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MINISTRY OF HOUSING AND LOCAL GOVERNMENT

Refuse Storage and Collection

*Report of the Working Party
on Refuse Collection*

LONDON
HER MAJESTY'S STATIONERY OFFICE
1967

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CHAPTER 1

INTRODUCTORY

1. We were appointed by the Minister of Housing and Local Government in May 1963 with the following terms of reference:—

‘to examine the facts of refuse collection; to what extent it is unsatisfactory, what the difficulties are, and which methods are proving most successful; and to consider what advice can be given to local authorities on how to obtain the best results.’

2. We have held 25 meetings. We set up a small subcommittee, which met 4 times, to consider trends in the composition of house refuse and another subcommittee, which also met 4 times, to investigate the comparative cost of different methods of refuse collection.

3. We have construed our terms of reference as applying to house, trade and other refuse and as requiring us to consider the standard of the service given to householders and others, as well as the problems of local authorities. We have therefore paid attention to cleanliness; efficiency; frequency and regularity of collection; noise; any restrictions imposed by local authorities on what may be collected; charges, where levied; administration of the service; and cost to the ratepayer. We have also taken into consideration the working conditions of refuse collectors and problems of labour recruitment, but we did not think we were expected to make any detailed recommendations on labour relations and terms of employment, which are dealt with by a National Joint Council and for which the Ministry of Housing and Local Government are not responsible.

4. Our first task was to find the facts. We were able to draw on the knowledge of our members but additionally we invited evidence, sent out questionnaires and visited local authorities.

Evidence

5. We needed evidence both from those who were responsible for refuse collection services and from the recipients of these services. We received letters from a number of people who knew of our appointment, and we wrote to organisations which appeared to have a special interest in the subject or in some aspects of it. A list of the organisations and individuals from whom we received memoranda, letters or oral evidence is in Appendix A. Although not all of the evidence could receive a direct mention in our report, it has all been carefully considered.

Questionnaires

6. When we were appointed there were no comprehensive statistics on the subject of our investigation. We were able to make some use of the Public Cleansing Costing Returns published by the Ministry of Housing and Local Government, but neither the detail that these contained nor the number of authorities who contributed to them were enough for our purpose.

7. We therefore sent a questionnaire in January 1964 to every local authority in England and Wales. Because the number of local authorities was so large—1,460 at the time¹—nearly all the questions were framed so as to require simple answers which could be analysed by machine. A supplementary questionnaire calling for more elaborate answers was sent to 289 authorities, including all having a population of over 100,000, all the metropolitan borough councils and the City of London Corporation, and one in seven of the remaining local authorities.

8. 1,364 out of 1,460 councils answered the first questionnaire—a 93 per cent response. The total is analysed by type of authority in Table A in paragraph 41. A slightly better proportion, 276 out of 289, answered the supplementary questionnaire.

9. The population of the 1,364 local authorities who replied was some 44·8 million, which is not far short of the 1961 census population of 46·3 million in England and Wales.

10. Additional information on the cost of refuse collection and other matters was later sought from selected local authorities.

Visits

11. The places we visited, which are listed in Appendix B, were chosen so as to enable us to see in use all the principal methods of collection, types of vehicles and equipment, and methods of on-site disposal of refuse, as well as to study local problems. We also took the opportunity in every case to have informal discussions with representatives of the local authorities, and in some places to speak to housewives.

12. Several of our members visited the Continent in an individual capacity between 1964 and 1966 to see modern methods of refuse collection and disposal in use there, and the working party were able to benefit by their experience.

Local authorities' standards

13. Many of the recommendations we make in our report relate to the standards of service and the range of services which a local authority ought to provide. The replies to our questionnaires have enabled us to check local authorities' performance against some of the most important of our recommended standards. We leave the detailed result of this analysis until the end of our report so that before the reader comes to it he will have seen how we arrived at our recommendations. But it may be said immediately that on the tests we have applied there are very few districts, if any, in which there is no need for improvement.

Acknowledgements

14. In order to provide us with the information we needed and organise our visits a large number of people had to give up a considerable amount of their time. We are grateful for all their help and patience.

¹ Now 1,391.

CHAPTER 2

THE LAW

15. In the course of our report we touch on various details of the Acts relating to refuse collection in England and Wales. It may be helpful if we begin with a general account of the law.

16. The principal Act is the Public Health Act 1936. The local authorities with power to collect refuse are those often referred to as local public health authorities, namely county borough councils, non-county borough councils, urban district councils and rural district councils; and, in London, the London borough councils, the Common Council of the City, and the two Temples.

House, trade and other refuse

17. There is no legal definition of refuse. The Oxford Dictionary defines it as 'that which is cast aside as worthless; rubbish or worthless matter of any kind; the rubbishy part of anything'. Sections 72 to 74 of the Public Health Act 1936 distinguish between (a) house refuse, (b) trade refuse, and (c) refuse which the local authority 'are under no obligation to remove'. None of these terms is defined. Their meanings are discussed below.

18. The concepts of house and trade refuse have been modified in the course of time. In 1879 it was possible for High Court judges to agree in a London case¹ that there was no obligation on vestries to remove (as house refuse) 'old broken glass, shoes, and other things which it might not be convenient otherwise to get rid of', though as a rule the collectors were willing enough to take them because they could be sold. It is hard to imagine any local authorities refusing to take these things now as house refuse, or being upheld by a court if they did.

19. The 1879 court decision was based on the Metropolis Local Management Act 1855, which placed a duty on vestries in London to remove 'dirt, ashes, rubbish, ice, snow and filth' in or under houses and places within their parish, and also to remove, on request, 'the refuse of any trade, manufacture, or business, or of any building materials'. The former description, somewhat altered², and the latter with no change at all, survived as definitions of house and trade refuse in later London legislation until the Public Health (London) Act 1936 was repealed by the London Government Act 1963. Meanwhile the Public Health Act 1875 and later Acts applying to England and Wales were using the unadorned expressions 'house refuse' and 'trade refuse'.

20. It is a moot point whether the existence of definitions of house and trade refuse in the London Acts was an advantage. They did not prevent a good deal of litigation and it is not easy to base a concise statement of principles on the court decisions. But there seems to be general agreement that the most important consideration is the character of the refuse, and that house refuse is the sort of refuse which arises from the ordinary domestic occupation of a house. On this

¹ Collins v. Paddington Vestry 1879, L.J. 48 p. 345.

² The Public Health (London) Acts 1891 and 1936 said '“House refuse” means ashes, cinders, breeze, rubbish, night-soil or filth, but does not include trade refuse.'

test house refuse can be produced in premises other than houses, and even in the course of certain trades, in particular the keeping of a hotel or restaurant¹.

Powers and duties to collect refuse

(i) *House refuse*

21. The councils of inner London boroughs (i.e. those whose area is in the former county of London) have a statutory duty to collect house refuse². Elsewhere, local public health authorities may, and if required by the Minister of Housing and Local Government must, undertake the removal of house refuse from the whole or any part of their district³—without charge so far as their undertaking extends. We understand that it is many years since any Minister has had occasion to exercise his power to require a council to undertake the collection of house refuse.

22. Except in inner London a local public health authority can rescind their undertaking to remove house refuse, but they may not do so without the Minister's consent if their resolution was passed in compliance with a requirement by him.

23. Under Section 72(3) of the Public Health Act 1936 refuse collection authorities who have undertaken to remove house refuse may make byelaws:—

- (a) imposing duties on occupiers to facilitate collection;
- (b) requiring the use of dustbins provided by the authority;
- (c) prohibiting the deposit of liquids in bins;
- (d) controlling the deposit of refuse in ashpits or bins;
- (e) prohibiting the removal of refuse except by the council.

Reference is made to these byelaws in paragraphs 99 to 101.

(ii) *Trade refuse*

24. The inner London borough councils have a statutory duty to collect any trade refuse at the request of an occupier of premises². Elsewhere, a local authority may undertake the removal (similarly on request) of trade refuse, or any kind of trade refuse, from the whole or any part of their district⁴. There is no provision, as there is for house refuse, under which the Minister could require them to collect. Outer London borough councils need the consent of the Greater London Council (who are the refuse disposal authority) before they undertake the collection of trade refuse of a kind not previously collected within any part of their district. All local authorities collecting trade refuse must make reasonable charges⁴; they cannot legally make a general collection of trade refuse without charge⁵. Except for the inner London borough councils they have an implied power to rescind a resolution to collect trade refuse.

25. Disputes on what is trade refuse or what is a reasonable charge for removing it may be determined by a court of summary jurisdiction.

¹ *Westminster Corporation v. Gordon Hotels Limited* 1906 2 K.B. 39; *J. Lyons and Company Limited v. London Corporation* 1909 2 K.B. 588.

² Eleventh Schedule, London Government Act 1963.

³ Section 72, Public Health Act 1936.

⁴ Section 73, Public Health Act 1936.

⁵ Section 74, Public Health Act 1936.

(iii) *Other refuse*

26. A local authority may, at the request of any owner or occupier of premises, remove any refuse which they are not obliged to remove and for this they may make such charge, if any, as they think fit¹. This provision enables authorities to make occasional collections of house or trade refuse in any circumstances where they have not formally undertaken collection, and also enables them to collect refuse which is neither house refuse nor trade refuse. Unwanted motor cars and garden refuse are probably examples. Authorities may also use the same provision to remove, at the request of an owner or occupier of premises, any refuse, including old cars, which has been dumped on his land.

Frequency of collection

27. The general law does not specify any minimum frequency of collection. The Minister has no power to prescribe the frequency where a local authority have voluntarily undertaken this service. In the area of the former county of London, byelaws made by the London County Council which are still in force require the London borough councils to collect house refuse at least once a week unless unavoidably prevented. All authorities may, at the request of an owner or occupier of premises, remove any refuse more frequently than they are obliged to and may make such charge, if any, as they think fit¹. Thus an authority who, for example, have undertaken to collect house refuse once a week could charge for additional collections they agree to make from a person, say a hotel proprietor, who wants a collection two or three times weekly or every day.

Rights exercisable by the public

28. Where an authority other than an inner London borough council have undertaken the collection of house refuse or where any authority have undertaken the collection of trade refuse, an occupier of premises may serve notice on them to remove his house or trade refuse. If, without reasonable excuse, they fail to comply within 7 days (excluding Sundays and public holidays), the occupier may recover 5 shillings a day from them as a civil debt for every day on which the default continues after expiry of the notice.

29. A similar provision and the same penalty apply to house refuse in inner London, but here the authorities must appoint and give notice of the times of collection, and they are only given 48 hours (excluding Sundays and public holidays) to comply with a request from an occupier of premises to remove refuse which was not collected at the appointed time².

Access to premises

30. Local authorities other than the inner London borough councils are required to reject building plans for the erection or extension of a house unless a satisfactory access to a street for the purpose of refuse removal is to be provided; it is unlawful to close or obstruct the access for the removal of refuse from an existing house without the consent of the local authority³.

31. There is separate legislation for requiring inner London developers to provide a satisfactory access for refuse removal (see para. 36).

¹ Section 74, Public Health Act 1936.

² Eleventh Schedule, London Government Act 1963.

³ Section 55, Public Health Act 1936.

Salvage

32. A local authority may sell refuse which they have removed from any premises under the Public Health Act 1936¹. The Public Health (London) Act 1936, now repealed, stated expressly that refuse so removed became the property of the local authority. Some councils have successfully prosecuted refuse collectors who removed salvageable articles from the refuse without permission and who sold them for their own benefit.

Storage of refuse

33. A local authority can require the owner or occupier of premises from which they have undertaken the removal of house refuse to provide one or more covered dustbins of such material, size and construction as the authority may approve. In the event of non-compliance, or if the bins are not kept in good condition, the authority can provide bins themselves and recover the cost reasonably incurred. The person in default may also be fined 20s². A similar power enables the councils of inner London boroughs to require the occupier of any building within their area to provide dustbins for trade refuse³. In both cases a person aggrieved at being required to provide a dustbin may appeal to a court of summary jurisdiction.

34. Instead of requiring owners and occupiers of buildings to provide and maintain dustbins for house refuse (or for trade refuse in inner London), the local authority may undertake to provide them. For each dustbin they supply they may make an annual charge up to a maximum fixed by the Minister in statutory regulations—the present maximum⁴ is 7s. 6d. a year per bin—and they may recover the charge as part of the general rate for the premises⁵. This limit does not apply in Greater London if the bins provided have a capacity of over 3½ cubic feet⁵.

35. There is no provision in the Public Health Act 1936 expressly authorising local authorities to finance the supply of municipal bins from the general rate; but Section 75(3) of the Act could be interpreted as permitting them to do so and many local authorities have acted on this interpretation instead of making a charge for each bin supplied. Some have taken local Act powers to put the matter beyond doubt.

36. Inner London authorities may require the provision, to their satisfaction, of accommodation for bins for house or trade refuse, with satisfactory access to a street, in the case of new buildings, or ones being rebuilt, or where substantial alterations of use or structure are being made. There is a right of appeal to a court of summary jurisdiction⁶. A similar provision applies in Leeds⁷.

Paper sacks

37. A dustbin is defined by the Public Health Act 1936 as 'a movable receptacle for the deposit of ashes or refuse'. Paper sacks with their holders appear to

¹ Section 76, Public Health Act 1936.

² Section 75, Public Health Act 1936.

³ Article 25, London Government Order 1965 (S.I. 1965 No. 654).

⁴ In the Local Authorities (Charges for Dustbins) Order, 1957 (S.I. 1957 No. 304).

⁵ Eleventh Schedule, London Government Act 1963.

⁶ Section 24, London County Council (General Powers) Act 1959; Section 11, London County Council (General Powers) Act 1963; Section 32, City of London (Various Powers) Act 1961; as applied by Local Law Orders 1965 (S.I.s 1965, 540 and 508).

⁷ Leeds Corporation Act 1966.

be within this definition, so that they are governed by the legal provisions applying to dustbins. This is a point to which we return in paragraphs 100 and 205.

Litter Act 1958

38. This Act makes it an offence to deposit litter, without proper authority, in any place in the open air to which the public have access without payment. Proceedings may be instituted by the police, by local authorities or by private individuals. Where collectors spill refuse in a street, therefore, they commit an offence, and a few of them have actually been fined under the 1958 Act.

Local Acts of Parliament

39. Some local authorities have promoted local Bills in Parliament to deal with special problems. Since 1947, the following matters have been dealt with in local Acts of which we are aware:—

- (a) prohibition on putting certain things into dustbins;
- (b) prohibition on wilful removal of or interference with dustbins etc.;
- (c) provision of municipal dustbins;
- (d) provision (by occupiers of premises) of dustbins etc. for trade refuse;
- (e) power to lay pipes etc. for Garchey or similar systems;
- (f) provision and maintenance of and access to bulk refuse containers.

We discuss certain of these matters elsewhere in our report.

CHAPTER 3

STATISTICS

40. In this chapter we set out some of the main statistical facts extracted from the replies to our questionnaire to local authorities. The tonnages and costs we were given related to the financial year 1962/63 and in those cases we have added our own estimates of the current figures.

Population and premises served

41. The population of the 1,364 authorities who answered the questionnaire was about 44,792,000 at the 1961 census and they collected from some 15,768,000 premises. The figures by type of authority are:—

TABLE A

Type of authority	Total number of authorities (1964)	Number who answered	Population (1961)	Premises from which collections made (1964)
County boroughs ..	83	83	13,592,000	4,794,000
Metropolitan boroughs and City of London ..	29	28	2,979,000	1,007,000
Non-County boroughs ..	315	295	10,555,000	3,781,000
Urban districts	563	515	8,848,000	3,223,000
Rural districts	470	443	8,818,000	2,963,000
Totals ..	1,460	1,364	44,792,000	15,768,000

42. The 15,768,000 premises served consisted of 13,560,000 houses and bungalows, 806,000 flats and maisonettes and 1,402,000 business and industrial properties.

Tonnage collected

43. 1,187 authorities gave us a figure for the annual tonnage of refuse they collected in 1962/63. In most cases this was an estimate: only 134 of these councils weighed half or more of their refuse. The total of the returns was as follows:—

TABLE B

Classification of refuse	Million tons
excluding trade refuse and salvage collected separately ..	13.617
trade refuse collected separately	0.512
salvage collected separately	0.277
Total in accordance with the returns	14.406

44. But the Ministry's Public Cleansing Costing Returns have shown repeatedly that local authorities who weigh little or none of their refuse return higher average weights than those who weigh all or most of it. Allowing for these over-estimates the true total weight of refuse collected by the 1,187 local authorities in 1962/63 was probably about 13 million tons and the true total for all authorities in England and Wales is probably about 14 million tons; the volume is about 90 million cubic yards. As most people find difficulty in visualising so large a quantity it may be helpful if we mention that this volume of refuse would cover the square mile of the City of London to a height about equal to that of an eleven-storey block of flats.

45. The average flat or house would account for about 6 cubic yards a year, weighing about a ton; the average for each person is about 6 cwt. a year, or two cubic yards a year.

Extent of service

46. All the authorities who replied to our questionnaires collected house refuse, but we found that 192 of them did not collect from some dwellings in their area. From additional enquiries we made of these authorities, we estimate that in the whole of England and Wales probably no more than 35,000 to 40,000 dwellings do not receive a refuse collection service—about one-quarter of one per cent of all dwellings. For the most part they consist of isolated properties in rural areas, but in some districts there may be small groups of houses not receiving the service.

Number of men and vehicles employed

47. The 1,364 authorities employ 33,000 loaders and drivers and over 9,200 collection vehicles. On the basis of the adjusted figures in paragraph 44, on average they removed some 400 tons of refuse per man (including drivers) in the course of the year, roughly $1\frac{1}{2}$ tons each per working day; the average for each vehicle was about 1,400 tons of refuse during the year, about 5 tons per vehicle per working day. But there are, of course, wide variations between one authority and another because of differences in local circumstances and types of districts.

Cost of the service

48. 1,325 authorities gave us information about their expenditure on refuse collection for the financial year 1962/63. The total gross cost was £36,440,000 and from this it appears that the gross cost of refuse collection (i.e. excluding the cost of disposal) by all authorities in England and Wales was probably nearly £40 millions a year. This represents an average annual cost of about £2 10s. for each property. The total gross cost in 1965/66 will probably have grown to over £45 million so that the gross annual cost for each property has risen to over £2 16s.

Refuse storage receptacles

49. Table C shows the number of premises using various types of receptacle or methods of on-site disposal at the beginning of 1964.

TABLE C

(a) *Houses and bungalows**

Types of receptacle	Number of dwellings	Percentage of dwellings
Ordinary metal bins	12,698,000	93
Dustless loading bins (hinged lids)†	221,000	2
Paper sacks	62,000	Under 1
Other purpose-made receptacles	72,000	Under 1
Improvised receptacles	506,000	4
Total number of houses and bungalows	13,559,000	—

† Nine-tenths of all dustless loading bins were in the areas of two authorities (the Birmingham and Sheffield County Borough Councils). Most of the remainder were in the areas of ten other councils.

(b) *Flats and maisonettes*

Types of receptacle or disposal methods	Number of dwellings	Percentage of dwellings
Individual dustbins	469,000	58
Chutes and containers	301,000	37
Garchey system	3,000	Under 1
Kitchen grinders (see paragraph 242)	10,000	1
Other methods	24,000	3
Total number of flats and maisonettes	807,000	—

(c) *Business and industrial premises**

Types of receptacle or disposal methods	Number of premises	Percentage of premises
Ordinary metal bins	1,320,000	94
Paper sacks	3,000	Under 1
Refuse storage containers	12,000	Under 1
Improvised receptacles	59,000	4
Other methods	7,000	Under 1
Total number of business and industrial premises	1,401,000	—

* No figures were obtained for kitchen grinders in these types of premises.

50. As it is known that the use of dustless loading bins and paper sacks has been increasing during the period of our investigation, we have tried to bring our figures for these two kinds of receptacle up to date. We found that something over 346,000 houses and bungalows now have dustless loading bins, an increase of about 125,000 in two years. We could not get a comprehensive list of councils who had adopted the paper sack system or were trying it out, and we did not think we could reasonably circularise all local authorities again; but we have enough information to show that there must be several times as many paper

sacks in use now as at the beginning of 1964. The number of houses and bungalows equipped with them is probably of the same order as those with dustless loading bins.

51. We do not think our total figure for improvised receptacles tells the whole story. There must be many households which have dustbins but regularly put out additional refuse in cartons or any other containers that come to hand. However, there has probably been a small decrease in the use of improvised receptacles since 1964.

Refuse collection methods

52. The main methods of refuse collection together with the numbers of premises at which they were in use in the first quarter of 1964 are as follows:—

TABLE D

Method	Number of premises	Percentage of premises
(1) Kerbside collection (where the bins are set out and returned by the occupiers) ..	2,335,000	15
(2) Emptying into skips	3,385,000	21
(3) Collection and return of bin (the system in which the refuse collectors take receptacles from premises and return them after emptying)	8,479,000	54
(4) Advance preparation (where the bins are set out at the kerbside by the collectors and returned by the collectors)	1,433,000	9
(5) Exchange bins	46,000	Under 1
(6) Paper sacks	65,000	Under 1

Note: Dustless loading was in use for 221,000 houses and bungalows but these are also included in systems (3) and (4) above.

53. We deal with the facts relating to other aspects of refuse collection (e.g. frequency of collection) in the separate chapters which follow, and additional statistical tables will be found in Appendix J.

CHAPTER 4

THE CHARACTER AND QUANTITY OF HOUSE REFUSE

54. Simple observation shows that in general the volume of refuse from each household is greater than ever before. If a reliable forecast could be made of the future quantity and composition of house refuse this would be useful to local authorities in considering vehicle and labour requirements and general policy. But none of the statistical evidence we have seen is enough to enable us to state as accurately as we should like to do the way in which refuse is changing, and how it is likely to change in future. Very few authorities appear to have made regular analyses of their refuse, though it is encouraging to know that the Greater London Council have set up a special unit in their Public Health Engineering Department to study the composition of refuse in their area. Research into the matter was begun in 1960 by the Institute of Public Cleansing, who kindly placed their figures at our disposal prior to publication¹. But this was a limited investigation over a period of three years confined to a dozen or so authorities.

55. At present the refuse from ordinary residential property is composed (by weight) on average of

about 35 per cent to 40 per cent of fine matter (mostly dust and ash) and cinders;

about 25 per cent to 30 per cent paper and cardboard;

about 10 per cent to 15 per cent vegetable and putrescible waste;

about 5 per cent to 8 per cent metals and a similar percentage of glass,

with smaller percentages of rags and unclassified material.

56. To express these percentages any more precisely would be misleading. Because of the miscellaneous nature of the material, representative sampling is difficult, and there are local and seasonal variations in composition. Coal-mining towns will produce a greater proportion of ash and cinders than others; seaside resorts in summer may have a particularly large amount of food wastes; good-class residential areas, for example dormitory towns near London, seem to put out much more paper than elsewhere. In winter, the proportion of dust, ash and cinders is at its highest and the proportion of paper and other easily burnable refuse put into dustbins can be expected to be at its lowest. But there appears to be a tendency for seasonal differences to become less marked, no doubt in step with the increasing use of other fuels in place of coal.

57. Taking account of the general experience of officers responsible for refuse collection services, there is no doubt that for some time domestic refuse has been getting bulkier. The volume of refuse from each household has been growing steadily, while its weight has tended to fall. We estimate that the amount of refuse collected per 1,000 population has fallen from an average of 292 tons

¹ The Analysis of Domestic Refuse, by A. E. Higginson; Institute of Public Cleansing, 1966

in 1962/63 to an average of about 265 tons at the present time. In the analyses which we have seen densities have fallen some 20 per cent to 25 per cent between 1961 and 1965/66. The main reason for the changes is that refuse contains less ash and more paper. In pre-war analyses at Birmingham and Wandsworth, ash formed (by weight) more than three-quarters of household refuse; now it is less than half. And the paper content in those places has grown from less than a tenth to nearly a third. American experience may be a pointer to the future in this country; at Chicago in 1956-1958 more than half the weight of domestic refuse consisted of paper and less than one-fifth was ash. At present the average density of refuse in this country ranges from about 2 to 4 cwts. per cubic yard.

58. The present average weekly yield of refuse per household may be estimated at $2\frac{1}{2}$ to 3 cubic feet where the frequency of collection is once a week. It follows that where a $2\frac{1}{2}$ cubic foot British Standard bin is in use many households must compress refuse in order to get it into their dustbins, and many have a larger bin or more than one bin.

Flats: special conditions

(i) All-electric flats etc.

59. On the limited information available it seems that the output of refuse from flats without solid fuel heating is about $2\frac{1}{2}$ to 3 cubic feet per week, i.e. about the same volume as the general average, but at nearly half the weight and density.

(ii) Flats with on-site disposal systems

60. We were given the results of a small-scale analysis of refuse collected from two blocks of flats in Birmingham equipped with the Garchey system which we describe in Chapter 10. In those blocks the weekly amount of refuse to be collected per dwelling was about the same in volume as in any other flats but a little less in weight. This is probably mainly because much of the bulky material such as cardboard does not go into the Garchey system but is collected separately.

61. Another small-scale analysis of refuse collected from a block of 21 flats at Bristol, 18 of which were equipped with sink waste disposal units of the 'kitchen grinder' type, appears to indicate that the use of kitchen grinders in those cases was generally limited to food wastes, probably no more than 10 to 15 per cent of the total refuse by weight.

The future

62. We think domestic refuse is likely to go on getting bulkier for some time yet because of:—

- (a) the increasing use of packaging and of disposable goods such as paper towels, paper dishcloths, paper cups and plates and 'one-trip' containers;
- (b) the increasing number of smoke control areas, the improved efficiency of solid fuel heating equipment and, even more, the growing popularity of non-solid fuel forms of heating.

63. The use of packaging is expected to continue to grow as a result of a rising standard of living, an increased demand for consumer goods, greater emphasis on food hygiene, the proliferation of self-service stores and supermarkets, and, not least, the wider realisation by traders of the commercial

advantages of attractive packages. Unfortunately the only figures we have to illustrate this trend are in terms of value and are therefore not reliable indicators of quantities. Although there has been an increased demand for new packaging material, production figures quoted in the technical press in 1963 showed that four traditional materials—paper, board, glass and tinplate—still accounted for three-quarters of the value of the chief materials. The consumption of plastics and aluminium for packaging is however growing rapidly (although these still account for only a very small percentage of the *value* of all packaging materials) and so is the use of tinplate for food and drink. Up to recently the new materials did not appear to be gaining at the expense of others: all were adding to the overall growth rate for packaging as a whole. The National Plan¹ confirms the continued general growth of all types of packaging material. The plan suggests, however, that 'the initial break-through in packaging has already been made and that the competition from other materials, particularly plastics, will mean that the board products will do well to hold their present dominant position'. The milk industry told us that it was difficult to foresee cartons replacing bottles to any material extent for milk for domestic use in the next ten years, although the move towards cartons would continue. It seems to us that the speed of the change-over is uncertain; it may in future be quicker than the industry have estimated.²

64. The domestic consumption of coal and manufactured solid fuel fell from 39 million tons in 1955 to about 29 million tons in 1965 whereas during the same period the domestic consumption of both electricity and oil more than doubled. Householders are also using more gas. We think that these trends are likely to become more pronounced. Consequently house refuse may be expected to contain less fuel ash and cinders but more paper and packaging material since less will be burnt. Wherever the paper sack system is introduced the sacks themselves will add to the quantity of paper collected.

65. The National Plan forecasts that, with allowance for migration, the population of England and Wales will rise to 50·2 million by 1971 and to 54·4 million by 1981 and that new households are likely to be formed at an average rate of about 140,000 a year over the period 1965 to 1975. Obviously more people and more households will generate more refuse and local refuse collection services will need to be extended—perhaps considerably in some places—to meet the new demands. This is a matter of local organisation and local authorities are well used to altering and extending their services to meet the needs of their districts. The number of persons per private household has a special significance for purposes of refuse collection because it has a direct bearing on the quantity of refuse which the average household is likely to generate per week, and so on the amount of storage required. The number is expected to remain at three for the period covered by the National Plan.

66. Having considered all the information available we think that the present trend for refuse to increase in volume may be expected to continue for the next 10 to 15 years or so. We have not enough evidence to justify a precise forecast but by that time the average weekly output of refuse per household may well amount to between 4 and 5 cubic feet, perhaps composed by weight of more than

¹ Cmnd. 2764 September 1965.

² There is support for this view in the Report of an Enquiry into Methods of Milk Distribution in England and Wales; H.M.S.O. 1966.

50 per cent paper and packaging material and less than 20 per cent of ash and cinders—twice the present proportion of paper and about half as much cinders and ash. We think therefore that the average weight of refuse per household will go on falling and that consequently the average density of household refuse is likely to come down to about $1\frac{1}{4}$ to 2 cwts. per cubic yard (7 to 8 lbs. per cubic foot) over this period.

67. We deal with the implications of this forecast in the sections of the report dealing with refuse storage, Chapter 6, and the frequency of collection, Chapter 7. The question arises here whether any attempt ought to be made, in the public interest, to persuade trade and industry to check the still rising tide of packaging. The use of cartons etc. larger than is necessary to hold their contents, or over-lavish packaging for visual effect, can be criticised from several points of view; the additional load on the refuse collection and disposal services is one. It may not be easy to restrain the quantities of packaging but at least the materials used could perhaps be chosen with rather more thought for the problems of salvage and disposal. For example, some designers might be willing to avoid printing plastic lettering on paper if it were pointed out to them that this made the paper—and other paper with which it might accidentally be mixed—unsuitable for conversion into board. We suggest that these matters might usefully be discussed by the Government with representatives of trade and industry.

