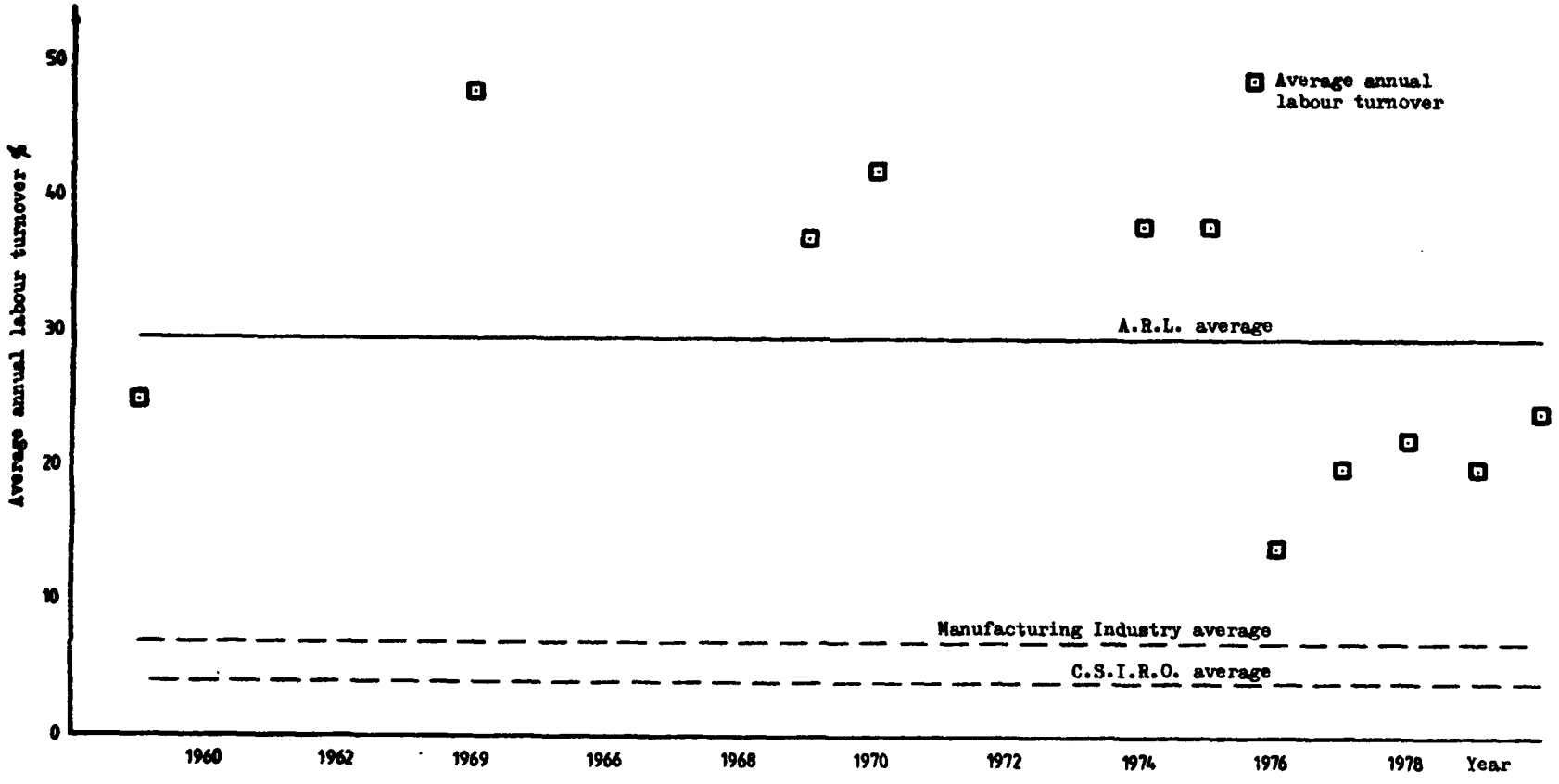

FIG.1 TRADE STAFF IN RESEARCH LABORATORIES

Labour turnover 1959 - 1980

Skilled tradesmen A.R.L.