CHAPTER 5

RESTRICTIONS IMPOSED BY LOCAL AUTHORITIES

68. We found that 94 of the 276 local authorities who replied to our supplementary questionnaire imposed their own local restrictions on the collection of refuse. The main things which not all of them would collect (whether on payment or not) were garden refuse, builders' rubble, household articles and furniture, soot, 'anything other than house refuse', and dangerous substances.

69. A few small local authorities collect only tins, bottles and ashes, apparently to keep down costs or to save tipping-space. These councils expect their ratepayers to burn other refuse. The practice is a bad one and a frequent cause of nuisance. Householders are given a poor service and we do not believe that it has much effect on the cost of collecting house refuse.

70. Ten of the 276 councils from whom we received supplementary information restricted their service to collecting one bin or sack per family per week. We are advised that there is no legal backing for such restrictions. In any event, we think they are ill-conceived, inconvenience the householder, and may encourage the dumping of refuse. We consider that this is not the kind of economy which a public health authority should make and that they should be prepared to remove whatever quantity of house refuse is produced by each household.

71. The refusal to remove soot is backed by a local Act in one case (Wallasey, 1958), though another council in the following year failed to get Parliamentary approval for the same provision. On merits we do not think there is any reason why a council should refuse soot from a householder provided it is wrapped. Not everyone can use it up in a garden and it can be an embarrassment to the householder.

72. The same point can be made in the case of certain soiled articles such as sanitary towels and ordinary surgical dressings. These can be thoroughly wrapped and put into dustbins or other refuse receptacles. Where there are large housing estates, the local authority's cleansing department should make special arrangements with the local health department for the collection and disposal of material from home maternity cases and of incontinence pads¹.

73. The most difficult materials on which to give general advice are those described as dangerous, for the term could include even war relics which no sensible person would mix with his refuse, and which indeed it is illegal to put into a dustbin². But the local Acts to which we have referred show that among the things intended are some quite commonplace ones like fluorescent tubes or parts of such tubes; and corrosive substances and inflammable liquids, which are also specified, could include remainders of household cleaning liquids and

¹ Ministry of Health Circular No. 14/63 issued on 19th July 1963 refers to the collection and disposal of incontinence pads.

² Byelaws made by the Home Secretary under the Explosives Act 1875 (S.R. & O. 1924 No. 1129) require that 'explosives shall not be deposited in any receptacle or place appropriated for refuse and shall not be handed or forwarded to any dustman'.

so on. The objection to fluorescent tubes may have arisen many years ago when beryllium was used in their manufacture. We do not think that tubes of recent make are any worse a hazard than other things made of glass.

74. We think that local authorities should, so far as they possibly can, accept a special responsibility for the collection of objectionable or dangerous refuse from householders so as to secure its safe disposal. If the local authority will not accept it members of the public may be left in an impossible situation, with no other agency to whom they can turn. It may well be that the public should be advised not to put some of these things into the dustbins, or preferably (as in the City of London) not to do so without warning the refuse collectors. But we note that hardly more than half-a-dozen authorities have felt it necessary to take local Act powers to restrict what may go into bins, although they have had twelve years in which to think about following the first local Act precedent of this kind.

75. It may be that advice on this matter could be incorporated in the leaflet of guidance which we suggest in paragraph 94 should be prepared by each council.

76. There are a few local Act restrictions on placing liquid or partially liquid refuse, not in a closed container, in dustbins. These seem not unreasonable, though they do not add very much to the power to prohibit the deposit of liquids in dustbins by byelaw under section 72(3) of the Public Health Act 1936.

77. Although this did not emerge from the replies to our questionnaires, we are aware that some local authorities will not take any refuse put out by a householder that is not contained in a bin. This is unfair to people who may find, exceptionally, that they have more refuse in a week than their bin will hold and who put out, say, a carton containing the excess. The local authority have powers to deal with the problem of premises where one bin is clearly not enough (see paras. 33, 34 and 23).

78. Our views on the collection of garden refuse, builders' rubble, household articles and furniture, which are probably the chief things banned by those authorities who will not collect 'anything other than house refuse', are set out in Chapters 14 and 16.

CHAPTER 6

STORAGE AT SMALL BUILDINGS

79. In this chapter we consider the storage of refuse at houses, bungalows, small blocks of flats, and the smaller types of business and industrial premises. Buildings large enough for chutes to be used to convey refuse to central points for collection or on-site disposal are discussed in Chapter 10. In regard to the subject matter of both chapters it is worth referring to the British Standard Code of Practice CP 306 (1960), entitled 'The Storage and Collection of Refuse from Residential Buildings'. Although the Code of Practice is no longer fully up to date and the British Standards Institution are revising it, it offers much sound advice.

80. The average householder stores refuse in the kitchen for a short time before taking it out to the bin or container from which it will be collected. There is a British Standard (B.S.1577: 1949) for a covered galvanised binette with a nominal capacity of $\frac{1}{2}$ cubic foot—equivalent to a 3-gallon bucket—intended to be used in this way, or instead of a dustbin where the yield of refuse is low and collections very frequent. It has a non-detachable lid which can be pivoted aside. These binettes are far less popular than pedal-operated small bins of plastic or painted metal or the various devices which hold paper or plastic bags. Although the non-standard kitchen bins for the most part cannot compare in strength with the binette, the plastic ones are easier to keep clean, while disposable bags offer an obvious advantage in hygiene. Pedal-operated lids, too, are more hygienic as well as more convenient than the binette lid which must be moved by hand.

Storage receptacles

81. It was put to us by the Association of Public Health Inspectors that the dustbin could no longer be regarded as a hygienic means of refuse storage and the Association of Rural District Council Surveyors said that the ordinary metal bin, although relatively cheap, was insanitary, noisy, heavy and unsightly. The Institute of Public Cleansing suggested that lighter and less noisy materials should be specified by the British Standards Institution.

82. Although we do not go as far as the Association of Public Health Inspectors, who expressed a very marked preference for disposable containers, we agree that the ordinary galvanised iron bin is not satisfactory. We consider its merits and demerits, along with those of other bins, in the remaining paragraphs of this chapter, since we think it necessary to assume that galvanised and other loose-lidded bins are likely to continue in production for some years at any rate. We reserve our general discussion of disposable receptacles for Chapter 9.

83. The first requirement of a refuse storage receptacle is that its contents should not give rise to nuisance while awaiting collection. The receptacle should therefore be designed to keep out animals, flies, rain and snow. For the sake of the householder, but even more so of the refuse collector, it should not be heavy. Except for the kind which is intended to be disposed of with its

contents it should be durable, and strong enough not to be easily distorted by an accidental bump. The lids should fit well. Dustbins with detachable lids are not entirely satisfactory for the very reason that the lids can be left off or not put back properly. Improvised receptacles are almost always quite unsatisfactory and should not be tolerated except for occasional use to accommodate some extra refuse.

The ordinary metal dustbin

84. The British Standards Institution have issued a specification for various sizes of galvanised mild steel bins with plain sides—B.S. No. 792/1947 (last amended 1965). Being tapered, they can be stacked so as not to take up too much room while in store, which is an advantage to local authorities operating municipal bin schemes. Those for general domestic use are of $2\frac{1}{2}$ cubic feet and $3\frac{1}{4}$ cubic feet nominal capacity and, including the lid, weigh 23 lbs. and 28 lbs. respectively. To comply with the standard they must be galvanised after manufacture—an important point. Experience has shown that they give long service. There are, however, many non-standard steel bins in use and in the shops; many of them are not strong enough or rust too easily. There are some fairly good galvanised bins of lighter weight than the British Standard and having vertical sides with fluting to add strength to the lighter gauge of metal. Because of the fluting they are harder to keep clean than standard bins, and they are not adapted for stacking. But with the generally lighter and drier refuse which is now becoming usual there is less objection to them than formerly.

85. Some galvanised bins have rubber rings at the base and rubber lids to reduce noise; these are good points.

The Falkirk bin

86. One suggestion made to us was for the improvement of the design of bins to prevent interference by animals, especially by the sheep which invade some towns in the valleys of South Wales and which are expert in removing bin lids. There is, however, already available a bin which can prevent this trouble—the Falkirk type of bin which has a metal strap across its top to secure the lid.

Plastic and other dustbins

87. Plastic bins, if enough attention is paid to strength and durability, will be preferable to metal ones, being lighter, quieter to handle and probably easier to keep clean, though more liable to damage if misused by having hot ashes put into them. Some bins made of an apparently very durable plastic have been marketed. But there are others on sale in the shops which have gained some popularity because of their colour, appearance, and lightness, which are in fact too light and brittle; these are often damaged in everyday use and especially in frosty weather. We think the time has come when, in order to give guidance to purchasers as well as manufacturers, the British Standards Institution should consider urgently whether a British Standard can be produced for plastic bins, both those with detachable lids and the kind intended for dustless loading (see paragraph 89).

88. At least one council are trying out fibreglass bins. We understand that these have stood up to preliminary tests and that a number of them have been distributed to householders for trial use.

The dustless loading bin

89. The dustless loading bin (see Illustration 1) has a hinged lid and is designed for use with specially equipped vehicles. It is normally supplied by the local authority. This system, with which we deal more fully in chapter 9, keeps the refuse fully enclosed throughout the process of collection. The British Standards Institution have issued a specification, B.S. No. 3654/1963, for four different types of galvanised steel bins for dustless loading. Each has plain tapered sides. For each type there are two sizes, $2\frac{1}{2}$ cubic feet and $3\frac{1}{4}$ cubic feet. They are heavier than the ordinary dustbin; for example, the $2\frac{1}{2}$ cubic feet bins weigh from $25\frac{1}{2}$ lbs to 35 lbs. according to type. To reduce weight, bins constructed of lighter gauge metal or partly or mainly of plastic have been introduced. We understand that the local authorities who are using them find them satisfactory. The plastic ones are made of a durable material and the councils using them expect them to last as long as standard metal ones. The weight of a $3\frac{1}{4}$ cubic feet plastic dustless loading bin is $12\frac{1}{2}$ lbs.; the lighter-gauge metal bin of $2\frac{1}{2}$ cubic feet capacity weighs 23 lbs.

Size of bins

90. With the growing bulk of domestic refuse to which we have referred in chapter 4, the question arises whether standard bin sizes should be reconsidered, especially if standards can be drawn up for bins made of plastic or other light materials. Larger metal bins would be heavy. The weight of a full plastic bin of, say, 4 cubic feet capacity might not be excessive, but it would be rather large for the refuse collector and the householder and would not everywhere avoid the need for a second bin. The additional capacity, where needed, can be better provided by two smaller bins. We think it would be best to keep to the present standard sizes of $2\frac{1}{2}$ cubic feet and $3\frac{1}{4}$ cubic feet.

Care of bins

91. We believe that comparatively few householders cleanse their dustbins after emptying but some of them keep the bottom of the bin clean enough by lining it with newspaper. Some deliberately fire the contents of the bin, a practice not to be recommended because it annoys neighbours and damages the bin. We do not think that uncleaned bins are likely to have any effect on public health provided that visible remnants of refuse in which flies may breed are not left sticking to the inside. But brushing or washing the bins also helps to remove the stale smell of refuse and if it is done regularly the operation is not particularly unpleasant, especially with plastic bins. We have no doubt that most housewives would much prefer the local authority to do the job for them, but the mechanically rotating brushes which we saw fitted to some collection vehicles scattered dust and we were not favourably impressed by them. In a few places on the Continent, hot water or steam are used to better effect. Up to now bin-washing by the local authority is almost unknown in this country except where empty bulk containers are cleansed at a depot before being taken out to exchange for full ones. It would add considerably to the cost of collection and should not be necessary for domestic bins if householders are given advice of the kind we suggest in paragraph 94.

92. Devices can be fitted to collection vehicles, especially dustless loading vehicles, for injecting liquid disinfectant into bins after emptying. We do not recommend this.

93. In a few districts the refuse collectors dust the inside of bins with disinfectant powder after emptying. This is probably less commonly done than it used to be. Although perhaps reassuring to the housewife, the powder can disinfect only what it touches and so does very little to disinfect the bin. Much more of a safeguard, in our opinion, is a regular weekly collection and the proper use of the bin, both of which help to prevent flies from breeding.

94. We think that it is well worth while for authorities to issue advice in simple language on the proper care and use of dustbins and other receptacles. In the specimen leaflet at Appendix C we show the kind of way in which we think the advice might be presented.

Location of bins

95. Where a house has a side or rear access, the refuse receptacle is usually kept by the side door or back door, i.e. just outside the kitchen and handy for the deposit of refuse by the householder. We think that this is usually the right position and that refuse collection should start from this point, though it may well be (as we point out in Chapter 11) that where estates have been laid out without regard to ease of access the carries may be undesirably long.

96. Where there is no side way or convenient rear access, it frequently happens that the collectors cannot go through the house because the occupants are out all day and so the receptacles stand by the front door—not just on the day of collection, but permanently. This is unfortunate since the bins are often unsightly, and it can lead to litter in the streets—where, for example, lids are not put on properly or are pushed off by animals or children. The best solution to this problem at present is to use a paper sack which can be kept in a holder at the back of the house until collection day and can then be put out by the householder. But the real need is to correct the situation whenever the type of terraced property concerned is redeveloped, and to make sure that the same mistakes are not repeated in new buildings. We make recommendations to this end in Chapter 11.

97. The idea adopted in some places of providing brick or concrete bin-chambers in front of the houses can look neat but is impossible where houses have no front gardens and pavements are narrow. The provision of bin ports or shelters near the back door, but set in an external recess in the building to avoid obstruction and for neatness, would be an advantage for the storage of one or two receptacles. Where large quantities of refuse arise bulk containers are infinitely preferable to groups of bins. But if bulk containers are not possible, it is tidier to house groups of bins in specially built enclosures; they would have to be well ventilated and, because householders (to say nothing of collectors) will occasionally spill refuse by accident, regular cleansing of the enclosures would be important.

98. It is rare for bins to be kept in the house, except for small containers which are taken out every day to be emptied. Some post-war houses have, however, been built with bin compartments so designed that the bin is accessible to the housewife from within the house and to the refuse collector from outside. We saw some terrace houses at a new town where dustbin compartments had been constructed as part of the utility room at the front of the house. These follow the Code of Practice and their appearance from outside is certainly neat. Tenants we spoke to, however, mentioned smells and flies in summer and thought it would be better if dustbins were located further away from the living accom-

modation. We are of the same opinion. It seems to us that it is better for dustbin cupboards not to be accessible from inside the house. In any case if they are constructed to take only one bin a problem will be created where the volume of refuse increases.

Local authorities' byelaws

99. From the replies to our questionnaire we found that only 165 local authorities had byelaws in force under section 72(3) of the 1936 Act (see paragraph 23).

100. A copy of the model byelaws issued by the Ministry of Housing and Local Government is at Appendix H. They are drafted with reference to dustbins, this being the word used in section 72(3) of the 1936 Act. It is not surprising that there is no express reference to paper sacks since these are a comparatively recent introduction. Although the Act defines a dustbin as 'a movable receptacle for the deposit of ashes or refuse'—a definition which, in our view, is wide enough to include paper sacks—it seems to us that it is desirable to frame the model byelaws in wider terms.

101. The byelaws of individual local authorities confirmed by the Ministry in recent years are all based closely on the model and it seems to us that the model byelaws would make equally good sense for the whole country. They might, therefore, be replaced by general regulations when a suitable opportunity for legislation arises. This would save work on individual byelaw series in local authority offices and in the Ministry.

Access by refuse collectors

102. In general refuse collectors should pick up bins from the point where they usually stand. All the householder should need to do is to remember to unlock any side or back gates at the time of collection.

103. Difficulties arise in some areas where houses stand some way back from the road and are approached by long paths or drives. Byelaws based on the model require householders to bring refuse to a point on the premises which can be conveniently reached from a street, and disputes sometimes arise on the interpretation of this requirement. It is hard to give general advice in these cases but we suggest that local authorities should have regard to what is reasonably practicable both for the collectors and for the householder. Not only old age pensioners and invalids but many ordinary householders find it a strain to carry a bin full of refuse. It may sometimes help if collectors are issued with bin trolleys. Some authorities have solved the problem by using a small vehicle which is able to negotiate comparatively narrow drives. Collection from isolated houses and farms in rural areas is another problem which we consider to be a matter for local arrangement. Again it may sometimes be a question of using a small vehicle on a special round.

Provision of receptacles by local authorities

104. We found that 279 councils supplied dustbins otherwise than to their tenants. 156 of these authorities bore the cost entirely on the rates. (This does not necessarily mean, however, that they provide all the bins in their districts.) 108 authorities met the cost entirely by an annual charge to the householder supplied, and a further 15 charged the householder part of the cost.

105. Several organisations suggested to us that the provision of refuse receptacles by local authorities ought to be a standard practice and that the cost

should be borne on the rates. The Rural District Councils Association also favoured municipal supply but considered that part of the cost should be met by the householder.

106. The Institute of Public Cleansing said that the provision and maintenance of receptacles as a rateborne service was 'essential to ensure that storage prior to collection was clean, noiseless, safe, dependable and sufficient'. The Association of Municipal Corporations said that municipal provision would 'help to ensure an adequate provision of suitable containers and a much greater degree of flexibility, under local authority control, in what is the first stage of refuse collection'.

107. We entirely agree with the views quoted in the preceding paragraph. Provision of receptacles by the local authority is, or should be, implicit in dustless loading and paper sack schemes, but it is also important where ordinary bins are used. Householders left to themselves will buy what they can find in the shops, and some of the bins on sale are not stout enough for the wear they will receive. Too many houses are served by improvised receptacles. Local authorities can indeed require all householders to provide themselves with good dustbins, but the effort involved for the local authority is much greater and they must follow up by inspections to see whether their notices have been complied with. Replacement of damaged bins is also easier with municipal schemes; this deserves to be stressed because it is an aid to cleanliness and protects the refuse collectors from injury. Municipal provision also facilitates the introduction of new methods and eliminates disputes as to whether the owner or the occupier of tenanted premises should supply the bin.

108. It is true that local authorities can—and many do—supply and maintain bins at an annual charge to each person supplied. This method shares with the true municipal bin scheme the economies of bulk purchase, and some people may think it fairer than to spread the cost over all rateable properties; but it involves too much administrative and accounting work. We see no reason why a householder who has damaged his bin by misuse should not be required to contribute to the cost of a replacement, but with this exception we are satisfied that the benefits of a conscientiously run bin supply scheme in which the cost is borne on the rates amply justify the adoption of such a scheme.

109. Indeed, we are so convinced that less thoroughgoing action by local authorities will not give fully satisfactory results that we think the matter should not be left to local choice. We therefore recommend that legislation should be introduced as soon as possible requiring local authorities to provide receptacles for the storage of refuse at all the residential premises (defined in Chapter 16) from which they collect. We consider, however, that authorities should be advised to act in advance of the suggested legislation. The arrangements for the provision of municipal bins or other receptacles should be explained to householders and an example of the sort of letter which might be sent is in Appendix D.

110. Trade, commercial or industrial premises from which the local authority collect may need containers larger than some councils could conveniently stock for the purposes of a municipal supply scheme, but we think that local authorities should have a discretion to provide receptacles for these premises. They should also have a power, similar to the one in force for trade refuse in inner London, to require traders and industrialists to provide adequate receptacles for storage. This might with advantage be applied even where the firms concerned have private arrangements for refuse collection.

CHAPTER 7

FREQUENCY AND TIMES OF COLLECTION; TRAFFIC PROBLEMS

111. The replies to our questionnaire showed that while most authorities collected at least once weekly, there were many—for the most part rural district councils—who did not.

112. The average frequency of collection is shown in Table E:—

TABLE E
(a) from houses and bungalows:

Average frequency of collection	Number of local authorities	Percentage of authorities
Less than once weekly	237	17
Once weekly	1,048	77
Twice weekly or more often	79	6

(b) from flats and maisonettes:

Average frequency of collection	Number of local authorities	Percentage of authorities
Less than once weekly	135	12
Once weekly	848	78
Twice weekly or more often	105	10

(c) trade refuse:

Average frequency of collection	Number of local authorities	Percentage of authorities
Less than once weekly	137	11
Once weekly	803	65
Twice weekly or more often	290	24

The increasing volume of refuse

113. We forecast in paragraph 66 that the weekly output of refuse may rise to between four and five cubic feet per household in 10 to 15 years' time. As a result a choice will probably have to be made between larger receptacles, or more of them, and additional collections. It will normally cost less to provide receptacles with enough capacity for the weekly output than to collect more often (though it is a fallacy to suppose that costs are in direct proportion to frequency). There is a limit to the size of receptacle that can be conveniently handled by one man and two receptacles will probably be needed at most houses (see paragraph 90).

Frequency of collection in relation to hygiene

114. If cost and additional demands on labour did not matter at all, there would probably be far more voices heard to say that refuse ought to be collected more often than once a week. But as cost and labour do matter we must consider what the minimum frequency ought to be. A fortnightly collection is clearly not enough. A service as infrequent as this makes things difficult for many householders. Either they must burn or bury some of their refuse—assuming they are responsible enough not to dump it—or they must provide more storage space, put up with smells from their bins if not also from those of their neighbours, and move heavier loads if the collectors do not come to the back door.

115. But the most important consideration is that of public health. House refuse is a breeding place for flies which are potential disease spreaders. Blowflies (bluebottles and greenbottles) and, in much smaller numbers, houseflies have been found to breed in dustbins all the year round. During the summer both types develop very rapidly in fermenting refuse, usually becoming mature adults in about two or three weeks, though blowflies may take as little as nine days. There is a tendency for blowfly larvae to migrate from their food (and the refuse bin) when fully grown. In ordinary domestic refuse this is likely to happen after seven to twelve days. A weekly collection of house refuse throughout the year is the minimum frequency which could be expected to prevent infestation of houses by flies breeding in dustbins and it is therefore the minimum which we recommend both for urban and for rural areas. Even so it is important that no refuse should be allowed to remain sticking to the inside of bins after they have been emptied. In some heavily built-up areas or for flats where storage space is limited, more frequent service will be desirable.

116. Special considerations apply to the frequency of collection of food wastes from shops, restaurants, hotels, canteens and hospitals. This kind of refuse ferments very readily and at the comparatively high temperatures which are generated the blowfly larvae may exceptionally become fully grown and seek to migrate only three days after the eggs are laid. If the bin is full or the inside wall is moist they find no difficulty in crawling out. This sort of refuse should therefore be collected at least twice weekly.

Public holidays

117. It is also important for the service to be regular. Where the regularity is disturbed by bank holidays, etc., there ought to be an extra effort to ensure that a collection is not missed; the temporary arrangements made should be well publicised beforehand. Some local authorities supply householders with disposable sacks to store extra refuse over holiday times or when bad weather delays collection. This is useful if the council, in spite of all reasonable efforts, cannot collect within a day or so of the normal time.

Hours of collection

118. We found that most councils started collections after 7 a.m. and that most finished before 5 p.m. Only 43 of them normally started before 7 a.m. The normal finishing time was:—

- before 3 p.m. for 26 councils;
- 3 to 4 p.m. for 195 councils;
- 4 to 5 p.m. for 963 councils;
- after 5 p.m. for 179 councils.

119. Where collections are started very early in the morning, it is likely that some people will be disturbed, particularly if they live near the vehicle depot. But the appropriate hours for collection must depend to a large extent on local factors, such as traffic conditions. The problem is not made any easier where shift workers are sleeping during the day. In the majority of places it is probably best not to start before 7.30 a.m. in order to disturb as few householders as possible. Where an earlier start is made, it becomes more important to reduce noise. Bins can be fitted with rubber rings at the base and rubber lids, or plastic bins or paper sacks can be used. Unfortunately, as we mention in Chapter 8, quiet collection vehicles are not easy to come by and we think the vehicle manufacturers should give more attention to this.

120. Traffic is a growing cause of concern to many refuse collection authorities. This is a problem which can only be answered by arranging for collections to take place before or after the congestion periods. For some time a number of authorities have been obliged to collect from shops and offices in city and town centres in the evening or at night. In areas which are partly residential this adds to the need for quietness in collection. We think the practice of night collection is bound to grow and occupiers of premises in congested areas may need to make special arrangements to enable collectors to gain access. Some lock-up shops have bin cupboards under their display fronts; the cupboards are kept locked and the collectors supplied with keys. Where this can be done it is far better than letting bins and sacks clutter shop doorways and pavements after business hours where they may be interfered with by vandals.

Parking

121. Both car parking and restrictions on it may cause difficulty. The nose-to-tail parking of cars seen in many urban streets, especially when it occurs in narrow residential roads and culs-de-sac, obstructs the collectors and may also seriously impede the collection vehicles. In a London suburb where cars were parked on both sides of the street, a collection team were recently seen to manhandle a motor-cycle combination out of the way to make room for a container-emptying vehicle to reverse into the drive of a block of flats. On another day there might easily have been a heavy motor-car parked at the crucial spot. In a seaside town we saw streets of terraced houses where, in the holiday season, cars are parked day and night on both sides of the road. If a refuse collection vehicle stops in such a street, no cars or lorries can get past. For a holiday resort anxious not to discourage visitors, the solution is not easy. Some London local authorities have suggested that in certain residential streets where this trouble arises, parking should be restricted to one side of the road at a time. The solution of this problem must involve a wider consideration of traffic difficulties than would be appropriate for us.

122. We were told that refuse collection vehicles had difficulty in making collections from premises in busy roads where official parking restrictions were in force or which were clearways. We understand from the Ministry of Transport that the standard order establishing a clearway includes a specific exemption for 'a vehicle . . . used for the purpose of the collection of household refuse from . . . premises situated on or adjacent to the road comprising that carriageway', where there are no facilities for such vehicles to stand clear of the main carriageway. As regards orders made by the Minister of Transport imposing waiting restrictions on trunk roads, we understand that these now regularly

CHAPTER 8

REFUSE COLLECTION VEHICLES

123. Four general factors have drastically affected the design of refuse collection vehicles in this country.

- (a) Public desire for improved standards of cleanliness; many vehicles can now collect refuse so that it is not readily seen and does not give offence by smell, dust emission or the spillage of litter.
- (b) The need for bigger payloads to cope with the growing bulk and falling density of house refuse and to reduce costs. This has led to the introduction of bigger vehicles and to much more use of compression devices to crush the refuse.
- (c) The recognition of the importance of better working conditions for refuse collectors, so that drivers' cabins are now designed to provide comfortable transport for the collection teams.
- (d) The enterprise of the manufacturers, in common with other makers of vehicles and machinery, in continuously improving the design of their products and providing them with more sophisticated and more effective equipment. Bodies made of alloy steel, fibreglass and aluminium alloy, lighter in weight and better able to withstand abrasion or corrosion, are also being introduced. Some of these are still in the experimental stage.

Questionnaire

124. The 1,364 local authorities who answered our questionnaire had 9,226 collection vehicles in use at the beginning of 1964 (Tables F and G). As local authorities tend to go on using those vehicles they have so long as they remain in good condition, it often takes some years before new developments come into general use. This should be remembered in considering Table F.

TABLE F
Numbers and types of vehicles in use

Type	Number	Percentage
Side loaders	2,804	30
Enclosed rear loaders (without dustless loading devices)		
(a) with compression devices	2,998	32
(b) without compression devices	2,409	26
Vehicles fitted with dustless loading devices		
(a) with compression devices	209	2.5
(b) without compression devices	156	2
Other purpose-made vehicles	338	4
Not purpose-made for refuse collection	312	3.5
Total	9,226	100

TABLE G
Number of vehicles per authority

Number of vehicles							Number of authorities
1 to 5	..	..	..	..	..	..	912
6 to 10	..	..	..	..	..	..	250
11 to 50	..	..	..	..	..	..	188
51 to 100	..	..	..	..	..	..	9
101 to 200	..	..	..	..	..	..	4
over 200	..	..	..	..	..	..	1

Evidence submitted

125. In their submissions to us the National Union of Townswomen's Guilds, the National Farmers' Union and the Bedfordshire Preservation Societies urged that all refuse collection vehicles should be covered and that the covers should be kept closed in transit. The Institute of Public Cleansing and the Urban District Councils Association went further and said that authorities should be advised to use dustless or near-dustless collection vehicles. The former added that automatic continuous-compression rear loading vehicles offered a good second best; the latter, that the supply industry was carrying out constant research on improvements and that further stimulation did not appear necessary. The Association of Public Health Inspectors, however, thought that there should be more research into the design of collection vehicles because of the changing methods of refuse storage and suggested that the use of disposable receptacles might reduce the need for complicated equipment. Similarly, the Association of Rural District Council Surveyors said that a general changeover to expendable receptacles would enable standard commercial vehicles to be used and this could bring considerable savings; they pointed out that special vehicles would always be required while dustbin systems remained. They thought that there were too many different types of vehicles and that there should be some standardisation to reduce prices. The Association of Municipal Corporations said there was a need for continued co-operation between authorities and manufacturers to produce the most suitable types of vehicles. The Metropolitan Boroughs Standing Joint Committee thought that more consideration should be given to noise nuisance in the design of vehicles.

Vehicle types

126. In the following paragraphs we review the principal types of refuse collection vehicles available at present and consider their effectiveness for the purpose. Our considerations have not included any comparison of manufacturers' chassis.

127. The method of loading varies from one type to another but all except vehicles with moving floors or rotating drums are discharged by tilting the body, rear end downwards.

128. In this chapter we need say nothing about vehicles which are not purpose-made for refuse collection (Table F) except that they ought not to be used. Another reference to them will be found in paragraph 198.

Side loaders

129. Side loaders are loaded from both sides. Each side is fitted with two or more sliding, roll-up or roller shutters so that the body can be partially en-

closed during loading and completely enclosed when full. A large part of the internal volume cannot be used. A typical side loader would have about 12 cubic yards nominal capacity but this would never be entirely filled even after manual trimming.

130. Side loaders are the oldest purpose-made refuse collection vehicles now in operation. They were first introduced about 40 years ago, and were an improvement on the open trucks which were then in common use. They are the least expensive vehicles made for the job, simple to maintain and quick to load as several bins can be emptied simultaneously. But they have serious faults. In a number of the submissions made to us it was pointed out that because of the shallowness of the body refuse has to be heaped above the rave rail (loading rail) in order to obtain a reasonable load and that this inevitably leads to spillage, both on loading and in transit, especially on windy days and if the vehicle is working with both sides open. Our own observations and experience confirm this. Probably even more important, an additional strain is placed on the refuse collectors by the high loading level and the fact that the refuse has to be pushed back into the vehicle as loading proceeds. In addition, the refuse is exposed; dust may blow on to passers-by, who may also be obstructed by loading from the footway; and off-side loading exposes the collectors to the risk of traffic accidents. We do not therefore regard the side loading type of vehicle as satisfactory and we agree with the opinions expressed to us that generally speaking there is no excuse for their use.

131. Side loaders are not extensively purchased nowadays but we think it wrong that any local authorities should still be ordering them for refuse collection. Most of those still in use are probably fairly old. We think that they should be taken out of service as quickly as possible. Some local authorities chose them because they could negotiate narrow lanes, but there are better alternatives now in the form of rear loaders with a width of as little as 6' 6".

Rear loaders

(i) *Barrier type*

132. Barrier loaders are still used by a few councils. They are open at the rear and when loading begins the men have to walk inside almost the whole length of the body. Bins are emptied over a barrier which is drawn back as required so as to provide a succession of loading spaces until it finally reaches the rear of the vehicle. The bodies have internal volumes of up to 20 cubic yards but their effective capacity is much less as the full height of the body cannot be used.

133. Because the bins are emptied from inside the vehicle, some spillage is avoided and passers-by are less exposed to dust than with side loaders. On the other hand, dust does escape and the loading of the vehicles when they are nearly full is an especially dirty business because of the high loading line; the men work in a dusty atmosphere; they have to climb a minimum of two steps into the back of the vehicle and they have a longer carry. In our opinion these vehicles should not be used.

(ii) *Moving floor vehicles*

134. Refuse is emptied into moving floor vehicles over the tailboard. The floor which carries the refuse forward to the front of the body may be operated either by a mechanical unit or manually by a cranked handle. The refuse is discharged by opening the tailboard and moving the floor backwards. These

vehicles appear to have been almost entirely superseded by compression vehicles for ordinary refuse collection work, although the principle is used in bulk transportation refuse vehicles.

(iii) *Forward and rearward tipping vehicles*

135. Vehicles of the kind commonly known by the trade titles of 'fore and aft tippers' or 'dual tip' vehicles have capacities ranging up to 25 cubic yards. The back of the body forms a hopper into which the contents of up to 20 standard bins (depending on the size of the vehicle) can be emptied. When the hopper is full, the body is tilted to a vertical position, front end downwards, so that the refuse falls rather noisily to the front of the body or on top of the refuse already loaded. This operation, which has a slight compacting effect, of course interferes with the rhythm of collection. The interruption is unpopular with refuse collectors. In addition, in the course of a collection round, there is so much loss of time that it may prove more economical to operate a compression vehicle (see paragraph 145 below).

136. In other respects the forward and rearward tipping vehicle is reasonably satisfactory provided the rear door is properly closed and is not opened too quickly after the body has returned to its normal position. If these two points are not strictly watched where bins are being emptied (the point is less important in the case of disposable paper sacks loaded together with their contents) a considerable amount of dust will escape. In practice there generally seems to be some dust emission. The Institution of Municipal Engineers pointed out that spillage could not be avoided during loading and transit if a full load was to be carried.

137. A power press is incorporated in some of these tipping vehicles to get a bigger payload. The degree of compression is considerably less than in continuous compression vehicles but the press holds back the refuse already loaded so as to make room for more.

138. In spite of the drawbacks we have noted, these vehicles are useful in certain circumstances. They are not among the most expensive to buy, they have a comparatively simple mechanism which is easy and relatively cheap to maintain, the loading line is not uncomfortably high and they give some compaction of refuse. They make good general-purpose vehicles well suited to the needs of small authorities; they are the best type for use as dual-purpose vehicles, loading from bulk containers as well as bins where there is not enough work for a special container-loading vehicle, and they will take most bulky household and trade refuse.

(iv) *Power compression types*

139. Power compression greatly increases the capacity of a collection vehicle. Manufacturers usually describe compression vehicles in terms of the volume of loose refuse which they estimate can be got into the body by compression. As the effective capacity could be expected to vary with the density of the refuse collected as well as the degree of compression available, we asked two large authorities to make checks for us on several types of compression vehicles having rated capacities ranging up to 50 cubic yards. The quantities of refuse which could be got into them were found to be reasonably close to the manufacturers' figures.

140. The most usual kind of compression vehicle depends basically on a hydraulically operated pusher plate. The body is enclosed except for a rear

hopper. Refuse is emptied into the hopper and the pusher plate packs it into the body. Vehicles equipped with pusher plates may be intermittent loading or continuous loading.

141. We do not recommend the intermittent loading types; although they are less expensive and easier to maintain than continuous loading vehicles, they depend on the operation of the compression device by the men to keep the hopper clear. In practice the hopper often becomes overfilled and refuse spills over the loading rail on to the road. Loading in continuous loading vehicles is very much cleaner than in intermittent loading ones or in any of the other kinds which we have described up to now.

142. Vehicles equipped with pressure plates all rely on a seal at the rear of the body to prevent the emission of dust and particles of refuse below the rear door. In our view a completely satisfactory seal has not yet been produced; but the amounts deposited on the roadway are not so large as to be very objectionable. The wear on the seal is very much greater in a continuous loading vehicle, but the trouble can be minimised by conscientious maintenance and clearance of the dust trap after every load.

143. Certain compression vehicles use mechanically driven screw impellers for packing the load. In one kind the impellers are mounted near the roof and extend the whole length of the body. The rotation of the blades skims off the topmost refuse and moves it forward. This does not give a great deal of compression. Other and more effective designs have single or twin impellers in the rear loading hopper. The blades crush and tear the refuse (including metal) as they move it into the body. Some vehicles of the latter kind were introduced in this country years ago but did not become popular. But vehicles based on this principle have recently been reintroduced here after having been used successfully for a number of years on the Continent and we think that they may prove useful.

144. There are also a number of other designs, including one or two with rotating drums. The most recent introductions include one or two Continental models which can tear up and digest bicycle frames and other metal articles as well as old furniture. There has not been enough experience of some of these to enable us to assess them properly.

145. Most types of continuous compression vehicle are almost fully enclosed except for the hopper and are reasonably dustless. They are suitable for all but the smallest local authorities. Although they are expensive to buy and their complex mechanism requires additional maintenance, their ability to carry far bigger loads largely, if not entirely, offsets the additional capital and maintenance costs. When they are used for the collection of refuse in paper sacks many of the sacks will be ripped open by the compression devices, so helping to pack the loose refuse in the body without voids and also facilitating refuse disposal.

Loading attachments

146. Practically all rear loading vehicles which have packing devices would be suitable for fitting, in the course of manufacture, with special mechanisms and shutters for either dustless or semi-dustless loading. These methods of loading are dealt with in Chapter 9. As regards the methods we need only say here that dustless loading is one of the cleanest available and that although obviously semi-dustless loading does not give as clean results it is an improvement on normal rear-loading methods.

147. The use of special loading equipment will generally mean that it is not possible to collect bulky household articles on the normal round. A special compartment can be provided, but at the expense of useful space for compressible refuse. It is preferable not to stack bulky refuse on the roofs of vehicles, in order to avoid unnecessary risk to the collectors and the possibility that some articles may fall off. We return to this matter in Chapter 14. We deal with trailers and other methods for collecting salvage and waste paper in Chapter 13.

Special vehicles for containers

148. $1\frac{1}{4}$ cubic yard British Standard type bulk storage containers are now in such common use that many authorities have vehicles which are fully employed on emptying them. Most of the rear loading types of vehicles can have mechanisms fitted which will lift and empty the containers. The equipment should raise the container high enough to clear all the refuse in one operation. If a second attempt has to be made it slows up collection and, unless the vehicle is totally enclosed, it leads to spillage.

149. There are also several types of vehicles designed to handle interchangeable containers of various sizes and shapes. The full container is lifted on to the vehicle and taken away after an empty one has been left in its place. These containers are mainly used at industrial and commercial premises and markets where large quantities of refuse are produced, but have recently been installed in some blocks of flats (see Chapter 10).

Standardisation

150. The fact that collection vehicles have to collect all sorts of house, trade and other refuse in a wide variety of operating conditions goes far to explain the many types and sizes of vehicle which are made but it seems to us that considerably fewer types and sizes could meet the requirements of all authorities. If local authority associations and makers could agree on some standardisation, especially of vehicle bodies and lifting equipment for bulk containers, this would be a useful step forward, particularly for small authorities, and ought to lead to reduced prices.

Choosing a vehicle

151. The points which local authorities can be expected to consider in choosing collection vehicles are capital and operating cost, clean operation, capacity, reliability, durability, ease of maintenance and cleansing, manoeuvrability and power.

152. In obtaining vehicles for their own areas, authorities will need to have regard to local factors. The method of collection, types of receptacles used and the arrangements for the collection of salvage and bulky household chattels will have a bearing on the type of vehicle required; the size will be influenced by factors such as the density of development, width of access roads, gradients and length of haul to the disposal point. In general, the larger the capacity of the vehicle the more economical it is likely to be, provided that it can be kept fully occupied and is not so big as to be unsuitable for local road and traffic conditions.

153. Most manufacturers are ready to give a practical demonstration of their vehicles on normal refuse collection rounds in the authority's own district and we think this ought to be a part of the usual procedure before a council make

their final selection from among the two or three types they regard as most suitable. Not only does it enable the authority to make a direct comparison of merits and capacities and to check the claims made by the makers for their products but it also enables the refuse collectors who will have to work the vehicles to try them out and say what they think of them.

154. All authorities should use vehicles capable of reasonably clean and dust-free loading; these conditions will only be satisfied by rear loading vehicles. The use of compression vehicles will assist economic operation.

Future development

155. There is, of course, already a noticeable trend amongst authorities towards rear loading compression vehicles. This is clearly on the right lines. We are encouraged by the progress of design by the manufacturers. While, on most points, they do not appear to require further stimulation, we agree with the suggestion that they should give more consideration to the reduction of noise. Many people are upset by the noise of diesel engines, compression or dustless loading devices, and refuse being tumbled inside vehicles even though it is a transitory, once-weekly disturbance. We suggest that this is a point which local authorities, as customers, should bring to the attention of manufacturers.

156. If electrically propelled vehicles could be used for refuse collection this would make an important contribution to the reduction of noise. We are interested in current developments with this type of propulsion, which if successful would overcome the main difficulty found in the past—the weight and size of the batteries needed to give the required power.

Joint action

157. Whatever the number of refuse collection vehicles which may be required for normal working in any district, we regard it as essential that the regularity of the service should be assured by suitable spare vehicles and arrangements for repairs. Repairs may be carried out in councils' own workshops or, especially in the case of small authorities, by private garages. But in the many small districts which have only a few vehicles (see Table G above) it is probably uneconomic to keep expensive vehicles as standbys. It would be a great advantage for the smaller authorities if they were to organise, jointly with their neighbours large or small, a pool of spare vehicles and equipment and joint repair facilities.

158. Another field for co-operation by local authorities is the joint provision of specialised vehicles for loading from bulk storage containers where there are not enough containers in one district to keep such vehicles fully occupied.

Facilities for the men

159. All refuse collection vehicles should have a cab designed to seat the maximum number of loaders who will be employed on the round and storage space for protective clothing. There should be heating and cold air ventilation. Where a vehicle might not return to a depot at mealtimes, washing facilities should be provided on the vehicle.

Appearance of vehicles

160. Generally, in our opinion, not enough attention is given to the appearance and cleanliness of refuse collection vehicles. Dirty vehicles do not inspire

confidence in the cleanliness of the collection service. Sometimes the outside is regularly cleaned but no thought is given to the inside. They should be washed inside and out with a high pressure hose as frequently as possible and at least once a week; painted or varnished finishes should be regularly renewed. The morale of the men benefits, and so does the reputation of the local authority.

161. One of the councils we visited finds it worth while to give annual prizes to drivers for the best-kept vehicles. Each driver is made responsible for the daily maintenance and weekly cleaning of his vehicle and is allowed four hours a week at overtime rates for these duties. All vehicles are inspected three times a year for the purpose of the prize scheme and points are awarded. Competition between some drivers is very keen indeed.

CHAPTER 9

METHODS OF COLLECTION

162. All the commonly used systems of dealing with refuse which we describe in this chapter require storage on the premises from one collection to the next and, in total, a large labour force. Most of them are open to serious criticism. Indeed, as the report on 'Homes for Today and Tomorrow'¹ said, 'the dustbin and dustcart are not in line with 20th century progress in other fields'. Many people, looking beyond the mere development of better receptacles and vehicles, have devoted thought to the possibility of finding some completely hygienic way of disposing of the refuse so that there would be nothing left to be removed by refuse collectors. It is not surprising that the ideas for which a practical application has been found (principally for waterborne removal or on-site incineration) have up to now fallen short of this ideal. Some of them certainly deserve further research and trial and one or two very interesting new ones are being developed; but it would be too optimistic to see in any of them, as yet, any early promise of a complete system for the 'instant disposal' of refuse especially for ordinary dwelling-houses. Anyone, therefore, who may have hoped that we could suggest some revolutionary new system which would solve all problems is bound to be disappointed. We were forced to adopt a more modest aim: to review existing methods of collection and on-site disposal, indicate their merits and defects, and say which, in our opinion, are the best or deserve to be developed; but as a result of this review we have become more than ever convinced of the need for research so that refuse collection may keep pace with technological progress.

163. Part I of the present chapter deals with the various traditional methods used in removing refuse from house to vehicle; Part II with the 'dustless' systems which are characterised by special types of storage and/or loading. On-site methods of disposal are discussed in Chapter 10.

PART I: TRADITIONAL METHODS FOR THE REMOVAL OF REFUSE

Kerbside collection

164. Kerbside collection is the name given to the system in which the occupier of the premises is required to place his bin at the front of his property and retrieve it from there after it has been emptied (see Illustrations 9 and 10).

165. We found that over the country as a whole this system is used at about 15 per cent of premises, but the proportion is much higher, 39 per cent, in rural districts. The proportion is also markedly higher among smaller authorities, being 34 per cent for those with less than 10,000 population (28 per cent for *all* authorities with less than 50,000) and only about 6 per cent for those with 50,000 population or more.

166. The organisations which submitted evidence accepted that the system was speedy and cheap; but no one suggested that it was satisfactory. The main criticisms were:—

¹ Report by the Housing Standards Sub-committee of the Central Housing Advisory Committee (H.M.S.O., 1961).

- (a) It was archaic, unhygienic and untidy. Bins, frequently supplemented by receptacles of all kinds, were often left on the kerb for some time and were vulnerable to cats, dogs, children, and passers-by. The lids got blown off and the contents were scattered. On occasion the whole dustbin might be blown over.
- (b) It passed the authority's responsibilities to the occupier in a way which in general the authority had no power to require.
- (c) It involved hardship for the aged, the handicapped, the infirm and the housewife. Many old people were reluctant to ask for an exception to be made for them.

167. Both the Association of Rural District Council Surveyors and the Association of Public Health Inspectors said that kerbside collection should be eliminated. The Institute of Public Cleansing said it should be prohibited except perhaps in city centres, in areas with severe traffic problems or where there was no secondary means of access or an absence of proper storage accommodation.

168. Turning to the law, we can see nothing in the Public Health Acts to support local authorities in requiring a householder to put his bin outside the boundary of his premises for collection. The sole exception is the former county of London, where special byelaws apply. We understand that the Ministry have regularly rejected proposals by local authorities elsewhere for byelaws under which householders could be obliged to put their bins at a specified point for collection. All that is required by the model byelaws (Appendix H) is that the bins should be placed in a position on the premises conveniently accessible from a street. But legal considerations apart, we agree entirely with the criticisms of kerbside collection which have been made, and we would add another: occupiers of premises often forget to bring out their bins on the right day, with the result that either the collectors have to make a special return journey or the bins go unemptied until the next collection. For all the reasons mentioned, kerbside collection is unsatisfactory and undesirable and should be tolerated only where there is no better alternative, for example, at property which has no rear or side access—where the occupiers are out all day or do not want the refuse collectors to come through their house. We think the attempt should also be made to avoid using it even in city centres and shopping areas.

169. As a step towards the elimination of kerbside collection it is necessary in our opinion to require adequate provision for refuse storage and collection in new buildings and building conversions. For collection this involves a secondary means of access or a way of reaching the bins when the occupiers are out. We deal more fully with this matter in Chapter 11.

Skeps

170. The skep or skip is a comparatively wide-mouthed container—a galvanised iron bath often serves the purpose—into which the refuse collector tips the contents of the dustbin so that he can leave the bin where it was and not have to go back to the house after emptying the refuse into the vehicle.

171. About 21 per cent of all premises over the country as a whole are served by this method of collection. The proportion tends to be about the same for each type of authority, except that it is somewhat lower (14 per cent) in the area of the former county of London. The proportion is highest (32 per cent) in local government areas of 50,000 to 100,000 population.

172. It was generally accepted in the submissions made to us that skeps saved time and labour. With certain exceptions and reservations, the system was criticised on the grounds that it caused more litter than other methods and created a dust nuisance. It was opposed by the Institute of Public Cleansing, the Association of Rural District Council Surveyors and the Association of Public Health Inspectors.

173. The exceptions and reservations made by individual organisations were:—

- (a) that the skep system would be an improvement for those householders in rural areas who have to carry out their bins for kerbside collection;
- (b) that the severe shortage of labour in many places makes the use of skeps almost inevitable;
- (c) that while not the ideal system, the use of large specially manufactured skeps in conjunction with continuous loading vehicles is a good compromise, which reduces spillage and is cheap to operate;
- (d) that it might be necessary to use skeps to collect from long terraces of properties in hilly areas.

174. Again we agree with the criticisms made but we would not readily accept the reservations. The skep system is potentially the messiest one we know. In spite of care, there will always be dust—very often just outside the kitchen window—and some refuse is almost inevitably spilt in the transfer from the bin. High winds may whip more refuse from the skep on the way to the vehicle. The collectors get very dirty. In our opinion, it should rarely be necessary to use skeps. Most of the difficulties mentioned as reasons for using them can be overcome by other methods.

175. We think that it would be wrong to substitute skeps for kerbside collection in rural areas or elsewhere; the suggestion may stem from an assumption that a council operating the kerbside collection system will be readier to change it for another method if the cost is not much more. Local authorities ought, however, to be prepared to face the cost of providing their ratepayers with a satisfactory service. We discuss labour problems in Chapter 18.

Collection and return of bin

176. This is the most usual system at present. The occupier keeps his bins at some convenient point on his premises, usually in the garden or yard; the collector carries the bin out to the collection vehicle, empties it, and takes back the empty bin.

177. About 54 per cent of premises over the country as a whole are served in this way. The proportion is much higher, however, in towns than in rural areas: about 60 per cent or more of premises in towns have this method compared with just under 30 per cent of premises in rural districts.

178. It was suggested to us that this was the best of the various bin systems. The Institute of Public Cleansing thought that it was satisfactory and would provide the minimum acceptable standards of collection if the bins were large enough and the right type of vehicle were used. The Association of Municipal Corporations, however, mentioned that the method tended to be noisy unless non-metal lids were used; others said that refuse was often spilt and if bins were carried without lids or were overflowing, as much could be spilt as with the skep system; and if bins had to be bumped to dislodge refuse stuck to the sides or bottom, some refuse was usually scattered on the road.

179. Every system which uses all-metal bins can be noisy and we do not think that complaints of noise can justly be levelled against the collection-and-return-of-bin system more than against others. From the householder's point of view this is the best of the systems described in Part I of this chapter, but we cannot regard it as satisfactory where bins with detachable lids are used. Collectors usually carry out bins without their lids, and it is not easy for them to do otherwise. Refuse will fall or be blown out of a bin which is anywhere near full, and a strong wind will scatter it far and wide.

Advance preparation

180. In a variation of the collection and return system the bins are brought out by members of the collection teams before the arrival of the vehicle and placed at the kerbside to await emptying. They are then taken back by the council's men.

181. The method is used at about 9 per cent of premises throughout the country. The bins should stand at the kerb for the shortest possible time and care is needed to see that they are put back at the right premises. With ordinary bins, however, the system is open to greater objection than straightforward collection and return, because in many cases full bins will stand at the kerbside for some time without their lids.

Collected bin

182. In some areas the collectors bring out and empty the bins but then leave them on the kerb for the householders to replace them.

183. This is not as bad as kerbside collection because it requires less effort of the householder, but it is unsatisfactory. Householders ought to get a complete service. Bins at the kerbside, especially if lidless, are objectionable and unsightly and may cause obstruction.

Exchange bin

184. In a few districts the collectors take in an empty bin and exchange it for the used one, which, after emptying, is cleaned and taken to the next house.

185. The Institute of Public Cleansing said this system was unacceptable to the public and should not be permitted.

186. This could be a satisfactory method if the replacement bins were sterilised or thoroughly cleaned at a depot. But it seems to have been adopted to save the time of the collectors, and in the one case which we have seen the bins are not very effectually cleaned by a rotating brush on the vehicles which scatters dust. We are sure that people prefer to keep their own bins and it seems to us that the small amount of time saved on collection is far outweighed by the objectionable features of the system.

The relay system

187. A variant which can be applied to any method of refuse collection is the relay system by which the collectors, having filled their vehicle, take over an empty one and continue working while the full one is driven to the tip or depot. In theory this should result in maximum productivity, especially when there is a long haul to the unloading point. But nowadays busy roads disrupt timetables and the longer the haul the worse may be the disruption. Nor would any gain in productivity necessarily be proportionate to the additional time the men spend

on the job. We think that the relay system may be useful in some cases, but authorities using this system or thinking of adopting it would do well to undertake comparative tests.

PART II: DUSTLESS COLLECTION METHODS

188. Dustless methods were strongly favoured by several of the organisations¹ which submitted evidence to us. The two methods which come nearest to providing dust-free collection are the disposable paper sack system and the Continental dustless loading system.

Paper sacks

189. In this system a stout paper sack is suspended from a metal holder with a hinged lid (see Illustrations 4 and 5). The holder may be wall-mounted or free-standing. The sack, with its contents, is removed at normal collection time and a fresh sack left in its place. The refuse collector carries a number of new sacks, usually in a canvas sling or bag.

190. The method was introduced in Sweden, where it achieved some modest success, and following the experience gained there, it has been taken up in some other Scandinavian countries. A year or two ago it was introduced experimentally in the United States of America.

191. Considerable success has attended the trials of the paper sack system in Great Britain in the past few years and it seems to be making faster headway here than in the country where it originated. Many authorities of all types have been gaining experience in the use of these sacks with pilot schemes and an increasing number are introducing the system in either the whole or substantial parts of their area.

192. A British Standard is at present being prepared for paper sacks and sackholders; this can be expected to deal with quality of materials, the size, shape and height of the sacks and the construction of the holders.

193. Most of the sacks are made from wet strength kraft paper (a type which has long been used for cement sacks etc.), usually in various weights of 2-ply paper. It is exceptional for sacks to be badly weakened even by very wet weather in the intervals between normal collections; they may burn if hot ashes are tipped into them but ashes should be left to cool before being put into any kind of storage receptacle.

194. Sacks are supplied in various sizes having nominal capacities from $2\frac{1}{2}$ to $3\frac{1}{2}$ cubic feet. The volume of a fully opened sack is as great as that of a bin of the same nominal capacity, but the bin can be made to hold more because it is easier to push the refuse down and greater pressure can be applied. To make the most use of a paper sack some care may be needed, as the narrow shape makes it easier for cartons to become wedged so as to leave voids below them.

195. As with dustbins, not all householders find $2\frac{1}{2}$ cubic feet capacity enough for a week's refuse. Some councils are understood to have reported about 20 per cent of these sacks full and up to 10 per cent overfull. The smaller size, therefore,

¹ Association of Municipal Corporations, Association of Public Health Inspectors, Association of Rural District Council Surveyors, Institute of Housing Managers, Institute of Public Cleansing, Institution of Municipal Engineers, Metropolitan Boroughs Standing Joint Committee, River Thames Society, Rural District Councils Association.

will sometimes turn out to be a false economy. It is cheaper to start off with one that is large enough; if a second sack has to be issued to householders the cost will increase.

196. Most wall-mounted sackholders consist of little more than a metal lid hinged to a ring to which the sacks are clamped. They are therefore cheaper than free-standing holders and if a convenient position can be found for them it does not matter that they cannot be moved. Cage units have been designed for free-standing holders, and, more recently, for wall-mounted types; these keep out animals, protect children from possible injury by sharp objects which may penetrate the paper, and support the sack so that a lighter-weight paper can be used. However, the cages we have seen which are intended for wall-mounted holders have not greatly impressed us by their strength.

197. All conventional refuse collection vehicles are suitable for use with the paper sack system; the most economic payloads are obtained with compression vehicles. Many sacks are split by the compression or crushing devices in the vehicles, thus helping to get rid of voids in the load.

198. Standard open trucks can be used to collect paper sacks, but we do not favour this course. It is true that the capital and maintenance costs of trucks are lower than those for purpose-made collection vehicles and they can be used for other work if desired. But the savings might well be offset by the need to employ stackers on the trucks; there would be some danger for the stackers; and if a sack splits on loading, as does happen, a lot of refuse may be split.

199. We have visited several places where paper sacks are in use. In some we have found little to criticise. In others we have seen sacks brought out and dumped untidily on the kerb to await collection, and scraps of litter left behind when the sacks were lifted. We have seen an occasional sack overfilled by the householder, or with pieces of wood poking out so that the lid of the holder was wedged wide open (see Illustration 6). The staplers originally intended by the manufacturers for use to close sacks are seldom used by the collectors. A common practice to avoid spillage is to twist the top, but this can only be done if several inches of the sack are left free for this purpose.

200. It is clear, therefore, that some deliberate thought and care are necessary if the greatest advantage is to be got from the use of paper sacks. The system, and the way to treat the sacks, should be explained to householders in a simply worded letter before the sacks and holders are distributed; a suggested example is in Appendix D. A householder who needs more than one sack a week should be issued with as many as he reasonably requires. Sacks should be used which can be fitted round the ring of the holder with an ample overlap which should be unfolded and closed over the refuse when the sacks are removed. We believe that the provision of such an overlap may be dealt with in the British Standard now in course of preparation. The refuse collector and not the householder should remove the full sack from the holder, except where a second sack has had to be used. Where there are elderly or handicapped people, the refuse collectors should also fit the new sacks in the holders.

201. The main advantages which we see in the paper sack system may be summarised as follows:—

- (a) cleanliness and hygiene (if the faults we have mentioned are avoided);
- (b) quietness and light weight;

- (c) easier and cleaner work for the refuse collector, resulting in easier recruitment and retention of collectors;
- (d) reduction of unit collection time compared with some other systems;
- (e) dustless or nearly dustless loading, without special loading devices;
- (f) tidier conditions when collection vehicles are unloaded at refuse tips;
- (g) problems arising from collection delays minimised by the issue of spare sacks;
- (h) less wear and tear of vehicles;
- (i) elimination of complaints which occur with the use of bins, e.g. damage to paths, fences, gates and bins, return of bins to the wrong house, with the wrong lids or without lids at all;
- (j) refuse is not exposed to public sight.

202. On the other side of the balance sheet there may be:—

- (a) increase of total collection costs compared with most of the traditional systems, especially where householders need more than one sack or collections are more than once a week;
- (b) the risk of breaking the sack if the householder tries to compress refuse to make room for more;
- (c) misappropriation of sacks;
- (d) potential risk of sack failure from moisture, broken glass, tins, hot ashes, animals, wind, etc.;
- (e) reduction in payload of vehicles because of sacks not packing as well as loose refuse;
- (f) dependence on continuity of supply since local authorities and indeed paper mills are not likely to be able to hold large stocks;
- (g) possible injury to children by sharp objects, unless guards are fitted.

203. Up to now there is not a lot of experience to show how satisfactorily the sacks and their contents decompose in refuse tips. The available evidence suggests that they do so without difficulty. However, with certain mechanical forms of disposal the refuse must be freed from the sacks, and it may be necessary to have plant for slitting them at the disposal point even where they have been partly torn or crushed in compression vehicles.