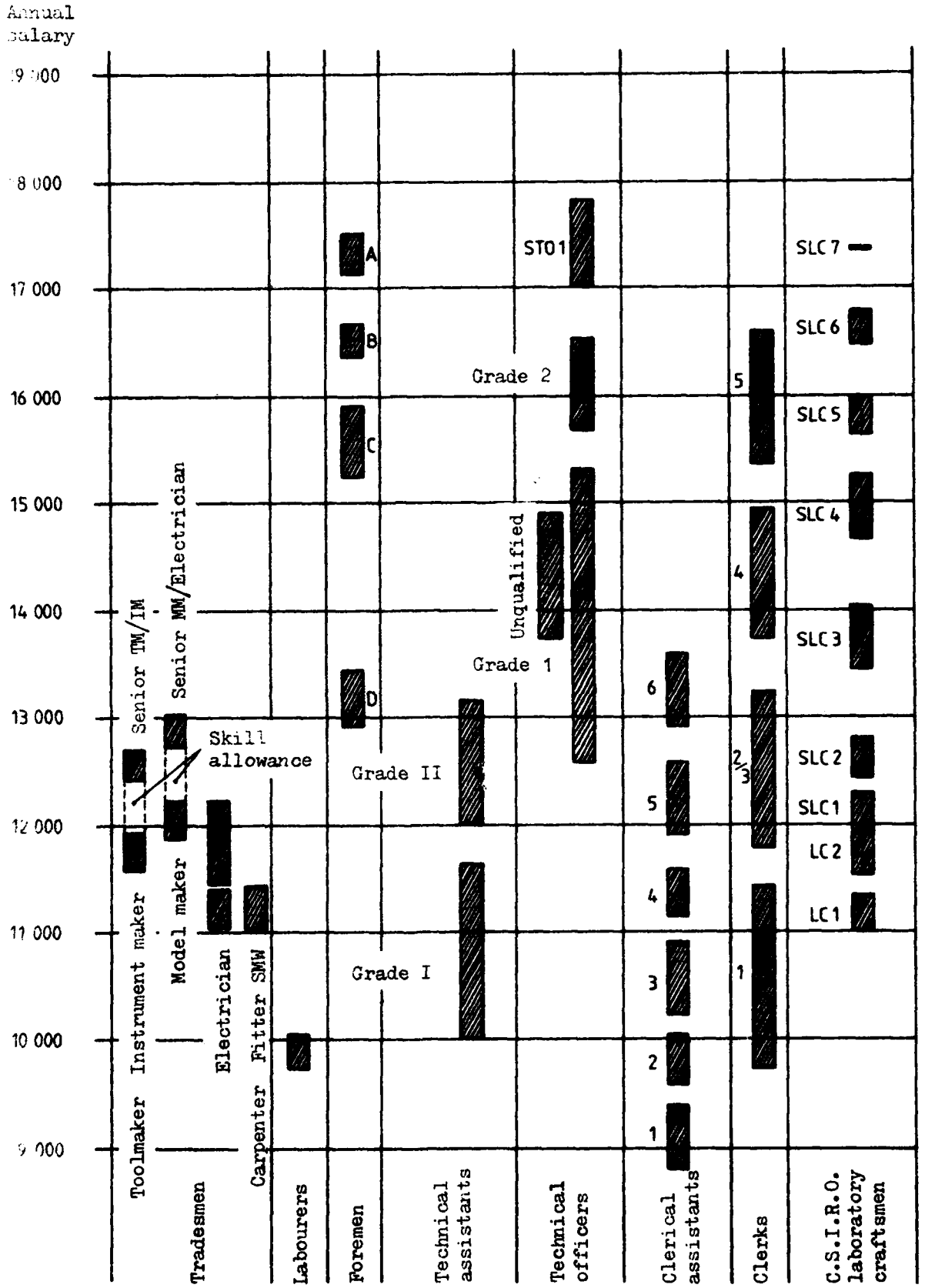

FIG. 2. TRADESTAFF IN RESEARCH ESTABLISHMENTS
COMPARITIVE SALARY SCALES AS AT 1.1.81

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