204. Of the local authorities who have tried paper sacks and decided not to adopt them, more appear to have been influenced by the cost than by adverse reports on their performance. We discuss cost in Chapter 19.

205. We understand that the Ministry issue loan sanction to local authorities for the purchase of sackholders, acting on legal advice that the existing law gives adequate power to operate paper sack schemes. This power is derived from the definition of 'dustbin' in the Public Health Act 1936 as a movable receptacle for the deposit of ashes or refuse. But in some quarters doubts have been raised about the applicability of the 1936 powers to a system which was not in use when that Act was drafted, and we think it would be best to still these doubts by an amendment of the law. A suitable opportunity will be provided if our recommendation in paragraph 109 is implemented.

206. We consider paper sacks in relation to byelaws in paragraph 100.

Plastic sacks

207. At present paper is the usual material for refuse storage sacks, but plastic ones are being tried. In this country they have been used only on a small

experimental scale and it rather seems that light gauges may be too weak and heavier ones too expensive. We think that the experiments ought to be continued. More information is needed not only on the suitability of plastic sacks for storing refuse but also on how they affect refuse disposal methods.

208. We understand that the National Physical Laboratory have been investigating the destruction of plastics by bacterial attack (bio-degradation). This work was undertaken without reference to refuse disposal and the most obvious course for later inquiries might be the development of more resistant plastics. But for the purpose of refuse disposal less resistant types would be valuable; we hope that the investigation will be pursued in that direction also.

Paper and plastic sacks as liners in bins

209. Experiments were made some years ago in this country with paper liners designed to fit inside dustbins. These did not prove successful. Mildew sometimes caused the paper to fail; some liners tore round the rims; overfull ones became wedged in bins; some householders were reluctant to fix them in the bins; and there was no appreciable gain in collection time.

210. Recently one council tried a small pilot scheme using normal paper sacks in dustbins and our last information was that they proposed to introduce a larger scheme. They found no wedging or condensation and considered that this method had the advantages of the paper sack system but saved the cost of the sackholders. When bins require replacement, private householders might buy either a new bin or a sackholder and council tenants would be supplied with a sackholder, so that eventually a complete paper sack system might emerge.

211. We think this idea has serious drawbacks. The bins must be clean to start with and kept clean and as there is nothing to hold the mouth of the sack firm there may be spillage in and around the bin. Paper sacks tailored to fit dustbins would be more expensive even if they were not liable to the difficulties mentioned above.

212. There have also been some experiments with purpose-made plastic liners. They had an opening slightly larger than ordinary plastic sacks so that they easily stretched over the rims of bins and were held by a four-inch overlap. Fitting the empty ones into the bins, however, took some time and would be expensive unless householders could be persuaded to fit them instead of the refuse collectors; and some of the full liners got wedged in the bins. But a major disadvantage (leaving out of account questions of refuse disposal) may be that to make them worth while financially they would have to be used inside existing bins, not all of which would be in good condition. This does not make for cleanliness, and badly fitting lids or damaged bin rims might tear the plastic.

213. A good deal more research and experience is required on the use of plastic sacks or liners in dustbins before a final opinion can be expressed, but we have noted the reports of the work done so far with interest.

Dustless loading

214. Dustless loading vehicles and bins (see illustrations 1, 2 and 3) have been widely used on the Continent for many years. But the system has been taken up by only a small number of authorities in this country, probably because of the cost, which we discuss in Chapter 19.

215. The principle, as with paper sacks, is that refuse should remain fully enclosed during storage and throughout collection. The special bins, which we have described in paragraph 89, are provided by the local authority and are collected by one of the traditional methods: collection and return of bin or advance preparation. The work of bringing out the bins to the vehicle is lightened in some towns by transporting them on bin trolleys, though refuse collectors may not think this important where lighter bins are in use.

216. A mechanically operated loading device at the rear of the vehicle (some vehicles have two) lifts and then inverts the bin to discharge its contents into the vehicle through a porthole of the same diameter as the top of the bin. The porthole is covered by a shutter which does not open until the top rim of the bin fits flush against it. The hinged lid of the bin opens at the same time. The mechanism can be used to shake the bin to loosen any refuse not dislodged at the first attempt. The refuse is transferred into the body of the vehicle by one of the various compression devices described in Chapter 8.

217. The system as we have seen it used is not as completely dustless as might be supposed from its name; there can be a small escape of dust from around the rim of the shutter. Fans fitted by one council inside the vehicles virtually eliminate this emission. We also found that dustless loading vehicles, like some other enclosed continuous-loading vehicles (see paragraph 142), could sometimes leave a very thin line of grit and dust on the road parallel to the rear of the vehicle, as a result of defects in the seal along the bottom edge of the hopper.

218. Because of the cost of the special equipment required the system is not cheap but it is clean, keeps the refuse enclosed at all stages and provides better working conditions for the collectors. The bins are very durable and on the whole they are more gently treated by the loading mechanism than they could be in manual loading. Hot ashes, though certainly undesirable, are not disastrous to the metal bins but they could ruin the plastic ones.

219. We have seen dustless loading vehicles being operated with the port at the side of the loading mechanism open to receive large cartons and similar bulky articles. This should never be done because it allows dust to escape and defeats the object of acquiring the specialised bins and vehicles. It must be recognised as a limitation of the dustless loading system that it is designed for emptying bins and not for loading anything else. Either there must be a special compartment for bulky articles (which is not an economical use of space on a compression vehicle) or these must be collected on a separate round.

220. A matter to which we should like to see more attention given is the reduction of noise from the loading and compression mechanism of the vehicles.

221. In Chapter 19 we compare the labour requirements of various systems. It will be seen that dustless loading has a higher labour requirement than conventional collection; but being a clean method it makes it easier to recruit and keep men.

222. The main advantages which we see in the dustless loading system may be summed up as follows:—

- (a) cleanliness and hygiene (so long as the householder treats the bin reasonably). Well-fitting lids, accurately and robustly constructed, help to discourage fly infestation;

- (b) easier and cleaner work for the refuse collector resulting in easier recruitment and retention of collectors;
- (c) refuse is fully enclosed throughout storage and collection;
- (d) almost completely dustless and spillage-free loading;
- (e) bins are less likely to be damaged during collection.

223. On the other side of the balance sheet there may be:—

- (a) increase in unit collection time and need for additional labour compared with the conventional systems;
- (b) increase of collection costs compared with the traditional systems;
- (c) more noise;
- (d) special bins and special equipment required;
- (e) bin trolleys cannot be used in unsuitable terrain.

224. The success of any new system depends a great deal on its method of introduction to the public. Just as with paper sacks, we think it particularly important with the dustless loading system that authorities should seek to enlist the co-operation of householders before it is brought into operation and that they should explain the reasons for the introduction of the new system, how it works and how they can obtain the most benefit from it. An example of the sort of approach we have in mind is set out in Appendix D.

Mechanical (or 'semi-dustless') loading

225. A few authorities are using enclosed compression vehicles fitted with mechanical loading devices for use with standard or, in some cases, other bins with separate lids. The mechanism is similar to that used in the dustless loading system; it raises the bins (in this case with lids removed) and inverts them so that as they are emptied their rims are close against the loading aperture in the back of the vehicle.

226. Mechanical loading has several advantages over manual loading. It requires less effort of the refuse collectors; less refuse is spilt; the life of the bins should be prolonged; and of course the local authorities save the cost of replacing existing bins by the hinged-lidded dustless loading type. But the description 'semi-dustless loading' which is often applied to it gives rather too favourable an impression. There is some spillage, and dust rises from the open bins as they are lowered after emptying. It is not so good that we could class it with dustless loading and paper sacks as a system to be recommended.

Merits of the paper sack and dustless loading systems

227. We have no doubt that for local authorities seeking the best existing system for house-to-house collection the choice now lies between paper sacks and the Continental dustless loading system and as far as we can foresee this is likely to be the position for some time to come. Plastic sacks, though an interesting innovation, still need further trial before they can be considered for general adoption.

228. Both the dustless loading system and the paper sack system, properly used, can give better results than any other system now in use. In our view both have their place and the choice must depend on local considerations and preferences.

Hygiene

229. Paper sacks, properly used (see paragraph 200 and specimen letter 2 in Appendix D), provide a hygienic service and deal better with the problem of flies because a new sack is issued at each collection. To match them in this respect the bins would have to be regularly sterilised—a very expensive procedure. But these bins if properly used by the householder (see specimen letter 3) give an acceptable standard of hygiene. In practice, there is more chance of dust being given off from sacks during loading than there is with dustless loading. But on discharge at tips the paper sacks may have some advantage in tidiness and retention of dust; this depends on the type of vehicle in which they have been transported.

Labour saving

230. Paper sacks demand less effort of the refuse collectors than the dustless loading system with either metal or plastic bins.

Reliability of service

231. At present there is little to choose between the two systems in regard to reliability. The paper sack system depends on there being no failure in the manufacture and supply of sacks.

232. Both systems require depot storage space for sacks or bins but paper sacks will deteriorate quickly if not kept in a dry and well ventilated place.

233. In an emergency, for example if bad weather or a public holiday prevents or slows down collection, it may be possible to issue additional paper sacks to householders for collection later; this could be done, however, even where the dustless loading system is operated, the sacks being loaded by hand.

Maintenance

234. The tipping mechanism and shutters of dustless loading vehicles need regular maintenance.

235. Dustless loading bins must be robust and kept in good repair because the system depends on the rims and lids being in good condition. But this has the compensating advantage that a well-fitting lid helps to keep out flies. The sackholder lids and cages which we have seen appear flimsy by comparison, and we think that in general there is still room for improvement in the design of sackholders. We think special attention should be given to the strength and fit of sackholder lids. Damage to them would not so easily be brought to notice because the system would work in spite of it, yet it is just as important in this case that the lid should fit closely.

Suitability for special situations

236. The dustless loading bin may be more suitable than the paper sack where the receptacles have to be kept in front gardens or put out for collection in positions where paper sacks might be interfered with or exposed to damage. On the other hand the paper sack has an advantage where receptacles have to be carried up and down stairs.

237. Where cleanliness is particularly important, as it is when the collectors cannot avoid carrying refuse receptacles through houses or food shops, the paper sack seems preferable, so long as it is not overfilled and is first completely closed.

Noise

238. The paper sack system is quiet. This cannot be said of any system using metal bins; plastic bins of course compare better. We have mentioned that dustless loading could be improved by attention to the reduction of noise.

Cost

239. We comment on the comparative cost of the two methods in Chapter 19.

CHAPTER 10

STORAGE AND COLLECTION AT FLATS AND LARGE BUILDINGS; ON-SITE DISPOSAL

240. There are over 800,000 flats and maisonettes in England and Wales and probably some two to three million people live in them. The number of large blocks and tall blocks, both for residential and for commercial use, is growing rapidly. The methods of collecting refuse from these buildings are therefore of special importance.

241. Buildings no more than a few storeys in height are often served in the same way as ordinary dwelling-houses by dustbins, or sometimes now by paper sacks. Where there is a large volume of refuse, $1\frac{1}{4}$ cubic yard containers are used in many places, and recently some use has begun to be made of interchangeable bulk containers of capacities up to 15 cubic yards or even larger. In taller blocks of flats, vertical chutes discharging into containers are most usual; in business premises, goods lifts or hoists may do service where otherwise chutes would be needed.

242. Certain other arrangements are aimed at the disposal on the site of as much of the refuse as possible. These are the Garchey system; incinerators, which may be chute-fed; and sink waste disposal units, also known to cleansing officers as kitchen grinders. The use of kitchen grinders is by no means confined to flats, but for convenience we discuss them in this chapter together with other methods of on-site disposal.

243. Guidance on the choice of storage and collection methods for flats and on the design and operation of chute systems was given in 1960 in the British Standard Code of Practice CP306 (1960) which we mentioned in paragraph 79, and we would still recommend reference to that publication. Because of its date, however, it does not discuss paper sacks. Nor does it deal with waterborne systems such as grinders and the Garchey system except to advise that, where the use of these is considered, the local public health authority should be consulted because of the possible effect on the sewerage system.

244. Another document of considerable value is the Building Research Station's Building Digest (Second Series) No. 40, published in 1963, which summarises a study of flat-dwellers' experience of dustbins, communal containers, chutes with containers, and the Garchey system. This study was undertaken to help in the preparation of the Code of Practice.

245. The Building Regulations made by the Minister of Public Building and Works¹ in 1965 and in operation since 1st February 1966 contain requirements in relation to refuse storage container chambers, chutes, chute hoppers, and incinerators and need to be referred to in conjunction with the Code of Practice.

¹ Responsibility for the Building Regulations was transferred to the Minister of Housing and Local Government by the Transfer of Functions (Building Control and Historic Buildings) Order 1966. (S.I. 1966 No. 692).

246. Whatever system is chosen, separate provision will need to be made for the storage and collection of bulky articles which are too big for the bin or hopper.

Dustbins and paper sacks

247. About two-thirds of the flats and maisonettes in this country, mostly those in two-, three-, and four-storey buildings, have individual dustbins. At the time of our inquiry very few would have had paper sacks. The bins are kept either at ground level—in the open or in enclosures—or on upper landings.

248. The Building Research Station found that flat-dwellers would accept bins at ground floor level even if it meant a journey down by stairs from the second or third floor or a longer journey by lift, but that they did not like to walk more than 30 feet in the open with their refuse, especially if the route was in view of passers-by. This survey was on a limited scale but we are satisfied without further evidence that housewives should not have to walk any considerable distance to deposit their refuse.

249. There are examples of bins being kept on an upper floor even where the only access is by stairs, sometimes to the great inconvenience of the refuse collectors. Where for any reason the receptacles have to be kept upstairs, the advantage of using a paper sack need hardly be emphasised: its weight is negligible and only one journey is required.

250. The British Standard Code of Practice accepts the use of dustbins at ground level for dwellings in blocks of up to three storeys in flats or four storeys in maisonettes, where there are no more than two dwellings on each floor approached from a common landing or staircase; but it makes the suggestion that if the number of group dwellings is sufficient, or if there are more than two dwellings on each floor approached from a common landing or staircase, communal refuse containers might be used.

251. Batteries of bins are often objectionable in appearance; the more there are the more refuse will be spilt where they stand, and if the ordinary type of bin is used the lids will often be left off (see Illustration 7). Many tenants do not like other people using their bins but this is bound to happen with bins in groups. For these reasons and those mentioned in paragraph 254, we go rather further than the Code of Practice and suggest that where there would otherwise be six or more bins a communal container should be used, with a chute wherever possible, but, failing this, in a position convenient for the tenants and the refuse collectors.

252. Many buildings have been so constructed that communal refuse containers cannot be used, most often because there is no access way over which they can conveniently be got in and out. Groups of bins are then sometimes used as a matter of necessity, though it still adds to the work of collection if the vehicle cannot be driven in close to them. If bins have to be used in groups at ground level, they should be housed in properly constructed, roofed and cross-ventilated storage buildings to improve appearance, to shelter users from bad weather and to reduce noise. Electric lighting should be installed; there should be a water tap and drainage so that the building may be washed down, and there should be easy access to all bins. In general, the disposal point should be a little way from the building to avoid possible inconvenience to tenants from dust, smell and noise without obliging them to walk far with their refuse. As recom-

mended in the Code of Practice, however, the collectors should not normally have to carry full dustbins more than about 25 yards.

Communal or bulk refuse containers

253. We have explained that large containers may avoid an unsightly huddle of bins; they also save labour, time in collection, and space—space being especially important in city centres.

254. There are two British Standard refuse containers of mild steel or aluminium. One—flat sided—has a nominal capacity of 1 cubic yard. More use is made of the other, which is cylindrical. It may be mounted on its own wheels or moved by a separate trolley, has a nominal capacity of $1\frac{1}{4}$ cubic yards and will hold about 1 cubic yard of uncompressed refuse; this is about equal to the contents of ten $3\frac{1}{2}$ cubic foot dustbins. At present, therefore, a $1\frac{1}{4}$ cubic yard container should usually be enough to serve ten flats where there is a weekly collection. But with the increasing volume of refuse per household which we foresee, it may not be very long before one is needed for five or six flats.

255. The collectors should have ready access to all containers over a hard and even surface. As recommended in the Code of Practice, they should not normally have to transport full containers for more than about 10 yards. The collection vehicle must be designed or adapted to load containers of this kind.

Communal containers used without chutes

256. The Building Research Station's user study found that, although there was a moderate amount of criticism of bins and containers, 83 per cent of the people questioned were on the whole satisfied with dustbins and as many as 89 per cent expressed general satisfaction with containers. We do not think the figures should necessarily be taken as meaning that these users would not prefer some different arrangement if they were offered a choice. It is also interesting that whereas 60 per cent of users reported smell from bins, smell from containers was mentioned by only 38 per cent; but here again we should not like to place too much reliance on this difference.

257. Both bin and container will smell if not kept clean or if the refuse is not removed often enough. We suggest that local authorities should take responsibility for cleansing containers. This can be done on the spot by specially equipped vehicles but the containers can be dealt with more thoroughly if they are washed at a council depot. At present it is doubtful whether many containers are cleansed even as often as once a quarter. The ideal of cleansing after every emptying is very expensive and has hardly ever been attempted in this country. We think once a month is the best that can be hoped for as a general rule. But wherever the refuse is wet, as at hotels, restaurants and some trade premises, it is a public health necessity to remove and wash containers every time they are emptied. In such places interchangeable containers can be used which are designed for easy cleansing.

258. Containers may stand in the open or be housed in chambers. In our view they should always be housed. The Code of Practice suggests putting them in chambers with a hopper over each container, and with a raised platform approached by steps having a handrail.

259. Containers used without chutes must be kept covered; the covers, however, are heavy, and it often happens that they are left off. The Institute of

Public Cleansing (who said containers provided a reasonable standard of refuse collection) suggested that where tenants emptied their refuse into containers, there should be a small opening section in the cover. We agree with this suggestion. The lids for the cover opening should be noiseless in operation.

Chutes and containers

260. This method is mostly used in taller blocks of flats. The chute, a vertical pipe, runs from top to bottom of the building and on each floor there is a hopper which opens into it. The hoppers should be so designed that they close off the chute when they are opened to receive refuse. Chutes—there may be more than one to a building—discharge into storage containers in specially constructed chambers at ground level or as near as possible to ground level. Where necessary these chambers may house several containers into which the chute discharges in turn, the containers being moved under it on wheels or a turntable.

261. The survey by the Building Research Station showed that 92 per cent of the occupiers of flats so equipped were satisfied with this method; but 42 per cent of them suggested improvements—about half of these wanted a larger hopper and others wanted improved cleanliness and less smell. The percentage of users who offered criticisms was very little less than in the case of dustbins.

262. The Institute of Public Cleansing suggested that chutes provided the minimum standard for high flats; the Institute of Housing Managers said it was one of the two 'less unsatisfactory' systems for high density dwellings, the other being the Garchey system.

263. Chutes need to be well designed and planned to prevent fire risk and to minimise blockages and the possibility of dust, smell and noise inside the building, but these problems can be very nearly eliminated in modern chute and container systems. The chute is convenient for the householder and will take most of his refuse, leaving little to be taken downstairs, and it simplifies the task of the local authority, who can collect the refuse from a number of flats at one point.

264. On the construction of chutes the documents to which reference is necessary are the Building Regulations 1965; B.S. 1703/1957, Refuse Chutes for Multi-Storey Buildings; and the British Standard Code of Practice already mentioned. In relation to internal diameters, the Code of Practice recommends a minimum of 15" (which is now enforced by the Building Regulations), but advises 18" for preference if the chute serves four or more containers or is in a block over twelve storeys high.

265. The tendency in the past seems to have been to limit cost and space requirements by restricting the diameter of chutes to what was believed the minimum necessary. Some 12" chutes installed years ago are still in use, but as a result of experience with blockages most of the more recent ones were constructed with an internal diameter of 15". Opinion in the last few years has developed further in favour of 18", and we agree with the Institute of Housing Managers that this size is to be recommended.

266. The Code of Practice recommends a maximum opening for hoppers of 10" high by 14" wide. To guard against blockages it may be best not to go above those dimensions even with chutes of the larger diameters mentioned.

267. The positioning of chutes and hoppers needs careful thought. To avoid disturbance of residents by noise, the Code of Practice very reasonably recommends that chutes should not be adjacent to habitable rooms and should be

adequately sound-insulated. For the same reason the Building Regulations 1965 contain minimum requirements for walls separating chutes from any part of a dwelling. There is now also a legal restriction on the siting of hoppers in the Building Regulations, under which no hopper may be situated inside a dwelling. This is presumably to avoid the possibilities of dirt from spilt refuse and smell from hoppers. What is meant by 'inside a dwelling' is a matter of interpretation but in our opinion it does not apply to a private balcony. This is of some importance, as private balconies in the open air are among the few situations which would both satisfy the Code of Practice and meet the views of the Institute of Housing Managers. The Institute, whose experience of this matter should be a reliable guide, said that the most successfully sited chutes were those to which there was access from within the curtilage of the flats; many housewives would dispose of some refuse by flushing it away in the water-closet rather than share a hopper. The resulting risk of blocked drains will be apparent. As alternative positions the Code of Practice recommends permanently ventilated common access halls or corridors or mechanically ventilated lobbies opening off those halls or corridors and having self-closing and fire-resisting doors. This we accept as sound advice provided that the points chosen are as close as possible to the doors of the flats.

268. The Institute of Housing Managers also suggested that hopper design might be improved to reduce noise; we think this a point which deserves attention, perhaps in a revision of the Building Regulations.

269. It may be thought surprising that the Institute of Public Cleansing should have found it necessary to recommend to us that chutes should under no circumstances discharge into a chamber except where a portable container was provided for the refuse. This ought to be self-evident, but there are apparently still a few places where refuse has to be dug out of ashpits by the collectors and loaded into containers. We saw one fairly old block of flats in London at the beginning of 1964 where the chute discharged direct into a chamber in this way but were told that $1\frac{1}{4}$ cubic yard containers were to be introduced during that year.

270. Other useful suggestions made by the Institute of Housing Managers were that the walls of container chambers should be glazed to make cleaning easier (the British Standard accepts a smooth cement rendering) and that the chambers should have space for articles too large to go down the chutes. To this may be added the Institute of Public Cleansing's suggestion that waste paper for salvage should be accommodated in these chambers.

271. The two Institutes differed in their recommendations for soiled articles; the Institute of Public Cleansing thought a small electric incinerator should be provided, whereas the Institute of Housing Managers found that where incinerators were provided they were little used, and they saw no reason why such things as sanitary towels if properly wrapped should not be disposed of via the chute. Bearing in mind the reluctance shown by women to be seen using incinerators in the few cases where these have been provided in blocks of council flats, we agree that the chute can be used for this purpose, but the importance of thoroughly wrapping soiled articles needs to be stressed. Indeed we think it best if other refuse too, especially wet refuse, is wrapped in paper by occupiers before disposal.

272. Although every attempt should be made to avoid spillage in the container chamber, this may occur, for example as a result of letting a container become over-full. It is important in the case of council flats for the local authority to allocate responsibility for clearing up spillage and cleaning the chamber, either to the cleansing department or to the caretaker; otherwise there is a risk that neither may do it. Local authorities should also endeavour to see that refuse chambers in private flats are kept clean by the owners or other persons responsible.

On-site refuse compression systems

273. Refuse compressors have very recently been marketed in this country for use under chutes in blocks of flats and large buildings. A few have already been installed. In the basic model ten paper sacks are mounted on a turntable. The refuse is compressed as it fills each sack and the turntable moves automatically when the receiving sack is full so as to bring an empty one under the chute. A compression ratio of up to 3 or 4 to 1 is said to be obtained with household refuse. This enables proportionately greater use to be made of existing storage space and vehicles and fewer collections are required. It is claimed that the method is cleaner, quieter and less expensive than metal containers and that there is less fire risk.

274. We have seen this device in operation and are favourably impressed with its potentialities.

275. Some other firms are developing methods of compressing refuse in containers or are considering doing so.

Large-capacity interchangeable containers

276. Containers much larger than the standard $1\frac{1}{4}$ cubic yard size and made to different designs have been coming into use in the last few years for the storage and transport of rubble, spoil and refuse. Their capacities range up to 15 cubic yards or more. A vehicle equipped with special hoisting gear leaves empty containers at the premises and removes full ones for disposal. In some designs the refuse is discharged by opening the bottom of the container; the movement of the refuse helps to sweep the sides clear, though it is too much to describe the containers as self-cleansing.

277. These containers avoid the use of a multiplicity of smaller receptacles and require a minimum of manpower. They are useful at building sites and trade premises where there is a large output of refuse. They are also suitable for servicing a chute in a tall block of flats (see Illustration 11), but some of them require more headroom in the container chamber and the special collection vehicle must be able to drive right up to them. At least one firm are now marketing large containers which can be wheeled in and out of existing container chambers. When used for house refuse or any refuse which can blow about, large containers should be covered in transit. Most of them are supplied with metal covers, some of which are hinged.

278. Where there is 20 cubic yards or more of refuse for collection, and ground floor space is available, a very large capacity container (of the kind which can be drawn on to a vehicle instead of being hoisted) or a refuse trailer can be stationed on the premises and exchanged as often as necessary. A garage which houses a trailer should have a floor and walls with smooth impervious surfaces which can easily be cleaned and drained.

The Garchey system

279. The Garchey system of waterborne disposal, named after its inventor, was introduced in some Paris flats in 1927 and is in use in several large blocks of flats in this country. In each flat connected to the system the kitchen sink has a special waste outlet emptying into a large receiver of roughly globular shape from which a trapped pipe leads to a vertical stack. A circular plate in the sink outlet can be removed to enable refuse to be placed or flushed into the receiver; until a plunger is lifted, waste water is retained in the receiver in order to carry off the refuse. Until very recently the waterborne refuse has been conveyed in every case to an on-site disposal station; the water is spun off by a hydro-extractor and the refuse is then incinerated, leaving a comparatively small residue to be collected. In a new variant of the system the hydro-extractor and on-site incinerator are eliminated; the wet refuse is discharged into a collection chamber from which it is removed, at intervals of possibly a week, by suction to a specially designed road tanker which compresses it, discharges excess water to a sewer and takes the refuse to a tip or disposal works.

280. The advantage of the Garchey system to the householder is that much household refuse, including waste food, can be got rid of immediately. It will take tins and bottles if they are not too large; a gauge in the mouth of the receiver shows what may safely be put into it. However, it does not cope easily with any considerable amount of paper. Torn-up newspaper has to be helped down by running the tap. It is interesting that the Institute of Public Cleansing, although they expressed qualified approval of the Garchey system, said it used a lot of water.

281. Two reservations which must be made about this system from the local authority's point of view are that it has to be supplemented by ordinary collections and that it is expensive. At Sheffield, we were told, about $1\frac{1}{2}$ cubic feet of refuse per flat per week, mainly paper and cartons, was put outside the flats for collection. Since the balconies to these flats served as thoroughfares the collectors were able to load this refuse on to trolleys and it was taken down to the Garchey incinerator. At Birmingham the tenants carried similar material to the ground floor. We understand that many tenants, although told what the Garchey will take, fail to make full use of it and put out refuse for ordinary collection which could have been put down the Garchey.

282. We refer again to the cost of this system in Chapter 19. Here we need only say that it is almost certainly cost which has limited its use in this country up to now. The new method of tanker removal may prove less expensive but there is little experience of it as yet.

Kitchen grinders

283. Electrically operated sink waste disposal units or kitchen grinders were first introduced in the United States of America, and an increasing number (though the total is still small) are being installed in this country, mainly by developers and private purchasers. They are fitted into an enlarged sink outlet. A special sink plug normally covers the mouth of the grinder and is removed to feed in refuse. Water runs through these machines while they are in operation so that the particles of refuse are carried into the sewers. They will deal with most putrescible kitchen wastes, but some makes can be clogged by fibrous

material such as celery. Makers generally advise against putting metal, plastics, string, etc. into them.

284. We saw these disposal units in use in a number of private flats as well as in a cafeteria and a canteen. Although the use made of them varied, the users were pleased with them and the occupiers of the flats said that they 'would not be without them'. Generally they used them to get rid of kitchen waste; some people disposed of broken glass and bones quite successfully in this way but one or two found the noise their particular machines made in grinding bones was too much and they preferred not to put bones into them.

285. Little research has been done in this country on the effect of kitchen grinders on sewerage and sewage disposal systems. If their use became general in any one area the effect on sewage treatment processes and sewers would need to be watched.

286. The use of these machines is likely to grow. Their great advantage is that they get rid of nearly all food remains quickly and efficiently, help to keep dustbins clean, and can be easily installed in individual houses and flats. But from the small-scale analysis mentioned in paragraph 61 and from views put to us in evidence, it appears that most kitchen grinders deal with little more than 10 per cent to 15 per cent of the total refuse by weight. At their present stage of development, therefore, they would make little impression on the local authorities' refuse collection problem. The cheapest of them costs over £30 plus fairly substantial installation costs, so that they are something of a luxury.

On-site incineration

287. It is not uncommon for householders who can do so to get rid of some of their refuse by burning it on open fires, in solid-fuel boilers, on garden bonfires, or (worst of all) in dustbins. At one time most local authorities even asked their ratepayers to burn refuse in order to keep down the cost of collection, and a few councils still encourage this practice.

288. These primitive forms of incineration are smoky and objectionable; but there is an obvious attraction in the idea of reducing refuse to a sterile residue only a fraction of its original bulk and weight, if it can be done without appreciably polluting the air.

289. Many domestic incinerators do not come up to this standard. Some of those used by American households—the back yard type of incinerator—are far from efficient and their emissions of smoke and fumes are no longer willingly tolerated. In Los Angeles, which has a particularly difficult air pollution problem, incineration, even by modern installations, has been discouraged by stringent requirements. In New York, even more drastic action is being taken against incinerators.

290. On the other hand manufacturers have been at pains to improve their designs, and at least one American domestic incinerator which we saw at the Gas Council's laboratories appears to burn smokelessly materials which give off a lot of smoke when burnt in the open.

291. The Gas Council have also been carrying out research with a view to the possibility of developing small gas-fired incinerators with capacities as low as $\frac{3}{4}$ cubic foot.

292. Larger incinerators for refuse from blocks of flats are in service on the Continent and in the United States of America, though now frowned upon by the Los Angeles and New York authorities; and trade refuse incinerators of modest size, designed to consume smoke, are now fairly common both here and abroad. One British manufacturer has produced a chute-fed incinerator for installation in blocks of flats; it runs at intervals either automatically or under janitor control. The flue is separate from the chute and the design includes an after-burner and a grit-arresting chamber. We understand that in the last year or so several incinerators of this make have been installed in new blocks of flats, but the design is still undergoing development as a result of practical experience. We saw the first one in an eleven-storey block at Wolverton, where the occupiers were allowed to discharge into the chute almost all domestic refuse that was not too large for the hoppers. The only limitation they were asked to observe was that the chute should not be used for the disposal of aerosols and paint tins. Larger articles could be taken to the caretaker to be hand-loaded into the back of the incinerator. The refuse from the 59 flats in the block was reduced to a residue filling about six ordinary bins a week.

293. The progress which has been made in the design of efficient small and medium sized incinerators makes it necessary for us to consider how far it would be compatible with the clean air standards which are now generally regarded as essential if these incinerators were to become commonly used. We think a distinction must be made between small incinerators designed for individual households and the larger ones intended for blocks of flats and other large buildings. However good the design of the small incinerators may be it would be undesirable to have a multiplicity of them, each in the care of an individual householder who may or may not use and maintain it properly.

294. In the case of larger buildings maintenance would usually be the responsibility of a caretaker and because the numbers of such incinerators would be comparatively small, supervision would be easier. It is in these larger buildings, too, that the greatest advantages would be gained by reducing the refuse to a small and easily collected residue. Unfortunately it must be recognised that it is almost impossible to carry out incineration without adding in however small a degree to the pollution of the air. It may be that a very minor amount of pollution would be a reasonable price to pay for the saving in manpower and cost of refuse collection. However, before we could recommend the general adoption of on-site incinerators in large buildings we should need to know more than anybody now appears to know about the polluting content (smoke, grit, fumes and smell) of the discharges from their chimneys. We understand that apparatus exists which could be used to analyse and measure these discharges, though there might be problems to be solved in transporting the apparatus and setting it up at a place where one of these incinerators is in use.

295. We recommend that research into the whole question of on-site incineration, including the design of incinerators and the problems of intermittent burning, should be pursued urgently for the guidance of local authorities and developers. In default of advice there is little doubt that the use of these incinerators will spread.

Pneumatic suction

296. In the last few years a system for the conveyance of refuse by pneumatic suction from buildings to collection or disposal points has been developed in

Sweden. We have had reports on it from a London borough council who are interested in installing it in a large new estate of flats to be built in the near future. The system makes use of vertical refuse chutes of conventional design and will deal with anything that can normally be got into a chute. Refuse falling to the bottom of the chute rests on a valve, which opens at predetermined intervals and discharges the accumulated refuse into a horizontal transporter pipe about 2 feet in diameter. At the same time extractor turbines cause the refuse to be transported along the pipe at high speed to a silo or large storage hopper. From here the refuse can be automatically fed into an incinerator or collected for disposal. Where the system is designed to serve a large housing estate with several blocks of flats, each perhaps having a number of chutes, the valves are programmed to open in turn until every chute has been emptied.

297. On present information we can only draw attention to this new system as one of some promise. Its capital cost is likely to be high compared with other systems used for flats but it offers improved environmental hygiene and savings in labour and transport which would be quite substantial.

298. We understand that the system will move refuse a distance of two miles—and further with booster stations at intervals of two miles—but in built-up areas the practical and financial problems of conveying refuse in 2-foot diameter pipes through networks of streets are formidable. The most obvious application for this system therefore seems to be for large blocks or estates of flats.

Choice of system for high buildings

299. There is a perhaps rather bewildering variety of systems of dealing with the refuse from buildings in which it is desired that the occupants should not have to carry refuse downstairs. We think that at present the best basis for such a system is the dry chute (so called to distinguish it from waterborne systems). Until more is known about the effects of on-site incineration and about pneumatic systems of removal, we would recommend that refuse should be received at the foot of a chute either in containers of $1\frac{1}{2}$ cubic yards capacity or greater, or in paper sacks or other receptacles used in conjunction with a compression system.

CHAPTER 11

PLANNING FOR STORAGE AND COLLECTION IN NEW AND ALTERED BUILDINGS

300. Nearly all buildings, and especially dwelling-houses and commercial premises, need proper arrangements for the storage and collection of refuse. These, as well as providing enough space for storage between collections, should be convenient for both the occupier and the refuse collector, hygienic, unobtrusive and not liable to fire risks.

301. These principles are basically those enumerated in the Code of Practice for the storage and collection of refuse from residential buildings which we have already referred to in paragraph 79. The code suggests that before working drawings are prepared for a developer there should be preliminary discussions between the designer and the local authority to reach agreement on four main points:

- (a) the method of storage and collection appropriate for the form of development proposed;
- (b) the means of access for refuse collection;
- (c) the storage capacity needed;
- (d) the cleansing of refuse receptacles.

302. If these points were taken up in all new building and building alterations, there should be very few difficulties. And yet it is a common complaint, not confined to this country, that architects and others concerned in the design and layout of new buildings and estates do not always remember to provide for easy refuse collection. Often little thought is given to the means of access for heavy vehicles and to the siting of storage receptacles. In the result there have been awkward problems for tradespeople and furniture removers, and some uncomfortably long carries for refuse collectors—sometimes much more than the maxima recommended in the British Standard Code of Practice (see paragraphs 252 and 255). Collection is made slower and more costly by the extra distance which has to be walked and by the extra effort required of the men and there may be friction between householders and local authorities, who have or can make byelaws requiring householders to place their bins in a position on the premises conveniently accessible from a street.

303. Mistakes of this kind have occurred on local authorities' own estates, for example where an attempt to use or adapt the Radburn model has gone astray. We offer no criticism¹ of the principles of the Radburn layout, in which through roads for motor vehicles are kept well away from houses and the approach to the 'front door' is over footpaths. This arrangement has obvious advantages in safety and quietness for residents and was commended in 'Homes for Today and Tomorrow'. The difficulties which concern us have arisen when a designer, in his enthusiasm for diverting traffic from the houses, has omitted

¹ For criticisms of some Radburn layouts in practice reference might be made to the Ministry of Housing and Local Government's Design Bulletin No. 10 "Cars in Housing" (H.M.S.O., 1966).

to provide an access road for essential services. If present trends continue it seems likely that demands from architects for trolley collection may become more frequent in future.

304. In addition, the problems relating to the collection of refuse from terraced houses which we mention in paragraph 96 are being perpetuated in some of the new forms of terrace development, including some good-class 'town houses'.

305. Difficulties are not confined to housing development and we understand that there is nothing to prevent new buildings from being occupied without any provision for refuse storage by the developer, except where a local Act of Parliament requires reference to the local authority.¹ One recent example has indeed been brought to our attention of a multi-storey building the design of which received favourable comment in the press but in which no provision at all was made for refuse collection. All refuse has to be carried down to the ground floor.

306. The most difficult problem is set by the mixed development now common in the centres of cities. These schemes often consist of shops, show-rooms and restaurants on the ground floor, several floors of offices above, and flats or penthouses at the top of the building. In the very large projects there may be a tower block. A large mixed development may therefore have to be served by different types of refuse collection systems on different days of the week, and facilities may have to be provided for access for the collection of refuse at night.

307. In considering the difficulties described above it has to be borne in mind that, being inherent in the design of the building or in the layout of the estate, mistakes will not necessarily be curable after building work has begun and they may put the refuse collection authority (and, in the case of trade premises, the occupiers) to extra trouble and expense for the whole life of the buildings or the estate.

308. On the assumption that local authorities are fully seized of the point and wish to prevent this kind of situation arising in private development, the only provision in general legislation which does anything to help is Section 55 of the Public Health Act 1936, which requires them to reject building plans for the erection or extension of a house unless satisfactory means of access to a street for the purpose of the removal of refuse are to be provided. In our view this provision is inadequate. We think there should be a power to require adequate refuse storage accommodation and satisfactory access in the case of all new buildings and not only houses; and it should be put beyond doubt that length of carry can be taken into account in deciding what is a satisfactory access. We are advised that it would not be appropriate to seek to obtain our objective either through the development control machinery provided by the Town and Country Planning Act 1962 or through an addition to the Building Regulations. We therefore recommend that Section 55 of the 1936 Act be replaced by a provision requiring anyone proposing to erect a new building or alter an existing one to submit layout plans and building plans to the local authority and seek their approval to the proposed arrangements for refuse

¹ We are aware of only four local Act provisions; three relate to inner London and the City of London (see paragraph 36 and the footnote to that paragraph). The fourth is the Leeds Corporation Act 1966 (Section 13).

storage as well as access for the removal of refuse. Any difference of opinion should, as at present under Section 55, be dealt with by a court of summary jurisdiction.

309. A good deal of advice on the sort of standards required is set out in the British Standard Code of Practice. The Building Regulations 1965 (Parts J and Q) prescribe standards for refuse storage container chambers, refuse chutes, ventilation shafts and hoppers. In the paragraph which follows we offer some further general suggestions.

Large buildings—business premises

310. Some questions arise particularly in relation to large buildings occupied partly or wholly for trade or business purposes. The chief ones are:—

- (a) The initial storage of refuse. In many of these buildings it may be necessary for the occupiers to have receptacles such as paper sacks or bins at primary storage points next to where the refuse arises, for example in an annexe to the kitchen of a staff canteen or in the cleaners' lobbies on various floors of an office building. The refuse should be stored at a primary point only for a short period—say 24 hours at the most—before being transferred to the main storage point from which it will be collected. Space with appropriate wall and floor finishes should be allocated for the primary storage receptacles.
- (b) Transportation to main storage. This is the occupiers' responsibility and not that of the refuse collectors. The distance between initial storage points and main storage point(s) should be kept to the minimum; the method should be unobtrusive and not interfere with the normal use of the building. Either goods lifts or hoists or chutes should be provided to move refuse vertically. Passenger lifts should not be used for this purpose.
- (c) Method of main storage and collection. We have reviewed the different methods now available in the previous chapter. As time goes on it will become increasingly important to keep in touch with the progress made by on-site disposal methods and to take account of the possible suitability of one of these methods at the design stage. With all methods, however, there should be provision for close access for the collection vehicle and off-street loading. The obvious place for main storage is at or near ground level, with a ramp which a vehicle can negotiate. Unfortunately ground floor space is the most valuable of all and large buildings in town centres sometimes relegate refuse storage to the basement. In such cases there should be a suitable lift for receptacles or a ramp for a vehicle. If a vehicle has to go into a building to bring out containers or a trailer, there must be adequate headroom.
- (d) Minimum dependence on caretakers. The refuse storage arrangements should be designed to operate with the minimum of attention from the caretaking staff and the refuse collectors should be able to gain access to main storage points at any time without resort to the caretaker.

CHAPTER 12

STORAGE AND COLLECTION: DWELLINGS IN MULTIPLE OCCUPATION

311. 'Multiple occupation' is a technical term applied to a house which is let in lodgings or which is occupied by members of more than one family.

312. Houses in multiple occupation may or may not be overcrowded or neglected; but in some cases landlords have shown no regard for the conditions in which the tenants live, while some of the tenants seem to feel no responsibility for their surroundings, which in the worst cases are nothing short of squalid.

313. Where the conditions amount to a statutory nuisance, action can be taken under the Public Health Act 1936. Other legislation designed to make it easier to improve these conditions was embodied in the Housing Act 1961. Section 12 of the Act enables the local authorities to make management orders in relation to specified houses, and the code of management prescribed in regulations¹ made by the Minister is then applied. This requires the manager (as defined in the regulations) of a house to ensure that refuse and litter do not accumulate in the premises. In particular he must provide and maintain an adequate number of suitable refuse receptacles for the occupants of the house, except in so far as receptacles are provided by the local authority. He must also make such supplementary arrangements for the disposal of refuse and litter from the house as may be necessary having regard to the local authority's refuse collection service.

314. There are, or were very recently, still a few places at least in which the worst aspects of multiple occupation could be seen. In a large city we were shown one or two streets of small two-storey houses, multi-occupied in spite of their smallness, which we were told were eventually to be pulled down. The fronts could have been worse; at the rear, passages or alleys were strewn with loose refuse, broken glass, soot, filth and cartons heaped with refuse; dirty and untidy backyards were littered with rubbish—some of it overflowing from cartons, some not in containers of any kind—and with discarded household chattels. Where there were bins they were usually lidless and one patch of vacant land served as a general dumping ground for rubble and yet more refuse. Few landlords seemed to provide a dustbin for each family in the house. Illustration 8 conveys an inadequate impression of what we saw.

315. The conditions here were clearly beyond anything which could be dealt with merely by refuse collection. So far as the refuse collection department were concerned, the best contribution they could make would be to see that there were enough refuse receptacles for every house. This would be far easier where the council themselves supplied them.

¹ The Housing (Management of Houses in Multiple Occupation) Regulations 1962, made by the Minister of Housing and Local Government under Section 13 Housing Act 1961. (S.I. 1962 No. 668).

316. In another city we saw a better class of property with up to ten flats to a house. For these houses the council had decided to try the paper sack system and were collecting twice weekly. Although the sacks were not being used as carefully as in the average private house, the general appearance of the area had been improved and it may be that the introduction of this system would help in other places faced with the problems of multiple occupation.

317. The recommendations which we make in Chapters 14, 15 and 16, if followed, may also make such places less untidy.

CHAPTER 13

SALVAGE

Questionnaire

318. 857 of the local authorities who replied to our questionnaire collected waste paper for salvage; 570 collected other salvage. These figures are less impressive than might be thought, because they include authorities who collected salvage from trade premises only; but they do not include councils who were separating salvage from refuse after collection. They indicate, on the other hand, that 500 or more councils were not collecting waste paper for salvage and 800 or more were not collecting other salvage.

Public Cleansing Costing Returns

319. The five diagrams on pages (64) and (65) have been prepared from the Public Cleansing Costing Returns published by the Ministry of Housing and Local Government. The Returns do not cover all authorities, but they account for a population of 33m. including almost all urban authorities with populations over 20,000, and they enable us to make reasonable comparisons of trends and practices. It must be borne in mind, however, that they deal also with salvage recovered by separation and not only with what has been separately collected.¹

320. In terms of tonnage and value, by far the most important kind of salvage recovered by local authorities is waste paper. Since 1955 the amount of waste paper salvaged by councils who made returns to the Ministry has fluctuated around $\frac{1}{4}$ m. tons a year and brought in a gross annual revenue of the order of £2m. The number of councils who salvaged waste paper, out of rather more than 460 who made returns, declined from about 400 in the years 1956-59 to 330 in 1962/3. The number increased slightly in 1963/64 to 355. There was a further revival of demand for waste paper during 1965 but we have no comparable figures for that year.

321. Scrap metal recovered by local authorities making these returns has tended to fall since 1955; in 1956/7 it amounted to about 81,000 tons, in 1963/4 to only 65,000 tons, and gross annual revenue came down from over £ $\frac{1}{2}$ m. to £367,000. Over 350 of the 460 local authorities formerly salvaged scrap metal but their number was down to 279 in 1963/4.

322. Other salvage, which would consist of rags, glass (cullet), bones, etc., also declined from its 1956/7 level of about 120,000 tons to 74,000 tons in 1963/4; and the gross revenue, formerly shared by over 330 councils but in 1963/4 by 266, has been reduced from nearly £300,000 to £212,000.

323. Raw kitchen waste, once in demand as pig food, now seems to be wanted in very few places. In 1955/6, 121 local authorities out of the 460 or so collected 127,000 tons and sold it for £498,000; by 1963/4 there were only 34 of these authorities collecting it, the tonnage was less than 17,000 and the gross income under £57,000.

¹The last available returns in the Department are for 1964/5, but we have not used them because rather fewer councils than usual contributed. In particular the 1964/5 figures are incomplete for London.

SALVAGE OBTAINED BY LOCAL AUTHORITIES

Diagrams prepared from the Public Cleansing Costing Returns

DIAGRAM 1 - WASTE PAPER

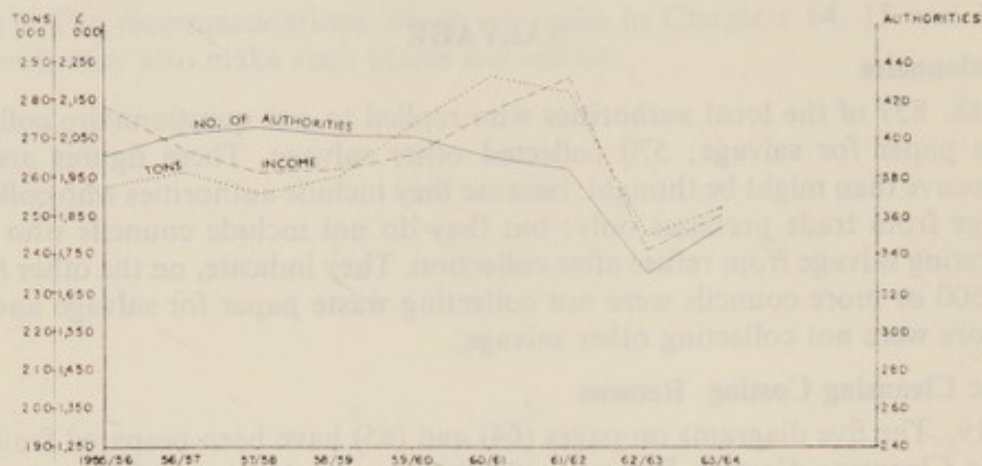


DIAGRAM 2 - SCRAP METAL

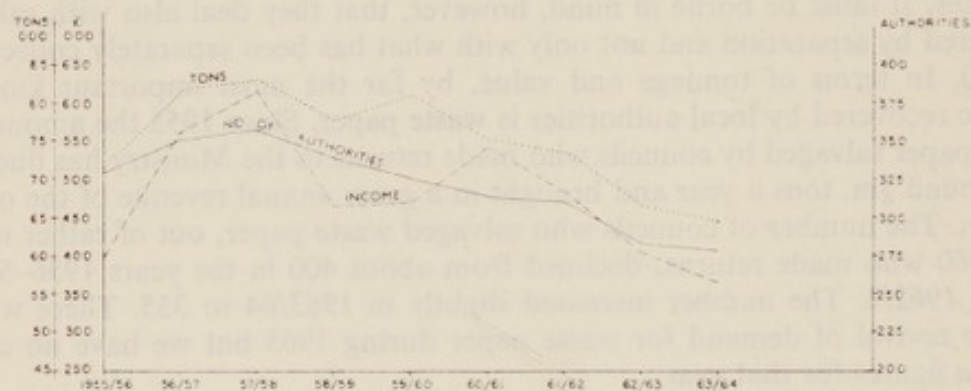
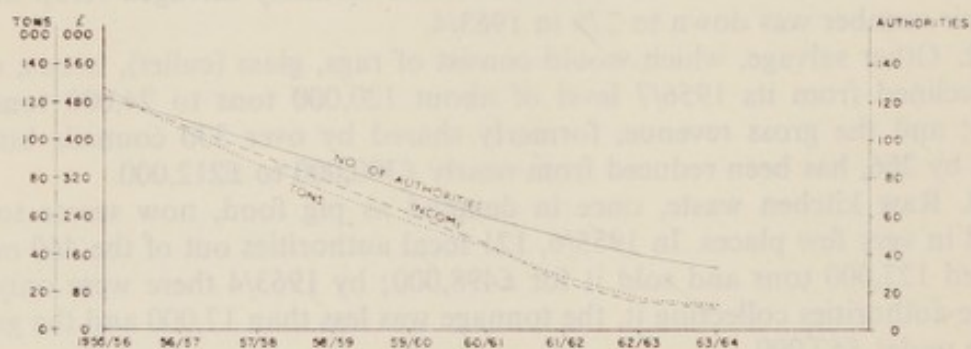


DIAGRAM 3 - RAW KITCHEN WASTE



* The figures include salvage obtained by sorting after collection as well as by separate collection

DIAGRAM 4-OTHER SALVAGE

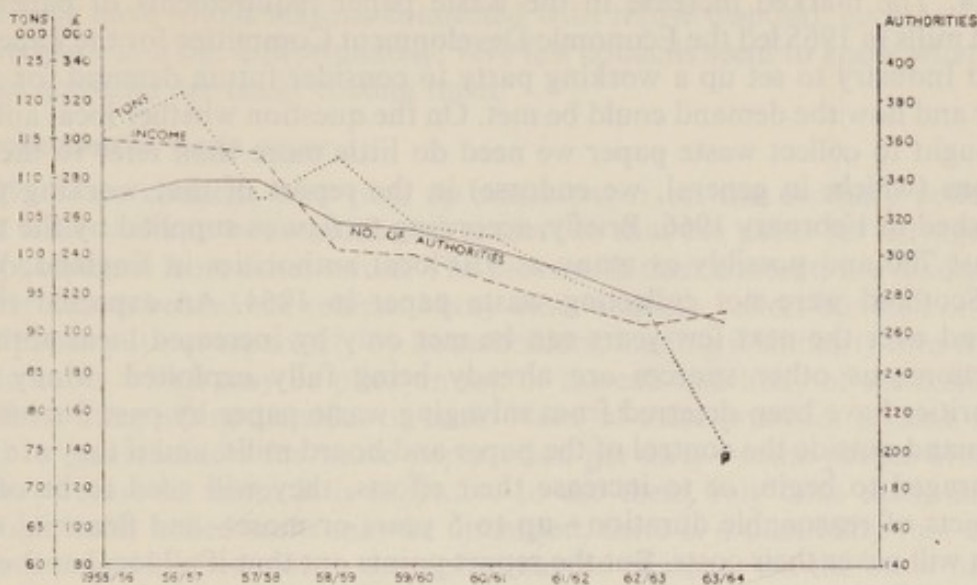
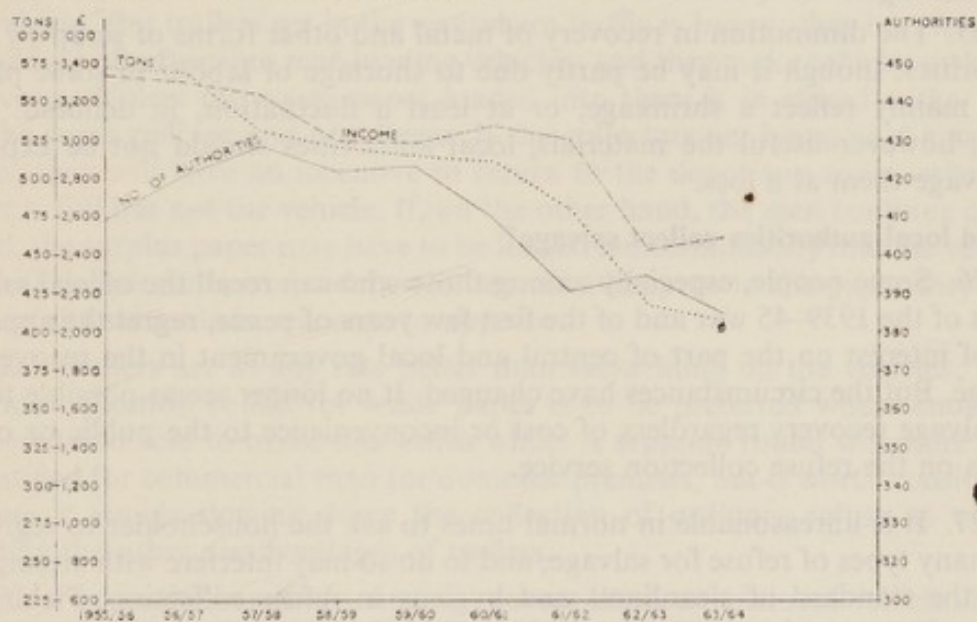


DIAGRAM 5-TOTAL SALVAGE



• Correction of published figures

Economic Development Committee Working Party on Waste Paper

324. The marked increase in the waste paper requirements of paper and board mills in 1965 led the Economic Development Committee for the Paper and Board Industry to set up a working party to consider future demand for waste paper and how the demand could be met. On the question whether local authorities ought to collect waste paper we need do little more than refer to the conclusions (which, in general, we endorse) in the report of that working party, published in February 1966. Briefly, according to figures supplied by the trade, at least 700 and possibly as many as 950 local authorities in England, Wales and Scotland were not collecting waste paper in 1964. An expected rise in demand over the next few years can be met only by increased local authority collections, as other sources are already being fully exploited. Many local authorities have been deterred from salvaging waste paper by past fluctuations in demand outside the control of the paper and board mills, and if they are to be encouraged to begin, or to increase their efforts, they will need to be offered contracts of reasonable duration—up to 5 years or more—and financial terms which will cover their costs. But the report points out that if all local authorities were to collect waste paper for salvage there would be a surplus. It also says that the desired supplies are most likely to be drawn from districts within a reasonable distance of the mills, say 100 miles, in order to keep down the expense of transport.

Other salvage

325. The diminution in recovery of metal and other forms of scrap by local authorities, though it may be partly due to shortage of labour in some places, must mainly reflect a shrinkage, or at least a fluctuation, in demand. Here again, however useful the materials, local authorities should not be expected to salvage them at a loss.

Should local authorities collect salvage?

326. Some people, especially among those who can recall the official salvage drives of the 1939–45 war and of the first few years of peace, regret the apparent loss of interest on the part of central and local government in the recovery of salvage. But the circumstances have changed. It no longer seems possible to ask for salvage recovery regardless of cost or inconvenience to the public or of the effects on the refuse collection service.

327. It is unreasonable in normal times to ask the householder to segregate too many types of refuse for salvage, and to do so may interfere with attempts to raise the standard of cleanliness and hygiene in refuse collection. Picking up salvage from premises on the domestic round slows down the collection of house refuse, an especially serious matter where there is a shortage of labour. From a purely economic point of view it would be necessary for the income from sales of salvage to be really substantial to justify using the time of refuse collectors in this way. Labour shortage and the cost of additional vehicles may militate also against the institution of a separate salvage round. For most local authorities waste paper is probably the only kind of material which might at present repay collection at source, whether on the domestic refuse round or separately, and then only subject to the reservations in paragraph 324.

328. In general, therefore, we are not in favour of salvage collection by local authorities, but we would make an exception for waste paper where, on a true

costing, councils are satisfied that they can at least cover the collection cost or where they have sound reasons connected with refuse disposal, such as a need to save space in a tip. Unfortunately, very few councils seem to know what their salvage activities are really costing them.

The collection of waste paper

329. Some councils who pick up waste paper on the ordinary collection round issue sacks to householders or traders so that the paper for salvage may be kept separate from other refuse. The sacks with their contents are loaded into a trailer drawn behind the vehicle. Many other councils collect bundled or loose waste paper put out separately by householders, loading it similarly into trailers or into sacks which may be piled on top of the cab and body of the collection vehicle or hung along the sides or back. None of these practices is ideal. Sacks issued to householders for waste paper often get dirty—some people even put ordinary refuse in them. It is expensive to use them only once each, and so, although badly soiled sacks may be discarded, there is a possibility that others which it would be best not to use again may be reissued. On the other hand if paper is put out merely bundled or loose some of it invariably blows away before or during collection. And sacks festooned over a vehicle are untidy, to say nothing of the risk of accidents to men loading them on the roofs.

330. The main attractions of a trailer are that it keeps clean waste paper out of contact with other refuse and that it adds several cubic yards to the capacity of a vehicle. But trailers get in the way where traffic is heavy; they interfere with the loading of refuse into rear-loading vehicles; and they make vehicles awkward to reverse. Unless the waste paper loaded into them is in closed sacks, there may be some spillage and untidiness. If the collectors are being paid a salvage bonus, they will have an incentive to return to the depot too soon—when the trailer is full but not the vehicle. If, on the other hand, the men continue on the round, the surplus paper may have to be loaded indiscriminately into the vehicle; this will not please householders who see what happens to the paper they have so carefully set aside in response to appeals.

331. Trailers are at any rate better than sacks hung on the vehicles; but a separate collection round for waste paper is to be preferred where enough is recovered and sold to make this worth while. A separate round will more often be justified for commercial than for domestic premises, but is worth considering because it avoids slowing down the collection of ordinary refuse as well as avoiding the other disadvantages of trailers.

332. For aesthetic reasons, and to prevent litter, an enclosed vehicle should be used for any separate collections. Even so, local authorities who collect waste paper from householders should provide them with something to keep it in, such as a paper or hessian sack; the sack with its contents should be loaded into the vehicle, and dirty sacks should be scrupulously weeded out before any are reissued.

CHAPTER 14

BULKY HOUSEHOLD REFUSE AND GARDEN REFUSE

BULKY HOUSEHOLD REFUSE

333. The illegal dumping of rubbish on roadsides, private or open land, waste places and elsewhere (e.g. in rivers and ponds) has been causing public concern. The material dumped includes builders' rubble, packing materials and containers, and scrap metal, but much of it consists of household articles such as furniture and kitchen equipment. In several of the memoranda of evidence submitted to us it was suggested that the prevalence of dumping was largely due to inadequacies in refuse collection services.

334. We were told that the public needed, but in many places were not getting, a refuse collection service which would regularly take all unwanted household articles. Even where local authorities undertook the collection of bulky refuse, it was said that there was a lack of simple but comprehensive arrangements, that publicity was inadequate and that charging for collection was a deterrent.

335. The main suggestions put to us for dealing with the problem were that:—

- (a) local authorities should collect bulky household refuse free;
- (b) the facilities should be easily available and well publicised;
- (c) the penalties for dumping should be increased and the provisions of the Litter Act 1958 extended;
- (d) local authorities should clear dumped refuse.

Questionnaire

336. The replies to our questionnaire to local authorities showed that 819 authorities collected bulky refuse with the ordinary collection; 566 of those who collected it in this way always did so free. 1,130 authorities had arrangements for the separate collection of bulky refuse; 259 of those who collected separately always collected it free. 424 authorities who operated these services gave publicity to them. We found that 79 authorities did not collect bulky refuse at all; they comprised two county boroughs, seven non-county boroughs, twenty-two urban districts and forty-eight rural districts.

337. The charges made for collecting bulky refuse varied greatly. Some were based on volume or weight (e.g. £1 to £2 per load) but most corresponded to the cost incurred (e.g. 30/- per hour). A few authorities charged according to the nature and number of articles (e.g. 2s. 6d. for a mattress).

Discussion

338. We offer no comment on the recommendations which were made to us about the need for amendment of the Litter Act 1958, a matter which we think is outside our terms of reference; but some of the points made may be within the scope of the Civic Amenities Bill (see paragraphs 359 and 360). Two questions,

however, which call for consideration by us are the adequacy of local authorities' service and the removal of any refuse which has been dumped.

339. The answers to our questionnaire have strikingly confirmed the wide variations in local authorities' practice. This is partly due to differences in the interpretation of the law. Most local authorities have undertaken the removal of house refuse, under Section 72 of the Public Health Act 1936, in the whole of their district. But 'house refuse' is not defined in the Act and such case law as there is on the subject is far from comprehensive. So there are some local authorities who regard their undertaking as limited to the kinds of household rubbish which can be put into the dustbin. Among the authorities who do remove old furniture etc. on request, only a minority, as we have mentioned, publicise the fact. There may be various reasons for this and it is possible that some of the councils have simply not considered the question of publicity. A few local authorities, however, have decided against publicity precisely because this might result in more use being made of the service, at greater cost to the rates, or at the expense of using up tipping-space more quickly, or because of difficulty in arranging for the disposal of some awkward articles.

340. In our review of the law in Chapter 2 we said that there seemed to be general agreement that the expression 'house refuse' in the Public Health Acts meant the sort of refuse that arises from the ordinary domestic occupation of a house. On this test it seems to us (and, we understand, to the Ministry's legal advisers) that the size of an article is irrelevant to the question whether it is house refuse. It therefore follows that authorities who have undertaken the removal of house refuse are under the same obligation to collect bulky domestic refuse as they are to collect the contents of householders' dustbins. This obligation will, we think, be put beyond doubt if our recommendations about the classification of refuse in Chapter 16 are accepted and become law.

341. Whatever may be the right interpretation of the existing law, local authorities are free even now to consider on merits whether and on what terms they should collect unwanted chattels from houses. Section 74(1) of the Public Health Act 1936 empowers them to remove from premises, on request, any refuse which they are under no obligation to remove, and the section permits but does not oblige them to make a charge. Our own view is that all local authorities should follow the example of the authorities who now collect bulky household refuse free of charge, no matter whether it is taken with the ordinary collection or separately. We have no doubt that it is doubly in the public interest to collect bulky household refuse, because in helping individuals—and there can be few ratepayers who are not likely to be glad of the service at some time or other—local authorities will be mitigating the problem of dumping which is of public concern. We favour free collection because we agree with the view expressed in evidence to us that any charge will tend to encourage dumping. The resulting addition to the rate burden is one which ought to be faced. For most authorities it is not likely to be very heavy in relation to their resources.

342. If the service is to play its full part in minimising dumping, householders must not only be told it exists but must be frequently reminded of the fact. One of the best ideas we have seen used for this purpose was the display of a poster on every refuse collection vehicle. Other authorities send circulars or leaflets with their rate demands, put up notices in municipal buses, and insert announcements in local newspapers. The local press are almost always helpful in

publishing reports of special activities by local authorities and these can reinforce formal advertisements.

343. The arrangements for collection should be uncomplicated and both council office staff and collectors should be familiar with them. If bulky refuse is not taken by the collectors on their regular round the special collection service should be as prompt as possible and we think that authorities should aim at collection within a week of receiving a request.

344. One suggestion made to us was that the collectors should have a supply of prepaid printed postcards which householders can post to the council office stating the articles they would like collected. We think this is worth considering where the articles cannot be taken with the ordinary collection.

Method of collection

345. Whether bulky items are best collected on the normal rounds or by separate collections depends to some extent on local circumstances, in particular on the normal method of collecting house refuse and on the method of disposal. We pointed out in paragraph 147 that vehicles with special bin- or container-loading equipment cannot conveniently be used for bulky refuse collection unless they have a separate compartment for the purpose. It may not often be satisfactory or worth while to collect this kind of material in a comparatively expensive vehicle on its ordinary round. Although, as we mentioned in paragraph 144, some of the most recently introduced vehicles will devour many kinds of bulky refuse, arrangements for separate collection may well be preferable. In any event we think councils should be prepared to collect bulky articles separately on request; this often has advantages both for them and for householders.

346. Householders who want bulky articles collected ought to make their own arrangements to bring them down to ground floor level; refuse collectors should not be expected to have the skills of furniture removers or, in the ordinary way, to spend time and effort on getting furniture downstairs. If the occupants of a dwelling are elderly or infirm and cannot afford to engage help, local voluntary organisations sometimes step in, but where necessary the local authority should be prepared to make an exception and collect the unwanted articles even from an upper floor.

347. We also recommend that local authorities should accept bulky household refuse for disposal free of charge at their depots or tips. This would be an advantage to householders who find it inconvenient to wait for special collections and, incidentally, it would reduce local authorities' transport costs. In the Civic Amenities Bill (see paragraph 359) it is proposed (reasonably, we think) that there should be a duty on refuse disposal authorities to appoint suitable places where unwanted articles may be deposited.

348. A special problem arises when there is a large amount of unwanted furniture to be disposed of, as when unsalable furniture is left in a private house after the death of the occupant. Although this may cause additional difficulties for the authority, it will usually be less of a problem for them than for the relatives of the person who has died. It seems to us on balance, therefore, that whether or not the whole contents of a house can be regarded as house refuse under the present law, the local authority ought to help and take away the unwanted articles, making no charge, if the items are readily accessible for collection.

349. Another direction in which many householders need help is in the disposal of refuse, including rubble, arising from 'do-it-yourself' decorating and improvement work on their houses. This help we think should be given by the local authority, though we would not suggest that their free service should be extended to the removal of rubble left by builders. We comment further on this in paragraph 384.

GARDEN REFUSE

350. From the replies to our questionnaire we found that garden refuse was not collected at all by 936 authorities and that of the 428 authorities who collected it, 149 did so free and 279 made a charge.

351. Having regard to the number of councils who did not provide this service it is not perhaps surprising that some householders with smallish gardens are tempted to dump their garden refuse on the nearest piece of vacant land, or light frequent bonfires of smoky material, to the disturbance of their neighbours.

352. Many such people have little room for a compost heap. They may also find the storage of grass cuttings a problem where selective weedkillers have been used on their lawns. We therefore think that it is in the public interest for the local authority to accept any vegetable type of garden refuse free of charge if it is put in the household's usual receptacle or receptacles. Anything more or anything larger, for example tree loppings, bushes and hedges, and any stone should be collected by special arrangement from a readily accessible point on the premises, possibly at a charge (see paragraph 383). The refuse collectors should not be expected to clear any receptacle which, with its contents, cannot reasonably be carried by one man.

353. The service available locally could be explained in the leaflet for householders which we mention in paragraph 342. The advantages of composting as much garden refuse as possible and of using grass cuttings as a mulch in appropriate circumstances could also be pointed out.

Clearance of dumped rubbish

354. A good collection service and effective publicity should go far to reduce dumping; it would be unrealistic to expect them to eliminate unauthorised dumping altogether.

355. It was suggested to us in evidence, and we agree, that apart from being an eyesore, refuse left where it has been shot often attracts more dumping. Authorities ought to use their power to clear away refuse at the request of any owner or occupier of premises (a term which includes land) under Section 74(1), Public Health Act 1936. For this they are entitled to charge if they think fit, but here, too, we think that in sparing the rates they may defeat the object of preserving local amenities.

356. In small districts with limited financial resources, local authorities may find that some local organisations would readily provide volunteers for occasional clearance of rubbish from the roadsides if the council help with such lorries and men as they can spare and undertake the disposal of the rubbish at their tips or depots.

357. We think it would be going too far to require local authorities by law to clear dumped refuse in every case. An unlimited responsibility in this sense could be unreasonable; local authorities should be left free to balance the ex-

pense and difficulty of removal, which may sometimes be really formidable, against the effects of the dumped material on amenity.

Powers

358. In general, owners and occupiers of land can be expected to welcome the help of a local authority in clearing away dumped refuse, and the powers of Section 74(1) of the Public Health Act 1936 to remove refuse on request are then all that is necessary. But sometimes refuse is found on vacant land and the owner cannot be traced or, exceptionally, may not be interested in asking the council to move the refuse even though they may be willing to remove it without charge. In such cases the council's powers are not always adequate. Although Section 34 of the Public Health Act 1961 enables them to deal with rubbish on vacant sites, the Section only applies to built-up areas and to accumulations of rubbish which are seriously detrimental to the amenities of the neighbourhood. We see no reason why these limitations should not be almost entirely abolished and it seems possible that they will be by the Civic Amenities Bill now before Parliament.

The Civic Amenities Bill

359. A Private Member's Bill introduced in the Commons and read a second time in July 1966 contains provisions 'for the orderly disposal of disused vehicles and equipment and other rubbish'. These provisions are also of interest in connection with Chapters 15 and 17 of our report and will be referred to there.

360. It is, of course, impossible to forecast whether Parliament will pass the Bill as it stands or with amendments, but, as printed, it would impose heavy penalties for the unauthorised dumping of vehicles and rubbish; it would oblige refuse collection authorities to remove vehicles so dumped (if these are in a reasonably accessible place) and it would give them power to remove other kinds of rubbish. The last-mentioned power would entirely meet the point we make in paragraph 358.

CHAPTER 15

OLD MOTOR VEHICLES

361. The chief differences between the problem of unwanted cars and that of the general run of bulky refuse are the expense of moving a car which no longer merits the name 'automobile' and the difficulties of disposing of it. Because of the disposal difficulties in particular, the Ministry of Housing and Local Government told us that they were pursuing this matter separately, but our terms of reference were not limited to exclude the collection of old cars.

362. Public concern about the growing numbers of cars which were being abandoned by their owners, to the danger of children and the disfigurement of town and country, was reflected in much of the evidence sent to us. There was general recognition, by the local authority associations and other organisations, of the need for local authorities to play a part in dealing with the problem. At the time this evidence was submitted, very many local authorities had no arrangements in force to help car owners. The replies to our questionnaire showed that in the early part of 1964, 301 councils were taking away used cars on request, but it is fair to add that they included a little over half of all local authorities with populations greater than 50,000 (112 out of 220 who replied). 261 councils made a charge for the service.

Ministry circular

363. While we were receiving suggestions for action by local authorities discussions were going on between the Ministry of Housing and Local Government, other Government departments, and the local authority associations and trade organisations which led to the issue of a circular¹ expressing the Minister's view that local authorities had an essential contribution to make in tackling this problem as part of their general responsibilities for refuse removal and disposal. The circular was followed by the setting up of an informal committee to discuss how co-operation between local authorities, scrap merchants and car breakers might be improved. Represented on the committee are Government departments, local authority associations, the Greater London Council, the National Federation of Scrap Iron Steel and Metal Merchants, the Motor Vehicle Dismantlers' Association, and more recently the British Iron and Steel Federation.

364. There seems no need for us to discuss the circular in detail. We are in general agreement with the advice it contains, particularly with the recommendations (a) that local authorities should provide or arrange for disposal facilities free of charge to private persons, (b) that they should take responsibility for the removal of vehicles abandoned in the street or elsewhere in the open, and (c) that joint action might be taken by smaller authorities, with the help of county councils as coordinators. On the second point our support may turn out to be superfluous, as the Civic Amenities Bill described at the end of Chapter 14 would substitute a duty for local authorities' present powers; and

¹ Circular 8/65, issued on 11th February 1965.

force may be lent to the third point by the proposal in the Bill to oblige local authorities to appoint places where unwanted vehicles and rubbish may be deposited. But the advice we offer in the paragraphs below must necessarily be related to the law as it now stands.

Current difficulties

365. Answers to Questions in Parliament have disclosed that many local authorities have been acting on the suggestions in the circular, and we have no doubt that the information we got in 1964 on this particular question is already quite out of date. But there still seem to be some local authorities who have been deterred from taking any vigorous action by a number of difficulties, some real, some apparent, and it may be useful if we mention certain examples which have come to our notice.

366. The expense of moving and disposing of a derelict car has been one deterrent, and perhaps not only to the smallest authorities. Whether and if so how much a council will be out of pocket on this operation depends very much on disposal problems and on the return which can be got from the scrap metal recovered from the car. We leave as outside our terms of reference the question in what circumstances it is worth while or desirable for a local authority to set up their own car-dismantling organisation, but it seems worth commenting on the fairly wide difference in the arrangements that different local authorities have been able to make with scrap merchants or car breakers to collect and/or dispose of old cars. In some places the council pay a firm to take the cars, in others the contractors take them free and in yet others they pay the council a small sum for each car. These variations might suggest that there is some reason for local authorities to review whether the arrangements they have made are the best possible in the circumstances existing in their own areas.

367. Some local authorities appear to have questioned whether unwanted motor-cars can really be regarded as refuse within the meaning of that word in Section 74 of the Public Health Act 1936, the section which empowers them to remove, at the request of owners or occupiers of premises, any refuse which they are under no obligation to remove. We ourselves are satisfied that unwanted cars, entire or stripped, are within the section, and this view seems altogether in accordance with the Oxford Dictionary definition of refuse which we quoted in paragraph 17. Moreover some hundreds of local authorities have been dealing with old cars under this section without challenge so far as we know. We do not think, therefore, that any special legislation is needed to put the matter beyond doubt, but the point may cease to have any significance if legislation is enacted applying explicitly to disused motor vehicles.

368. The powers of local authorities under public general Acts are, however, admittedly deficient when it comes to the removal of cars from land in unknown ownership, or in cases where for any reason the landowner or occupier will not ask the local authority to remove them. The same point arises in relation to bulky refuse in general, as we have said in Chapter 14, but a rather different procedure is needed, for the obvious reason that apparently abandoned cars have very often been brought to the place where they are found under their own motive power and it is sometimes not quite clear whether their owners are coming back for them. Several local authorities have obtained local Act powers to remove cars from private land, and these local Act provisions have been developed into a new model clause, reproduced at Appendix E, which frees the local authority



1. Metal dustless loading bin with typical hinged lid and a rubber base



5. Paper sacks on the ground floor of a block of flats



6. The householder has been supplied with two paper sacks but apparently they were still not sufficient. Note — the piece of stick in the paper sack in the holder prevents the lid from being closed



7. Bins and refuse in the courtyard of a large office building



8. Inadequate provision of dustbins—a heap of refuse awaiting collection outside dwellings in multiple occupation



9. Kerbside collection in a large town



10. Refuse awaiting kerbside collection



11. A large capacity interchangeable container serving a refuse chute

from dependence on the consent of the occupier for entry on to the land or on the consent of the car owner for removal of the car in any case where after reasonable inquiry the occupier or the car owner (or both) cannot be traced. We recommend that the model clause, or equivalent powers, should be incorporated in a public general Act applicable to all local authorities at the earliest opportunity.

369. In some districts cars abandoned on the roads are left where they were found for a considerable time before the local authority arrange for them to be moved. This is not legally necessary. The Ministry of Transport's Removal of Vehicles (England and Wales) Regulations 1961 (S.I. 1961 No. 1462) empower local authorities to remove a vehicle from the road if it 'appears to have been abandoned'. It is well known that if an abandoned vehicle is left standing in a public place there is every likelihood that its wheels and other usable parts will disappear within a short time. There is therefore a strong incentive for the local authority to remove it quickly. Where this is not done it may be because the council feel it necessary to consult the police, which seems a useful precaution, but one may hope that it would not take long. It may be because of a misreading of the regulations, which require the local authority to try to trace the owner before disposing of apparently abandoned cars; there is some evidence that a few councils may have supposed that this requirement applied to prevent them from removing a car at once. In some cases, however, local authorities have been obliged to wait before bringing cars in because they have not enough room at their depots to store them for the statutory period before the cars may be disposed of; by no means all car breakers or scrap merchants can offer help in the storage of vehicles. This is an important practical difficulty but because to pursue the point would have involved us in a consideration of the law relating to disposal, we have confined ourselves to noting that the Civic Amenities Bill may to some extent relax the requirements which a local authority must fulfil before disposing of an apparently abandoned car.

CHAPTER 16

TRADE REFUSE AND CLASSIFICATION OF REFUSE

370. The present legal distinction between house and trade refuse is important in two ways. One is that as nearly all local authorities have undertaken the removal of house refuse in the whole of their districts, they must remove any refuse of this description from any kind of premises, if the occupier asks them to; whereas (except in inner London) they can decide separately whether or not they will undertake the removal of trade refuse, or any particular kind, in the whole or part of their district. The other is that they must charge for the removal of trade refuse (though the charges must be reasonable) but are obliged to take house refuse free except if they are asked to remove it more frequently than they have undertaken to do.

Questionnaire

371. 1,266 local authorities out of the 1,364 who replied to us said they collected trade refuse—almost two-thirds of them once a week, rather under a quarter more often and the rest less often; 480 of them collected it only together with house refuse, 194 only separately, and 592 in both ways.

Charges

372. We got information from 276 selected authorities about their charges. Their replies, summarised in Appendix F, show the variety of bases which they have adopted—cost, time, number of bins, volume, or a weekly or annual figure. We understand also that some local authorities sell tickets to traders, who hand one to the refuse collectors for each bin collected.

373. It is interesting that of the 468 councils who contributed to the Ministry of Housing and Local Government's Costing Returns for 1963/64, as many as 68 had no income from trade refuse charges. Among the 68 were 30 rural district councils, about one half of the rural district councils who made returns. But even among the county borough councils there were three with no revenue from this source and four with less than £200, all of whom collect some trade refuse.

374. Nevertheless, trade refuse charges in England and Wales yield a total gross income in the neighbourhood of £1½m. a year. In addition, possibly two-thirds of the £3m. a year or thereabouts which is brought in by local authorities' sales of salvage can be attributed to trade refuse. We are unable to compare this revenue with the cost of collection; it is doubtful whether the majority of local authorities have detailed enough costings to do this accurately for themselves.

Restrictions on the collection of trade refuse

375. The greater part of the trade refuse taken by local authorities is probably waste paper and empty cartons and containers. Many other materials are taken, but we found that a considerable proportion of our 276 selected authorities would not collect certain kinds. The restrictions imposed by any one council usually related to one or two of the following:— builders' rubble, industrial

waste (a very broad category), slaughterhouse waste, and dangerous refuse. A few councils said they would not accept materials which could not be salvaged; some would not take accumulations of trade refuse. One large county borough council would not take any trade refuse at all.

376. Many firms, therefore, have to fend for themselves. Some of them can incinerate wastes which cannot be salvaged, or can transport them to a local authority tip or a private one; others can make arrangements with contractors who specialise in this work and some of whom have their own tipping-sites. But some materials are very difficult to get rid of; glass fibre, rubber, oil and plastics have been mentioned to us among other examples of waste that are a problem to traders and are not accepted by their local authorities. The disposal of toxic wastes is often especially difficult and is being considered by another committee set up by the Ministry of Housing and Local Government.

Should the distinction between house and trade refuse be altered?

377. Although the difficulties were described to us by representatives of trade and industry, suggestions for change came very largely from associations representing local authorities and local authority officers. The Association of Municipal Corporations suggested that the whole question of house refuse and trade refuse should be examined; they thought the distinction might be antiquated and local authorities put to more expense in making small charges for collecting trade refuse (other than large quantities of industrial waste) than in taking it free. Suggestions made by various organisations were that trade refuse should be defined; that a discretion to charge should be substituted for the duty to do so; that local authorities should be obliged to collect trade or industrial refuse (other than dangerous waste) on request or provide places where traders could bring it for disposal; and that local authorities should be able to stipulate the way in which traders disposed of refuse. The Metropolitan Boroughs Standing Joint Committee thought the law relating to trade refuse in London should be revised in view of the burden placed on domestic refuse collection services by hotels and restaurants.

378. As we mentioned in Chapter 2, the existing law classifies refuse as house refuse, trade refuse, and refuse which the local authority 'are under no obligation to remove', the last of which may include refuse which is neither house nor trade refuse. The distinction between these classes, and especially between house and trade refuse, has always caused difficulty.

379. Underlying many disputes which have arisen is the fact that refuse cannot be identified as belonging to one legal category or another merely by looking at it. Food scraps, empty containers or cartons, and many other by-products of trade or business are in themselves no different from kinds of refuse thrown into dustbins by any householder. An Appeal Court judge said many years ago that the legislature could not possibly have found language in which they could have given an exhaustive definition of house refuse and trade refuse. The Local Government and Public Health Consolidation Committee, who drafted the Bill which became the Public Health Act 1936, 'gave much consideration to this matter'. A recommendation had been made in 1930 by the Departmental Committee on London Cleansing that payment at cost should be made for collecting the refuse arising from the carrying on of any trade or business, except for negligible quantities collected from small premises with the house refuse. The Consolidation Committee, after quoting this recommendation, said

they had considered whether an attempt should be made to draft a definition which would secure that whatever the character of the refuse it should be treated as trade refuse if it resulted from trading or industrial processes. In this connection they considered various local Act definitions. They concluded 'somewhat reluctantly' that none of the various attempts at definition to which their attention was drawn was free from serious difficulty and that if any alteration were to be made in the law it should probably be on more fundamental lines than would be justified in their consolidation Bill.

Conclusions

380. We think there is good reason for reconsidering the basis on which refuse has been classified. A more defensible distinction can be drawn according to the kind of premises from which the refuse originates, which we would classify as:—

Category I. Mainly houses and similar residential premises, the refuse from which we describe in the remainder of this chapter as domestic refuse.

Category II. Commercial or trade premises. Any refuse from these would be regarded as trade refuse under our suggested classification.

Category III. Consisting mainly of industrial premises, the refuse from which we describe below as industrial refuse.

381. Under our proposals local authorities would be obliged to collect domestic refuse free of charge, subject, as regards charges, to exceptions which we discuss in paragraph 383. They would have a duty to collect trade refuse and a discretion to collect industrial refuse, subject in each case to what we say below about charges.

Category I

382. Among the premises falling under this heading would be houses and flats, hospitals, schools, residential or charitable institutions, and caravans on authorised sites. Hotels and restaurants would not be included. Houses occupied together with agricultural or horticultural holdings would of course be treated like any other dwellings but the holdings themselves would be on the same footing as industrial premises.

383. We think that local authorities should be obliged to collect all the refuse from premises in Category I. Collection should be free except in the case of garden refuse—other than that placed in the premises' usual receptacle(s)—and rubbish left by builders, for which a discretion ought to be allowed to the local authority to charge. We are reluctant to introduce any distinction whatsoever between types of refuse into the new system which we suggest, but garden refuse can be produced in such quantities and with such frequency that an unlimited obligation to collect free of charge could result in some places in the breakdown of the ordinary arrangements for domestic refuse collection.

384. As regards rubbish left over from building work, we think a distinction should be drawn between the results of the householder's 'do-it-yourself' operations and the work of builders employed by him. Tradesmen have or should have the means of removing their own rubbish and should clear up after finishing the job; they should not be encouraged to leave the householder with the problem knowing that the local authority cannot charge him.

Category II

385. We would classify as trade premises not only offices and shops but also hotels and restaurants, boarding-houses and guest-houses, other than houses only a minor part of which is used by the occupier for accommodating boarders. Canteens would be in Category II or III according to the premises served.

386. Most authorities already collect the refuse from shops, offices and similar commercial premises, and they are obliged to collect from hotels and restaurants. Subject to our recommendation on charges in paragraph 396, we consider it would be reasonable for all authorities to be under an obligation to collect trade refuse (in our meaning of this expression) at the request of the trader, with a provision for seven days' notice corresponding to that allowed in Section 73 of the Public Health Act 1936. This obligation should go a long way to eliminate the dumping or burning of trade refuse. It should also get rid of the use of unsuitable vehicles in some town centres by traders who make their own arrangements for refuse collection. It is not likely to impose an unreasonable burden on local authorities since the difficulties of quantity and nature which we mention in relation to the collection of industrial refuse in paragraph 388 do not apply in the same degree to the collection of trade refuse.

Category III

387. Our last category would include, broadly speaking, premises within the definition of 'factory' in the Factories Act 1961, except shops registered under the Act for technical reasons, for example because repairs to the kind of article sold in the shop are carried out on the premises. Building sites, builders' yards and agricultural and horticultural holdings (see paragraph 382 above) would also be treated in the same way as industrial premises. Refuse removed from Category III premises to trade premises to await collection would not be regarded as having changed its category.

388. Refuse in Category III may be of very many kinds, not all of it easy to handle. Some may be bulky or heavy; some offensive, toxic or inflammable. The quantity produced by one firm may be trivial in some cases and amount to many cubic yards or tons a week in others. In considering the disposal of industrial refuse it has to be recognised that local authorities are not always better placed for dealing with it than the firms who produce it. In particular it is not unknown for very large factories to be situated in the areas of small local authorities who might be obliged to set up what amounted to a special organisation if they had to collect and dispose of the refuse of these factories. We think that, at least as local government is at present organised, it is necessary that authorities should continue to have discretion in relation to the collection of this refuse. Where, as in London, the refuse collection authority do not also have the responsibility for disposal, they should consult the refuse disposal authority before undertaking to collect any industrial refuse.

389. We deal with the question of charges for the removal of industrial refuse from paragraph 392 onwards.

390. We do not, however, think it entirely satisfactory that industrialists and others should be left to make their own arrangements where local authorities do not collect from their premises. Although most firms in this position see to it that their refuse is collected and disposed of suitably, some waste paper is collected in open lorries and some industrial refuse gets dumped or is disposed of in an

unsatisfactory way, e.g. by burning in the open. It seems to us that local authorities should be ready to advise and help firms on any refuse collection or disposal problem and that they should be given power where occupiers of premises in Category III make their own arrangements for the collection of their refuse, whether direct or through a private contractor, to see that the arrangements are satisfactory. Authorities might also make more use of their present powers to make byelaws (a) for the prevention of nuisances from dust, ashes and rubbish¹ and (b) as to the removal through streets of offensive matter or liquid².

391. The new approach and classification which we suggest would necessitate considerable overhaul of Sections 72 to 74 of the Public Health Act 1936. In the course of this it should not be overlooked that Section 74(1) enables a local authority to charge for the removal of refuse otherwise than by the normal service and, failing any other power, to remove dumped refuse on request. These powers would need to be retained.

Charges for trade refuse and other refuse

392. A widespread grievance among business people, manufacturers and shopkeepers is that though they pay rates on high rateable values, and so contribute to the cost of the local authority's general refuse collections, they have to pay again for the local authority to take away their refuse (if the local authority takes it). This applies even if the refuse has a value as salvage.

393. It is well known (but not always cheerfully accepted) that the general rate is a means of financing the whole range of local authority activity. The system could not work if the attempt were made to adjust an individual's rate burden according to the services he receives, though of course having or not having certain services may alter the rateable value of his property.

394. It also seems fair to say that the cost of getting rid of refuse from trade or industrial premises is just as much a business expense as is the cost of delivering goods or cleaning the premises.

395. Nevertheless it is not only trade interests that would like to see an end to the present obligation on local authorities to charge for the removal of trade refuse. Local authorities themselves are not unanimous on this. Some councils would like matters to remain as they are in order to avoid a situation arising in which firms in different districts, or one firm with branches in more than one district, may have cause to complain of being treated differently by each local authority. Others who are conscientiously recovering 'reasonable charges' as they are required to do by the Act, but whose total income from this source is very small, argue in favour of a discretion. They consider that the small charges sometimes cost more to recover than they bring in, and they would like to end the nuisance of small traders' burning refuse in the open or dumping it to avoid paying a few pence per bin for collection. Some councils have taken the law into their own hands and either collect one bin or more a week free of charge or else make no charges at all for collecting trade refuse.

396. We accept that in some cases where small quantities of innocuous refuse are to be removed the charges that can reasonably be made will be too small to do more than serve as an irritant to traders without constituting a useful source of revenue. We also bear in mind the fact that industrial refuse as

¹ Series II model byelaws under Section 81, Public Health Act 1936.

² Series IIA model byelaws under Section 82, Public Health Act 1936.

we define it will come in many cases from small firms and be comparable with that from small commercial premises. Taking into account the views of the various local authorities as well as those of traders affected, we agree that a discretion to make reasonable charges should be substituted for the present duty, and we recommend that this discretion should apply to refuse from premises in our Categories II and III. The charge should include an element for disposal costs. Where local authorities wish to make small charges, we would recommend them to consider replacing charges per bin by agreed half-yearly or yearly sums in order to reduce administrative work.

397. The discretion we recommend should enable a local authority, if they so decide, to make no charges at all for collection from any Category II or Category III premises in their district, or alternatively to charge in some cases and not in others according to circumstances. There may be complaints of invidious distinctions where local authorities treat one trader differently from another, but so long as decisions are based fairly on the quantities and types of refuse a council should not find it hard to justify them.

398. A discretion to charge for the removal of refuse from any particular industrial or commercial premises would probably also limit disputes as to whether particular premises should be classed as industrial (so that the authority would not be obliged to collect) or trade (which would oblige them to collect). In either case the local authority could, where they considered it appropriate, charge the full cost of collection and disposal. Local authorities can, however, avoid many disputes by explaining their views to industrialists and traders before levying new charges or altering existing arrangements, and by being prepared to discuss difficulties with them.

399. We are bound to point out that our recommendations would be likely to operate to the disadvantage of hotels, restaurants, and canteens, the refuse from which has been accepted as house refuse for many years as a result of court rulings. Establishments of this kind can at present put out unlimited quantities of refuse for collection free of charge at the local authority's normal collection times, and are only liable to be charged for additional collections. The reclassification as trade refuse which we suggest would bring them into line with other commercial undertakings; the local authority would be obliged to collect this refuse on request, but would have discretion to charge for collection of the whole quantity produced.

CHAPTER 17

LITTER COLLECTION

400. The representations made to us on litter related mainly to rural areas. On the evidence of our own eyes, there is also far too much litter lying in the streets of many towns, even where the public are never out of sight of a litter bin.

401. Societies concerned with the preservation of amenities were perturbed at the amounts of litter scattered at popular beauty spots and laybys. We were told, too, of the dumping of all kinds of rubbish at laybys, and of the abuse of litter bins at some laybys even to the extent of their being used as toilets. It is not surprising, therefore, that as well as suggestions that there should be more litter bins we also received one or two that it might be better to remove bins.

402. The County Councils Association sent us a report by the County Surveyors' Society on a survey of the arrangements for the disposal of litter on more than 70 per cent of the trunk road mileage in England and Wales. This survey was carried out by a sub-committee of the Society in 1963 as a result of complaints received by the Ministry of Transport about the condition of laybys on trunk roads.

403. The Society found that on 4,131 miles of trunk road surveyed in England there were 2,263 laybys of which 92 per cent had litter bins. The figures for Wales were 613 miles with 366 laybys, 77 per cent having bins. The local figures varied a great deal. For example, in England one county had an average of one layby per 6.7 miles, whilst another had one for every 0.71 miles. In one county only 49 per cent of the laybys had litter bins. There did not appear to be any significant relationship between the frequency of laybys with or without bins and the litter state of the laybys.

404. The Society reported that more than one county surveyor was considering whether it would be better to dispense with litter receptacles at laybys, as those often seemed to attract litter dumpers, including some from the local community. In one county litter bins were being removed altogether from part of one route as an experiment. We inquired later on about the results of this experiment; we were told that it had turned out badly and that the bins had been replaced. We think that it was not unreasonable to try, but the experience gained gives a fair indication of what could be expected to happen in most other places. In general, therefore, we think that in spite of abuses the right policy must be to provide litter bins at all official laybys as at any other place frequented by the public.

405. The Keep Britain Tidy Group suggested that unofficial laybys should be ploughed and planted wherever possible, as much of the most offensive litter was deposited at these spots, from which it was seldom cleared. The point is not strictly for us but we assume that this suggestion relates to places where abuses are known to occur. On a visit made for other purposes we were shown an unofficial layby on a minor road to which a rural district council had given some recognition by installing a paper-sack litter receptacle, which was being properly

used apart from some careless dropping of scraps round it. There are probably many such spots where no drastic measures seem called for.

406. However good the arrangements for collection may be, where people or cars congregate there will always be some litter left which has to be removed by street cleansing; this applies in rural districts as elsewhere.

Responsibility for provision and clearance of litter bins

407. Until 1961, the power to provide litter bins in streets and public places was available only to county borough, borough and district councils. Section 51 of the Public Health Act 1961 extended this power also to county councils (who, however, can only exercise it in rural districts) and parish councils.

408. The authority who provide the bin have a duty¹ to arrange for it to be regularly emptied and cleansed, 'regularly' being explained by the Section as meaning often enough to ensure that no receptacle or its contents shall become a nuisance or give reasonable ground for complaint. All these authorities from county council to parish council have power to empty and cleanse litter bins provided in any street or public place by them or any other person; and they may erect notices about litter in conjunction with litter bins.

409. How effectively are these powers used? An obvious risk where three kinds of authority have concurrent powers in one district is that each will wait for the other. That this has happened in some places is suggested by the complaints received by the Ministry of Transport (which we have already mentioned) in relation to laybys on trunk roads and perhaps also by a remark in the evidence of the Keep Britain Tidy Group that 'the main complaint seems to be that it is difficult to find out whose job it is to maintain good conditions at any given layby'.

410. So far as trunk roads are concerned, the apparent ignorance of many authorities of the grants they could get for litter clearance should have been ended by the Ministry of Transport's circular ROADS No. 14/65, issued to all highway authorities and local authorities on 26th August 1965. This pointed out that the Minister of Transport would bear the whole cost of the provision and clearance of litter bins in specified locations. The circular suggested, reasonably, that refuse collection authorities were best placed to clear litter and refuse from laybys and verges, though in many cases the county council might need to supplement their efforts.

411. The duplication of powers seems unlikely to prevent action from being taken in cases where in any event the cost is to be reimbursed by the Exchequer. The situation is different in relation to classified roads. If the Local Government Bill now before Parliament receives the Royal Assent,² grants for their maintenance—which may include the provision and clearance of litter bins at specified locations—will be made through the rate support grant. It will be for the highway authorities to decide how to use that part of the grant which is attributable to highway maintenance, and there will therefore be no direct encouragement to them to increase their expenditure on litter clearance.

¹ This requirement applies also to street orderly bins provided by highway authorities and local authorities under Section 156 of the Highways Act 1959. These are intended to receive street refuse and waste paper collected by street orderlies (road sweepers) but are no doubt often used by the public as litter bins.

² It received the Royal Assent in December 1966.

412. Probably, however, it is most often on unclassified roads that the absence of a clear responsibility on one class of authority may result in nothing being done.

413. The Keep Britain Tidy Group told us:—

'It has been reported that many litter bins, if adequate number and type are provided at all, are not sufficiently frequently cleared. There have been cases of litter bins in rural areas filled to overflowing and attracting piles of litter all round. One we visited was reported not to have been cleared for two months despite a request to the council and indeed the condition made us believe this. It appears that often the road sweeper, if there is one, by-passes the bins, the refuse collection vehicle never sees them—or does not bother—and in some cases we have advised the parish council to arrange for the removal of the bin. When we are consulted beforehand we advise parish councils not to put up litter bins without obtaining the prior agreement of the district council.'

414. We understand that the bins mentioned in the example in paragraph 413 were provided by a parish council. Of course it could be said that there is a responsibility on a parish council who provide a litter bin to see that it is emptied, and that arrangements for emptying should have been made before the bin was provided. But these bins seem to have been used more than enough to show that they were needed, and it is regrettable that no authority could be found who were both able and willing to empty them. We think that the implementation of Section 51 of the Public Health Act 1961 is a matter which should be discussed between the County Councils Association, the Rural District Councils Association, and the National Association of Parish Councils, in order to arrive at the clearest possible allocation of responsibilities and to consider whether any amendment of the law is necessary. It might be considered, in particular, whether the extension of the power to provide litter bins to parish councils has been a success; this is a point on which we have not enough evidence.

Size of bins

415. It may seem obvious that the size and number of bins should be related to the amount of litter likely to be deposited and the frequency with which they are to be emptied. Unfortunately the amount of litter deposited at any one place may vary a great deal. The County Surveyors' Society said that there are times when bins can be left for a week while at other times even clearance once a day is not enough. But if, at times, more litter is deposited than can be coped with by the existing bins when they are emptied once a day, there are only two solutions: either the bins must be emptied still more often or greater storage capacity should be provided. The Council for the Preservation of Rural England made the reasonable suggestion that local authorities should review the scale of provision and size of bins at definite intervals.

416. If bins are to be emptied manually this limits their size and capacity. At some laybys which are much used, some councils are now turning to bulk containers which are removed for emptying by vehicles with special hoisting gear. These are satisfactory provided they have adequate and safe lids.

Design of litter bins

417. The design of litter bins has received much more attention since the passing of the Litter Act 1958. In 1960 a litter bin competition was organised

by the Council of Industrial Design, in association with the Ministry of Housing and Local Government and the Department of Health for Scotland (as it then was); the winning entries were displayed in London, and the Council of Industrial Design have since maintained a permanent exhibition of street furniture, including litter bins, on the South Bank. Illustrations and descriptions of numerous litter bins are now included in the Council's street furniture catalogue, and this section of the catalogue has also been reproduced and distributed by the Keep Britain Tidy Group.

418. The bins entered for the 1960 competition were of course judged on their suitability for their purpose as well as on their appearance. It is interesting to see from the judges' comments on one award-winning design that they did not exclude the idea of burning of refuse in the bin. One or two councils responsible for rural areas, at any rate, are reported to be using bins of fire-resisting material the contents of which they burn in this way. No doubt this saves money and labour but, however remote the district, the presence of litter shows that people visit it who would be inconvenienced by the burning. We do not recommend this practice.

419. There is no doubt that the 1960 competition gave strong encouragement to the development of new designs for bins, but many problems still remain. Guidance on these will be available in due course from the British Standards Institution, who have a technical committee considering the design of litter bins for use in both urban and rural areas. It seems likely that they will deal with such matters as suitable locations, materials and construction as well as design.

Markets and special events

420. Markets, fairs, and public events such as races and shows are prolific sources of litter and impose an additional burden on many local authorities' public cleansing services. 200 out of the 276 selected councils who replied to our supplementary questionnaire made arrangements for special refuse collections at concourses of this sort. (67 found special arrangements unnecessary.) A few collected free, but mostly a charge was made.

421. Since the amounts of litter left are so large local authorities are virtually compelled to deal with them. It is better, where possible, to arrange a system of collection from receptacles (using the powers of Section 74(1) of the Public Health Act 1936, which enables councils to make a charge if they think fit) than to rely entirely on the cleansing of the site after the litter has been dropped. Organisers of events are often only too pleased to co-operate in the arrangements for collecting refuse. In markets it is probably rarely practicable to get this co-operation from stallholders, and strictly Section 74 does not apply to stalls since these are not premises; but the market authority ought to provide refuse receptacles. In one London market which we visited the local authority used a pedestrian-operated electric truck; the refuse dropped by the stallholders was gathered by sweepers and brought to the truck while the market was in progress.

Removal of dumped rubbish; litter offences

422. Some of the representations made to us related to the removal of rubbish dumped on roads and verges. This has to be cleared under highway maintenance or street cleansing powers, with which we are not concerned in this report. The creation of litter by unsatisfactory methods of refuse collection is dealt with in Chapter 9. Our consideration in the present chapter has been

confined to the collection of miscellaneous litter of the kinds for which litter bins are or could be provided.

423. Similarly educational and penal measures to discourage the dropping of litter are outside our terms of reference, but we think we should record that several suggestions were made to us that the Litter Act 1958 should be more vigorously enforced, its penalties increased and its provisions extended, and that anti-litter propaganda and education should be intensified.

CHAPTER 18

LABOUR

424. The total number of men employed by local authorities in refuse collection crews is 33,000. The number employed by each authority ranges from as little as one team of two or three men in the smallest districts to several hundred men in the largest towns. Additional details of labour employed are given in Tables 58 to 61 in Appendix J.

Crew strengths

425. The most usual crew strength, we found, was from four to six including the driver. 771 authorities were in this range. Of the others, 538 had crews with an average strength of three or less, and 55 had more than six.

426. The optimum crew strength for a particular area may be decided by work study (perhaps in future by operational research) or more laboriously by trial and error. It must depend, however, on the type of vehicle, the collection method, the kinds of property on the round, the nature of the carry and the character of the refuse, and whether salvage is collected. It is worth remarking that the council of one large city which we visited were using teams of two men and a driver for both sack and bin collection and were pleased with the results. We would not suggest that teams as small as this would everywhere be the best choice but too many local authorities have made arbitrary decisions on team sizes and it has sometimes been assumed too easily that the largest ones will be the most productive.

Start and finish of work

427. Information about the normal starting and finishing times for collection is given in paragraph 118 and in Table 34, Appendix J.

Recruitment and turnover

428. The local authority associations and other organisations, in their evidence, mentioned the existence of labour difficulties and high rates of labour turnover and sickness. They referred to the competition of industry and the social stigma attaching to refuse collection which made recruitment difficult. From other evidence we believe that shortage of labour has sometimes prevented councils from increasing the frequency of their collections, while absence and sickness has resulted in irregular collection.

429. The information we got on the success of local authorities in getting and keeping refuse collectors was not at all full but was enough to show that the worst difficulties occurred in places where they were to be expected—in prosperous industrial towns, in good-class residential areas, and in rural districts which were affected by the drift to the towns. What was less self-evident was that marked differences could occasionally be found in neighbouring areas of apparently similar types. In such cases the less successful councils might do well to investigate the reasons for the greater success of their neighbours.

430. Our fullest information came from the Metropolitan Boroughs Standing Joint Committee and related to the area of the former county of London. They told us that there were some complaints of recruitment difficulties and that in some places shortages of men had to be made good by transfers from other services such as street cleansing and highways. Five metropolitan borough councils had turnover figures of 53 per cent, 72 per cent, 86 per cent, 108 per cent, and 113 per cent, all well above the national average of roughly 35 per cent for men in manufacturing industries. On the whole, however, refuse collection departments in the majority of the metropolitan boroughs had quite a low rate of labour turnover; one, indeed, at the time of the inquiry had the remarkably low turnover of one per cent, and in 1965/6 no more than 4 per cent. The cleansing department in question found that work study¹ had reduced their labour requirements by about 20 per cent. Their ability to recruit and keep men was attributed to a work-study-based incentive bonus and good labour relations; but we are bound to mention that some local authorities have a high turnover in spite of similar bonus schemes and similarly good labour relations.

431. The proportion of refuse collectors in the metropolitan boroughs who had been in their jobs for over two years ranged from 35 per cent to 98 per cent, the average being 74 per cent. But nearly all the metropolitan borough councils had kept over three-fifths of their men for two years or more, including even the two councils with a labour turnover of over 100 per cent, who must have had very considerable difficulty in keeping their numbers up to strength.

432. As regards the rest of the country we have little detail. Individual examples we have been given support the statements on difficulties in industrial towns. In one Midland city, where the counter-attractions of industry were exceptionally strong, the turnover in 1965 was 100 per cent; and to judge from the 63 per cent losses in the first four months of 1966, their total for this year could be nearer 200 per cent. In eighteen months up to the spring of 1966 this city council lost half of the refuse collectors on their books who had six months' service or more. Although the total number on the roll in May 1966 was 16 per cent above requirements, sickness and absence resulted in a day-by-day shortage averaging 6 per cent, and on Mondays the shortage might sometimes be nearly 20 per cent. Another Midland council found after introducing dustless loading in a large part of their city a few years ago that the labour situation had improved, and they are now able to maintain a full complement of men. Even so their turnover is about 50 per cent a year, and of the men who leave them nearly two-thirds have been with them for less than six months.

433. A council in Southern England with a largely residential district were until recently operating a 'carry out and return' collection with a labour force about 20 per cent under strength and decided to reduce their labour requirements by adopting the paper sack system. Several other local authorities told us that they could not have kept their men without bonus schemes or overtime payments.

434. We must assume that, in the long term, the high level of employment which has been typical of the country as a whole in recent years will continue and that competition for labour in most places will continue to be strong. How, then, are local authorities going to be able to maintain their labour forces for refuse collection? It is outside our scope to consider how far present pay is adequate to

¹ We discuss the use of work study methods in Chapter 19.

attract suitable men into the refuse collection service and keep them in it; that is a matter for the National Joint Council for Local Authorities' Services (Manual Workers), on which both employers and men are represented¹. But the job of the refuse collector can be (and in many places has been) made more attractive by improving his working conditions, and indeed the kind of action we have in mind should not depend on whether a local authority can get the labour it needs at any particular time.

Working conditions and welfare

435. The first step, where this has not already been taken, should be to make the job a clean one. There is some evidence that local authorities who have adopted the paper sack system or dustless loading have found it easier to recruit and keep refuse collectors. With greater cleanliness goes the provision of protective clothing², which should be neat as well as serviceable, so that the men can take a pride in their appearance. A good appearance helps to improve their status in the eyes of the public. In addition, even councils employing only a few men should see that they have decent messrooms, toilet facilities, showers, lockers and clothes-drying equipment; and the men should start and finish their day's work at the depot where practicable, so that they can get the maximum benefit from these facilities. These are elementary points, fully in accordance with the local authority associations' evidence to us (including, notably, that of the Rural District Councils Association and Urban District Councils Association, who represent many small authorities) and with various published articles on the subject of labour problems in refuse collection. But not all local authorities have so far put them into practice.

Totting

436. Totting, or picking salvage out of refuse for sale to dealers, is practised by refuse collectors in some districts. Many councils forbid it, either for hygienic reasons or because they have arrangements at their depots for recovering salvage; and some of them have successfully prosecuted men who do it, on the basis that the refuse is the council's property. But some councils tolerate totting and some openly allow it. One council, in changing its vehicle fleet from barrier-loaders (in which totting was easy) to enclosed rear-loading compression vehicles, actually had platforms built on to the backs of the vehicles so that their men could go on totting.

437. Totting persists although strongly condemned as long ago as 1930 by the Departmental Committee on London Cleansing³. We do not suppose that many local authorities are happy about it, but men who find it lucrative are not easily persuaded to give it up. Nevertheless it is quite unacceptable that salvage should be picked out of bins or vehicles in the streets. It is a paradox that this dirty and aesthetically objectionable procedure should be tolerated by public health authorities. On a lower plane, it interferes with the efficiency of collection. If, too, a social stigma attaches to the job of refuse collector, as several organisations told us, we think that totting may well be a contributory factor.

438. It is high time, therefore, that totting was discontinued altogether. If incentives are needed to maintain or improve output, they should take a different

¹ The possible effects of bonus schemes are discussed in Chapter 19.

² We recommend reference to 'Protective Clothing', a report of the Research Committee of the Institute of Public Cleansing, published in 1965.

³ Cmd. 3613 (H.M.S.O., 1930).

form. Whatever the difficulties local authorities should be firm about this and should make it clear, if necessary, that if prosecutions are the only way to eradicate the practice, they will prosecute. They can go a long way to achieve their object, however, by introducing one of the two dustless systems which we recommend in Chapter 9, neither of which lends itself to totting.

Joint consultation

439. Whatever decisions a local authority may make on refuse collection must depend for their success on the co-operation of the collectors. A number of authorities have found it very useful to have formal arrangements for joint consultation. Regular meetings are held at which the head of the department, his deputy and other officers confer with elected representatives of the men on any problems which arise in relation to the job. Matters may be raised by either side and it is probable that many unnecessary disputes have been avoided by early discussion. We think that this example should be followed by other authorities. Of course the same degree of formality is not necessary in the case of small councils, where it is easier for management and men to keep in touch with each other.

Collection by contract

440. Sixty-four of the 1,364 councils who replied to our main questionnaire had arrangements with contractors for the collection of some or all of their refuse. Forty-four of them were rural district councils. The arrangements in some cases are probably of very long standing; a few of them, however, may reflect labour difficulties experienced by local authorities in recent years.

441. Our supplementary questionnaire, which of course was not directed particularly at councils with contract arrangements, produced the information that four were sufficiently satisfied with contract collection to intend to continue it. Seven had changed from contract to direct labour; four of these seven said they had been dissatisfied with contract collection. A small council still served by contract were dissatisfied with the service they were receiving, mentioning that the contractor used an ordinary lorry, while yet another, having changed to direct labour, had gone back to a contractor because of labour difficulties. The question may reasonably be asked why a contractor should be able to manage without labour difficulties when a local authority cannot, but to pursue this would take us outside the field of our investigation.

442. A great deal of trade and industrial refuse is collected by firms employed under contract by the producers of the refuse, and we do not wish to offer any general criticism of such arrangements. But in our opinion local authorities should not leave the collection of house refuse, and any incidental collection of trade refuse, to contractors. Collection by contract may relieve a local authority of what is often a worrying responsibility but it makes it harder for them to ensure a good service. It prevents them from taking direct action on complaints. With control in their own hands they can much more readily see to it that the right kinds of vehicles are used and properly maintained, that tidiness is not sacrificed for speed, that there is no totting, and that the men have good working conditions. In the few cases where a local authority may consider themselves too small to have their own organisation, we suggest that they consider setting up a joint collection service with a neighbouring authority or making arrangements for a neighbouring authority to collect in their area.

CHAPTER 19

COSTS AND COSTING, WORK STUDY AND BONUS SCHEMES

443. We showed in paragraph 48 that the total gross cost of refuse collection in England and Wales is now probably over £45m. Though bearing no comparison with the sums spent on education, housing, and highways, it is still a significant item in local authorities' total annual expenditure.

Comparison of costs

444. It is clearly the duty of local authorities proposing to adopt one or other of the methods of refuse collection which we recommend to consider how their costs will be affected. This involves separate investigation by each local authority, as it is well known that the cost of any one system varies from one district to another and even from one collection round to another in the same district. Apart from the different methods themselves, crew strengths and crew organisation, types and ages of vehicles, types of property and types of district may all make a difference.

445. Nevertheless it appeared to us that if any general guidance could be given on this question it would be welcomed by local authorities and we therefore sought information on it in several directions. The results were disappointing, though some of the material we received was useful.

Our investigation

446. Since, for the reason we have mentioned, it seemed unlikely that an investigation of actual costs would be rewarding, we turned our attention first to the *ratio* between the cost of one method of collection and another in areas where the local authorities use or have recently used more than one method. If the cost ratios between any two systems had been found to be reasonably similar in a sufficiently large sample of different districts we should have been able to provide local authorities with general guidance on the financial effect of any given change of system in their own district.

447. It was clear that there might be difficulties, and not only for the reasons mentioned above. We had found in the course of our visits to local authorities that even where careful records of cost were kept the effects of changing to a new system were sometimes obscured by other changes taking place at the same time, e.g. revision of rounds or the introduction of a bonus scheme. There were also differences between local authorities in methods of compiling costs which might be extremely hard to define without the most detailed investigation.

448. Our intention was to see if we could measure the cost of the recommended systems against that of the most common one, which is the one in which ordinary dustbins belonging to the householder are used and the refuse collectors carry out and bring back the bins. From the answers to our first questionnaire we found only a few councils who had current or recent experience of both 'carry out and return' and one of the recommended systems. To these few councils we sent another questionnaire asking them to draw up a comparative index of the cost of the methods they were operating, assigning the base figure of 100 to the cost of weekly collection by the 'carry-out-and-return' system.

An effort was made to secure uniformity by setting out in some detail the way in which the figures should be compiled. Less than half the local authorities approached were able to carry out this exercise, and although we fully expected the results to vary over a certain range, the differences from one council to another among those who completed the questionnaire were so great that it was impossible to draw any conclusions which could be used for general guidance.

449. Six of these local authorities who were using the paper sack system for large parts of their areas sent us estimates of the index figure for their paper sack collections, but these ranged from 85 to 198 as against the 'carry-out-and-return' index of 100. There was no clear pattern. Consideration of actual costs did not improve matters. Two tables were prepared, one for ordinary bin collection and one for paper sacks, each table ranging the six local authorities in ascending order of cost per 1,000 premises for the particular system of collection. Only one local authority was in the same position in both tables; the fifth one in the bin table rose to first position, i.e. lowest cost, for paper sacks.

450. Only one or two councils were able to make estimates of a similar kind for other methods such as dustless loading, and in view of the scatter of results from the authorities using paper sacks it is quite unsafe to draw any conclusions for general guidance from one or two replies even where they happened to show similarities. A parallel exercise to ascertain the relative cost of various methods of collection from flats also produced disappointingly thin results.

451. We formed the general impression that differences in local conditions might be largely responsible for the variations in estimates of cost; but a good part of these variations may well have been due to differences in methods of costing or reliability of records. We were therefore glad to learn that the Institute of Municipal Treasurers and Accountants and the Institute of Public Cleansing are jointly considering the preparation of a standard form of accounts.

452. A firm of management consultants who had carried out assignments on refuse collection for a number of local authorities told us that they too were unable to make useful comparisons between the total costs of the different systems of collection from the detailed records of their assignments. The reasons were similar to those we have mentioned.

453. We should have liked to make a separate attempt to build up a picture of the relative costs of different methods of collection by reference to the cost of the major ingredients—labour, transport, and equipment—but this was impossible because of the lack of reliable information, particularly on transport. Transport, on average, accounts for more than a third of the total cost of refuse collection; but the actual percentage for individual councils covers quite a wide range. A few councils gave us figures for transport costs per ton-mile or per mile for different types of vehicle but here again we should have needed information in far greater depth to enable any useful conclusions to be drawn.

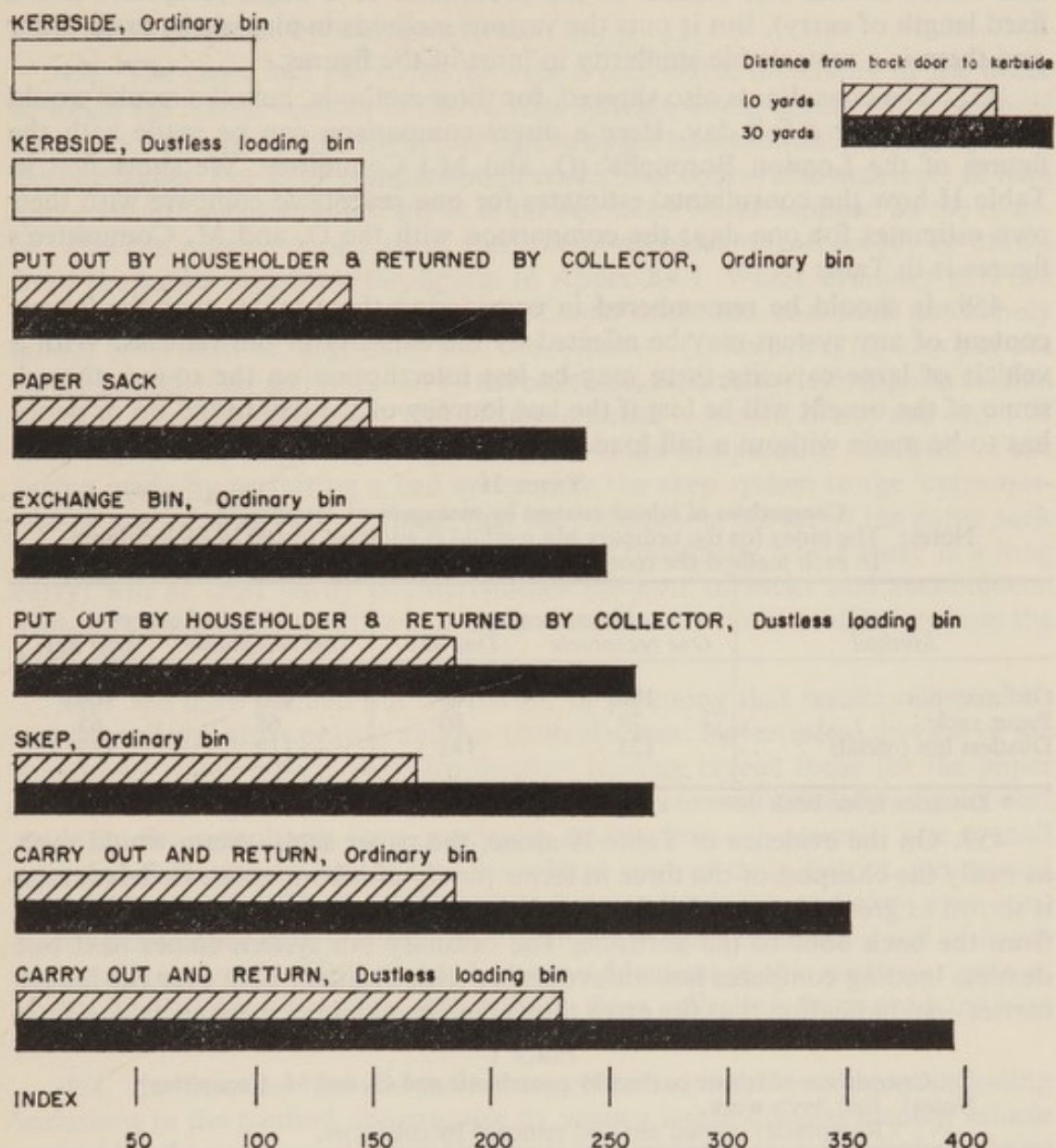
Labour content of the various collection methods

454. The only element of refuse collection costs on which we could get useful comparative details was labour. The labour content of refuse collection, being directly related to time taken, is fairly accurately known where work measurement has been done; and labour accounts for a very high proportion of the cost of collection (a little over half on average, and even occasionally over 80 per cent). For this reason an analysis of labour content does not merely afford guidance to local authorities for whom manpower is a problem; it is a

useful tool in a comparison of total costs. We therefore summarise here the results of studies of the labour content of several systems of collection made for us by the firm of consultants mentioned above and, independently, by the Inner London Boroughs' (O. and M.) Committee¹. We are grateful to these two organisations for undertaking this task.

RELATIVE LABOUR CONTENT OF DIFFERENT METHODS COLLECTION OF ONE RECEPTACLE

CHART PREPARED BY CONSULTANTS



NOTES (i) the kerbside system has been given an index of 100 in this chart and all other methods compared with it. This is not the base adopted in tables H and I, but it does allow all indices to be compared as the base (kerbside) is the same in the comparison with both 10 and 30 yard carries

(ii) the indices are based on time only

¹ Now the London Boroughs' Management Services Unit.

455. The study carried out by the consultants was related to two simulated local authorities with conditions as close as possible to those found in practice. They examined the labour content of all the principal methods of collection in relation to the time taken for the movement and emptying of one receptacle, choosing this basis because it excluded a number of variables which may occur in the course of a day. The results are shown in the chart on the preceding page.

456. The table of figures provided by the Inner London Boroughs' (O. and M.) Committee is reproduced in Appendix I. It cannot properly be compared with the chart because it was based on different assumptions (a full day's work and varied carries etc. instead of the movement of a single receptacle and a fixed length of carry). But it puts the various methods in almost the same order and there is a remarkable similarity in most of the figures.

457. The consultants also showed, for three methods, how the results would be affected over a full day. Here a direct comparison can be made with the figures of the London Boroughs' (O. and M.) Committee. We show first in Table H how the consultants' estimates for one receptacle compare with their own estimates for one day; the comparison with the O. and M. Committee's figures is in Table I.

458. It should be remembered in considering these tables that the labour content of any system may be affected by the capacity of the vehicles. With a vehicle of large capacity there may be less interruption on the round, though some of the benefit will be lost if the last journey of the day to the tip or depot has to be made without a full load.

TABLE H
Comparison of labour content by management consultants
Notes: The index for the ordinary bin method is adjusted to 100 in each column.
In each method the receptacles are carried out and returned by the collectors.

<i>Method</i>	10 yard carry*		30 yard carry*	
	<i>One receptacle</i>	<i>One day</i>	<i>One receptacle</i>	<i>One day</i>
Ordinary bin	100	100	100	100
Paper sack	79	80	68	65
Dustless bin (metal) ..	123	133	112	117

* Distance from back door to kerbside.

459. On the evidence of Table H alone, the paper sack system would rank as easily the cheapest of the three in terms purely of labour costs. Its advantage is shown as greatest over a full day's work where there is a long average distance from the back door to the kerbside. The ordinary bin system comes next but dustless loading compares less unfavourably with ordinary bins over the longer carries—an indication that the extra time taken is mainly in mechanical loading.

TABLE I
Comparison of labour content by consultants and O. and M. Committee†
Notes: Full day's work.
Receptacles carried out and returned by collectors.

<i>Method</i>	<i>Consultants (10 yard carries as in Table H)</i>	<i>O. and M. Committee (varied carries)</i>
Ordinary bin	100	100
Paper sack	80	78
Dustless bin (metal) ..	133	106

† Now the London Boroughs' Management Services Unit.

460. In Table I there is close agreement on the work content of the paper sack system but a substantial difference between the two figures for dustless loading. We were told that the consultants' calculation was based on the use of a single-hoist vehicle while the O. and M. Committee's figure related to dual hoists, which to some extent explains the difference. There would be a further reduction in the work content of dustless loading if plastic bins were used.

461. From the tables it appears that compared with the ordinary 'carry-out-and-return' bin system labour costs are about 20 per cent lower with the paper sack system and perhaps 25 per cent higher with the dustless loading method.

Total collection costs by various systems

462. The chart and the tables provide a reasonable indication of the order in which the labour content of the various systems would appear for most local authority districts, though the actual figures might be somewhat affected by local circumstances. For a full comparison of cost it is of course also necessary to take into account transport and the cost of bins or sacks where supplied by the council. This can only be done locally. But certain conclusions can readily be drawn from the tables and from the figures in Appendix I. Where ordinary bins are owned by the householder, the order of *total* collection cost (and not merely labour cost) must be, beginning with the lowest:— (1) kerbside, (2) bins put out by the householder and returned by the collector, (3) skip system, (4) bins carried out and in by the collectors. What is remarkable, however, is not this order of cost, which some might say is self-evident, but the comparative smallness of the saving made by preferring a bad system like the skip system to the 'carry-out-and-return' of bins. It is also clear that the economy in labour of the paper sack system compared with the better bin systems (especially where there is a long carry) will at least partly counterbalance the cost of sacks and sackholders. This may make it competitive in cost, in some cases, with bin collection from the back door.

463. We have pointed out the danger of assuming that results obtained by one council will also apply in another council's area. Nevertheless, in view of the margin by which labour costs for dustless loading exceed those for the paper sack system, it appears useful to report the result of some estimates of *total* cost made by the consultants for a particular county borough council. The council operated the ordinary bin system for a large part of their district. On several rounds they were using dustless loading bins and vehicles and they were considering the paper sack system. The total costs of dustless loading and of paper sack collection were calculated to be almost identical in this particular case at about 30 per cent above the cost of back door collection from ordinary bins provided by the council.

464. In other cases the comparison may be affected by many things including variations in the method, for example by using a larger dustless loading vehicle or dual hoists, or by variations in the paper sack system—see paragraphs 210 and 211.

Flats

465. The Building Research Station's comparison of the costs of collection or on-site disposal from flats by various methods, which they published in their Digest 40 (Second Series), is still the best published comparison we know, and we are indebted to them for revising their 1958 figures at our request to show

the cost at 1965 levels. Table J is given exactly as it was revised by them; in Table K we have attempted to combine their figures with the experience of members of the working party.

STORAGE AND ON-SITE DISPOSAL AT BLOCKS OF FLATS

TABLE J
Estimated Capital Costs (June 1965)

System	Estimated capital cost	Number of dwellings served	Capital cost per dwelling
1. Single refuse container with lid, standing in open on concrete plinth	£ 42	20	£2.1
2. (a) Single container with lid in three-sided brick enclosure and concrete roof	£ 109	20	£5.45
(b) Two containers with lids, all as 2(a)	£ 177	40	£4.42
3. (a) Two containers in brick enclosure, concrete roof, steps to hopper, screen walls, and steel roller shutters	£ 390	40	£9.75
(b) Four containers, all as 3(a)	£ 726	80	£9.07
4. (a) Twin 15-in. diam. standard salt glazed pipes as refuse chutes, two containers, chamber built on end of main staircase serving 8-storey blocks of flats	£ 915	40—24	£22.9—38.1
(b) As 4(a) but constructed in a proprietary system	£1,097	40—24	£27.4—45.7
5. Single 18-in. diam. spun concrete chute, two containers on wheels, chamber. Built free-standing in stair-well. Serving 10-storey block	£ 497	40—24	£12.4—20.7
6. Garchey system of refuse disposal, including sink receiver, main receiver tanks, pumps, ducts and incinerator house	—	—	£121 —129

TABLE K
Estimated total costs per dwelling (June 1965)

Item	System			
	Dustbins	Communal containers	Chutes and containers	Garchey, original system
Annual cost of permanent part	—	7/-	30/-	120/-
Annual cost for replaceable part	6/-*	5/-	4/6	} 130/-†
Maintenance of service charge	—	7/-	7/-	
Cost of weekly collection	50/-	30/-	30/-	} 20/-‡
Disposal cost	12/-	12/-	12/-	
Total annual cost	68/-	61/-	83/6	270/-

* 3½ cu. ft. B.S.S. bins.

† Including caretaker's time, gas, electricity and maintenance.

‡ Including refuse not disposed of through the Garchey system.

466. We think that, as far as it goes, Table K serves as a rough guide to the comparative costs of the different methods it deals with, but the actual figures should not be taken as generally applicable. It is a fair conclusion that for small groups of flats communal containers will usually provide a cheaper service than dustbins. For large schemes the real choice is now between chutes and containers; Garchey; chute-fed large interchangeable containers; chute-fed on-site compressors; chute-fed on-site incinerators and, perhaps, pneumatic suction. All but the first two of these systems are too new to have been included in the Building Research Station's study and there is little information at present about their cost based on operational experience.

467. In considering the cost of the Garchey system it must be remembered that the tables relate to the version in which the moisture content of the refuse is reduced to a minimum before incineration on-site. There are as yet no reliable figures based on experience for the tanker method mentioned in paragraph 282, but this should be less expensive.

Costing, work study and bonus schemes

468. Local authorities ought to keep their costs and methods under regular review in order to maintain and improve their level of efficiency. By no means all of them pay enough attention to this. The Public Cleansing Costing Returns published annually by the Ministry have, we believe, encouraged some local authorities to look critically at their costs in relation to those of similar authorities. But the Returns have certain limitations. For the purpose of comparisons the fact that they do not include all authorities is not perhaps a serious disadvantage, as they do cover nearly every urban public cleansing authority down to a population of 20,000 or slightly less, and a fair proportion of rural district councils. But the returns are published long after the year to which they relate. More important, the fairly voluminous information they give is not enough to enable a direct and reliable comparison to be made between two districts. The data based on tonnages are not accurate because so many councils rely on estimated weights. We understand that the Returns are to be revised to include more information about methods of collection. This will certainly be an improvement but even so local authorities will not be able to tell merely by examining the published figures whether their own organisation is as efficient as it ought to be.

469. An increasing number of local authorities are turning to work study as an aid to efficiency in refuse collection as well as in other departments, either by engaging consultants or by taking work study officers on to their own staff. Work study is subdivided into method study and work measurement. Method study is intended to answer the question 'How best should the job be done?' Work measurement is concerned with finding out how long the job should take using the method established as best by method study. Where incentive bonus schemes are to be considered, work study provides a factual basis on which the schemes can be worked out.

470. A guide to the interest which is being shown in work study is afforded by the considerable number of local authorities employing consultants and by the growth in membership of the Local Government Work Study Group, which was set up in 1962. Their first meeting was said to have been attended by about 50 work study officers; in April 1966 the number of individual members was 254 and there were 460 local authorities with corporate membership (including some in Scotland). These figures mean, however, that as yet only perhaps a

quarter of all local authorities have joined the group; and although there may be non-members who have had the services of consultants there must still be very many who have not yet taken any active interest in the subject.

471. Among these local authorities who have not been converted to the idea of work study there are probably many who think they are too small to make an expensive investigation worth while; there may also be a feeling among some public cleansing officers that no amount of theory or analysis can equal in value the experience of the man on the job, but, in work study as in O. and M. generally, it should always be possible to gain from the analytical approach of people who are trained not to accept established procedures without thorough examination. It seems to us, therefore, that work study ought to and will, in time, find acceptance among most local authorities.

Operational research

472. A more elaborate technique which has only recently begun to be applied to management problems in local government is operational research. In the case of a service like refuse collection, operational research scientists can use the factual information obtained by work study to help in the construction of a computer model representing all the separate activities of which the service is made up. This should enable them to calculate what results will be obtained from any combination of the factors involved; in the case of refuse collection these would be differences in types of property, quantities of refuse, deployment of vehicles and men, and so on.

473. A promising development was the formal setting up of the Local Government Operational Research Unit by the Royal Institute of Public Administration in 1965. The Unit, which receives financial support from the Government and a number of local authorities, had in fact been functioning informally and on a more modest scale for a few years previously, and had undertaken a study of refuse collection and disposal for the City of Coventry¹. Their work on refuse collection was not brought to a point at which immediate use could be made of it to solve collection problems but it was recently resumed. Some similar work has also been undertaken by consultants. At present a computer is being used in Coventry to programme and reorganise the City's bulk container service (which employs five vehicles full time).

474. It may be hoped that eventually operational research will help local authorities in general to solve the complex problems involved in the choice of methods and in the best organisation of the service.

Incentive bonuses

475. The replies to our questionnaire showed that about 640 councils had bonus schemes of one kind or another; about 720 had none.

476. Although our own inquiries did not cover this point, a review published in the Municipal Year Book for 1963 found evidence that more local authorities had adopted incentive bonus schemes (not necessarily for refuse collection) than had undertaken work study. With a bonus scheme not founded on work study it is impossible to be sure that it is the most suitable one for the circumstances which exist locally and that it is pitched at the right level to ensure that the bonus is really earned by maintained output.

¹ Papers on the Unit and on this study were published in the Journal of the Institution of Municipal Engineers, December 1965.

477. Of the answers to the second part of our general questionnaire, which was sent to 289 councils, 81 gave information about general bonus schemes. These are, of course, not enough to build up a comprehensive picture but they are of some interest. The few councils who gave details of average bonus payments were paying from 30s. a man a week up to 25 per cent of the basic wage, which would amount to a bonus of about £3 a week. (From other sources, we know of cases in which the bonus may reach 35 per cent of basic pay, and the level recommended in the Code of Guiding Principles on Work Study¹ is 33 $\frac{1}{3}$ per cent for a standard performance².) A number of these councils claimed more than one advantage for their incentive schemes. Nine councils said it had reduced costs and 23 that it had increased productivity; 45 had been helped in the recruitment or retention of labour; 11 had been able to reduce their labour force and two the number of their vehicles; 26 had benefited by improved frequency or regularity of collection. Other advantages mentioned by a few authorities were reduction in absenteeism through sickness, reduction in overtime and greater efficiency.

478. The consultants who gave evidence to us analysed briefly the way in which some 30 clients had used savings achieved by greater productivity as a result of incentive bonuses. About a quarter of the local authorities for whom assignments on refuse collection had been carried out maintained the same labour force or the same expenditure as before so as to give more frequent collection; about half of them provided the same service at less cost, and the remaining quarter chose a mixture of better service and lower cost. The disappointing thing about these figures is the proportion of councils who were content to accept the savings without improving their service.

479. Only three of the councils who replied to us and who were actually using bonus schemes suggested that there were any disadvantages in them. Bearing in mind, however, some possible disadvantages of which we were aware, we asked the London Boroughs' Management Services Unit and the Local Government Work Study Group to tell us what, in their opinion, were the possible advantages and disadvantages of work-study-based incentive bonus schemes. The lists with which they provided us agree fairly well with each other and may be summarised together as follows:—

480. Work-study-based incentive bonus schemes can help to ensure regular collection at the desired frequency; they may reduce the cost of acceptable standards of collection and improve inadequate standards without increasing overall costs. They help to attract and keep labour. Vehicle routes may be more economically planned. Management is better because normal workloads are known and equally apportioned, quality standards agreed, and the causes of lost time pinpointed. Forward planning is more effective because the effects of alterations, e.g. new property development, are accurately known; and different methods of operation can be properly compared. Possible disadvantages are that where the men's performance is already high a bonus scheme may not repay its expense; cleanliness and the avoidance of damage to bins and vehicles must

¹ Work Study in Local Authorities' Services: Code of Guiding Principles—National Joint Council for Local Authorities' Services (Manual Workers) 16th December 1965.

² British Standard 3138: 1959 (Glossary of Terms in Work Study) defines standard performance as 'the rate of output which qualified workers will naturally achieve without over-exertion as an average over the working day or shift provided they know and adhere to the specified method and provided they are motivated to apply themselves to their work'.

be enforced by supervision; there is less differential between the men's take-home pay and that of the supervisors (so that there is less attraction in the post of supervisor); 'passengers' who do not work at the rate of the rest of the team may create problems; it may be less easy to redeploy staff, vehicles and equipment according to need. Additionally, trained staff are needed to adapt the scheme to changing conditions as they occur, and paperwork can get out of hand if it is not watched.

481. We think that the advantages mentioned may indeed be gained from a thorough and competently executed work study, though this does not mean that anything like all the advantages will be gained in every case. The possible disadvantages of incentive bonus schemes are also fairly set out and we think it important that they, too, should be borne in mind. In particular, good supervision is absolutely essential and an incentive bonus scheme will be more successful where this already obtains. If supervision is at all lax the situation can arise that we found in a provincial town where refuse in paper sacks was being loaded into the collection vehicle at a very high rate but some of the refuse was spilt and simply left lying where it fell. The bonus provides the men with the necessary encouragement to get the job done but there must be penalties for not doing it properly, and the penalties must be imposed.

CHAPTER 20

ADMINISTRATION

Management

482. The standard of local authorities' refuse collection services probably depends more on the quality of the officer in charge than on any other factor. In varying degrees according to the size of the authority, he is called upon to organise and manage, to maintain good relations with workmen and the public, to guide his council's choice of vehicles, equipment and methods, and to see that vehicles and equipment are properly maintained. Most often he will also be responsible for the at least equally important service of refuse disposal and for street cleansing, if not for other functions of the local authority too.

483. The need for an able man in such a post is unlikely to be disputed. But there are different points of view on the best form of organisation and chain of command for the service.

484. A balanced discussion of this question was included in the annual reports of the Ministry of Health for 1929-30 and 1930-31, in which it was suggested that with the usual amount and kind of cleansing work it paid to have a qualified cleansing officer exclusively for this work in a town with a population of 75,000 or more. The Ministry also said that they were increasingly impressed with the advantages of establishing separate departments to administer the cleansing services. The relevant paragraphs are quoted in Appendix G.

485. This advice may be compared with the opinion expressed to us by the Institute of Public Cleansing, who said that, except in small towns, the public cleansing service of which refuse collection was a major part should be operated as a separate department under the control of a specialist officer who, by reason of his training and experience and because he devoted the whole of his time to his work, was able to administer the service to the best advantage of the public and the local authority. The Association of Public Health Inspectors, on the other hand, without recommending any particular form of organisation, drew attention to the connection between public cleansing and other branches of their work concerned with hygiene.

486. Of the 1,144 local authorities with populations under 50,000 who replied to us, 698 entrusted refuse collection to their public health department and 433 to their engineer's or surveyor's department. 13 of them said they had a separate department responsible for refuse collection.

487. 220 questionnaires were returned by authorities with populations over 50,000. 52 councils had separate departments responsible for refuse collection; 168 had not, 136 of them entrusting the service to their engineer's or surveyor's department and 32 to their public health department. To these 168 councils a further inquiry was sent. An analysis of the replies from all 220 councils of over 50,000 population is given in Table L. This throws some light on the extent to which the present organisation of refuse collection corresponds to the Ministry of Health recommendations.

TABLE L
Organisation of refuse collection services in
authorities with 50,000 population or more

Authorities having population of	Replies to the questionnaire	Separate cleansing depts.	Engineer's or surveyor's or public health dept. responsible		No reply to the selective inquiry
			(a) having separate cleansing section*	(b) without separate cleansing section	
1. 100,000 or over . .	80	32	38	8	2
2. 75,000 to 100,000 . .	38	9	21	4	4
3. 50,000 to 75,000 . .	102	11	60	27	4
4. All authorities 50,000 or over . .	220	52	119	39	10

* i.e. sections headed by a superintendent directly responsible to a chief officer or his deputy for the running of the service and for dealing with day-to-day management questions.

488. The views of the Institute of Public Cleansing have much in common with the advice given 35 years ago by the Ministry of Health. The fact that they were moved to express them to us, and the figures we have quoted, show that this advice has not been adopted in some of the larger towns. By now its existence is probably unknown to most councils.

489. How far can the advice still be regarded as sound? Clearly the larger a local authority, the more likely it is that the amount of public cleansing work will justify placing it in the charge of an officer who has no other responsibilities. Advances in the complexity of the equipment over which he will have control, and the developing importance of labour relations, will indeed have made this more important in many cases than it was formerly. These factors, together with the need to maintain and improve standards, lead us to suggest that all but the smallest authorities should have the refuse collection and associated services under the full-time control of an officer qualified and experienced in public cleansing. The qualification may be one of a number which cover this subject and which are included in those described in the second section of this chapter. A good cleansing service cannot be had cheaply and the appointment of a specialist officer will help to secure the maximum efficiency.

490. For authorities in the 40,000 to 100,000 population range, where the cleansing services are at present run as part of an engineer's or surveyor's department or of a public health department, we think the work requires the setting up of a separate cleansing section as the sole responsibility of a cleansing officer. In this group of authorities he would not necessarily have the status of a chief officer, but if not he should report directly to a chief officer or his deputy.

491. Authorities of a population of 100,000 or more, we consider, can obtain the best service through a separate cleansing department. In towns of this size the work calls for a wide range of ability, a progressive outlook in the head of the department (even more than in the smaller towns), more organisation, and specialist assistants. There will probably be at least 16 refuse collection vehicles and 80 or more loaders, drivers and other men. We have a decided preference, therefore, for the head of the department to have chief officer status although

we do not go so far as to suggest that this should be the invariable rule since it is a matter for individual local authorities to determine as part of their overall organisation. But we think it important that whatever the form of organisation may be, the head of the cleansing department should be able to report directly to the committee of the council responsible for the cleansing service, whether a separate committee or one with other responsibilities.

492. We see no reason why these general considerations should not apply to the London boroughs, most of whom have populations well over 200,000 (the smallest being 146,000) even though they have no responsibility for refuse disposal.

493. In local government areas of less than 40,000 population refuse collection and other aspects of public cleansing are usually the responsibility of a chief officer who also has other duties. This must be accepted and there is no reason why the arrangement should not work well provided that the chief officer does not, as sometimes happens, regard public cleansing as a matter of secondary importance. The operation of the service should never be left under virtually the sole supervision of a foreman.

494. Some authorities place cleansing in the care of the engineer's or surveyor's department so that use can be made of his resources in vehicles and workshops and also because he has a labour force which can be switched from one task to another according to need. We agree that in some places these are important considerations. Other councils place the service in the public health department because of its relationship to environmental health.

495. Whichever form of organisation is adopted, a narrow departmental outlook should be avoided and there should be good co-operation between the cleansing officer and the public health inspector. For example, the public health inspector could help the cleansing officer to deal with problems arising from bad refuse storage arrangements and the cleansing officer could arrange to clear away dumped refuse reported by the public health inspector.

496. We hope that the foregoing recommendations, taken together, will help the cleansing service as a whole to achieve its proper status in local government and the community as one of the vital public health services and to attract from all councils the interest or finance required so that the community receives a fully satisfactory service. A service organised on the lines we envisage, with a career structure for qualified people, ranging from the smaller to the largest authorities, should help to attract new entrants of the quality required for the future running of the service.

Training for management

497. From what we have said about the need for good management it will be apparent that the training of supervisory officers should be taken very seriously. This country appears to be in advance of others in this respect. Indeed the Institute of Public Cleansing have drawn our attention to a report¹ prepared for the United States Department of Health, Education and Welfare in 1964 which contrasts the arrangements for the systematic training of public cleansing officers in Great Britain with the 'general absence of directed training' in Continental countries.

¹ G. H. Deming; Professional training for solid wastes management (public cleansing) in Great Britain and other European countries. June 1964.

498. The only British specialist qualification in public cleansing is the Testamur of the Institute of Public Cleansing, a qualification which the Institute told us was held by the officers responsible for this service in 70 per cent of English and Welsh local authorities with populations over 100,000 and 55 per cent of those with populations between 50,000 and 100,000. The Institute favour training by articling pupils for a minimum of three years to qualified senior officers. During this time, pupils also attend day-release courses in mechanical engineering at a technical college. As an alternative to the pupil-training scheme, there are part-time day release courses and evening classes for local authority employees in all the subjects of the Testamur syllabus at a number of technical colleges. The following are some of the examination subjects:— refuse storage and collection; refuse disposal; street cleansing; engineering¹ and transport; administration and accounting; public cleansing law; materials and store-keeping; personnel management and public relations. Associate membership of the Institute is granted to persons holding the Testamur only when they have completed three years in the public cleansing service.

499. Council engineers and surveyors who deal with public cleansing along with their other functions may sometimes, in the smaller local authority areas, have direct responsibility with no qualified staff working under them; but in many cases they are assisted by a trained supervisory officer (who may have the title of cleansing inspector) or foreman. The council engineers themselves need to be qualified in a variety of engineering subjects. Apart from any other qualifications they may hold, most of them are members or associate members of the Institution of Municipal Engineers and in their examination for associate membership they will usually have taken a paper in public health engineering the syllabus for which includes every aspect of public cleansing, although only one part of the paper is devoted to that subject.

500. The Institute of Public Cleansing told us that the training of intermediate supervisory grades of the public cleansing service has been in the past, and largely still is, conducted locally within cleansing departments, and that some of the larger departments periodically arrange formal courses for their staff. The Institute, however, have arranged a course at one technical college for intermediate supervisory grades; they hope to extend this to other colleges, and they have prepared a special text-book for these courses. Students who pass an examination on completion of the course will be admitted into a junior grade of membership or association.

501. A three years' training scheme for supervisory grades (leading to admission as an associate member) is run by the Institute of Works and Highways Superintendents, who were assisted in its preparation by the Institution of Municipal Engineers. The syllabus includes the study of administration and at least two other subjects, one of which may be public cleansing.

502. Another qualification available to technical assistants in local authority offices is the Royal Society of Health diploma in health engineering. The examination (which is not linked with a training scheme) is not specialised but part of one paper is devoted to public cleansing.

¹ Pupil trainees, instead, must take the Ordinary National Certificate in mechanical engineering before sitting for the Testamur and are expected to take the Higher National Certificate.

503. Where the public health department of a council is responsible for refuse collection the officer in control is a public health inspector. Except in the smallest local government areas, he usually has the rank of Chief or Senior Public Health Inspector. He supervises the whole range of the environmental health services of the local authority and, among other things, is concerned with various aspects of hygiene in houses, food premises, offices, shops and workplaces. The qualifications as well as the duties of public health inspectors are prescribed in regulations made by the Minister of Health. The 1959 regulations require them to obtain the Diploma of the Public Health Inspectors Education Board, which necessitates four years of employment as pupil inspectors during the whole of which they attend a day release, block release or sandwich course, usually at a technical college. Public cleansing is one of the compulsory subjects taken during the second year of their practical training with the local authority. There are some three-year sandwich courses consisting of alternate periods of six months with the local authority and at a technical college. Among the subjects in the syllabus which have links with public cleansing are general science and public health law and administration. All pupil inspectors therefore receive instruction in the theory and practice of public cleansing and are given practical training in this work, though there is much less specialisation than in the training course of the Institute of Public Cleansing. We understand, however, that many public health inspectors also obtain the Testamur of the Institute of Public Cleansing. More recently an honours degree course in environmental health has been introduced at one or two universities; it takes the form of a four-year sandwich course and graduates are awarded the Diploma of the Public Health Inspectors Education Board without further examination.

504. There is thus no lack of training schemes at various levels for supervisory and senior officers. If there is a matter to which more attention might be needed it is that some local authorities apparently have not been easy to persuade that they should release staff for part-time study at technical colleges. This reluctance may perhaps be due to shortage of manpower, for the local authorities must realise that they will benefit in the long term from having better-qualified staff. But, to quote the Institute of Works and Highways Superintendents, more and more local authorities are becoming training-conscious. The Industrial Training Act 1964 may have helped to create a favourable atmosphere.

Training of manual workers

505. The day-to-day work of refuse collection does not call for a specialised course of instruction, but there are a few points to which we think more attention might be paid by officers in charge of cleansing. It seems to us desirable that new men should receive some basic explanation of the importance of the work so as to hold their interest in the job and that they should also spend some days as supernumeraries with teams to give them an opportunity to adjust themselves physically to the work. The expensiveness of modern refuse collection vehicles increases the importance of training drivers and we think it is a good idea to have a second driver in every crew. Safe drivers who qualify for the certificate of the Royal Society for the Prevention of Accidents receive a cash bonus from some councils and we commend this practice also. We also suggest that selected men should be groomed for promotion to foremen so that there are always a number of men ready to take up vacancies as they occur; the larger authorities might arrange for short training courses to which smaller authorities in the vicinity could send their selected men.

CHAPTER 21

RESEARCH

506. It may be thought surprising that in regard to a service on which local authorities spend £45m. a year gross (or, taking refuse collection and disposal together, more like £55m.) there are no nationally co-ordinated or sponsored arrangements for research. This is not for want of problems demanding attention, as will be apparent from other chapters of our report. A paper arguing the case for continuous research in this field was presented at the annual conference of the Institute of Public Cleansing in 1965. The matter was also brought directly to our notice by the Institute, by the Association of Public Health Inspectors and—with particular reference to on-site disposal—by the Institute of Housing Managers.

507. The situation is no better in other countries¹, with the single and very recent exception of the U.S.A., where an Act of 1965 has authorised expenditure of up to 60m. dollars, spread over four years, 'to initiate and accelerate a national research program' for new and improved methods of solid waste disposal. In a preamble to the part of the Act dealing with this subject, the case for research is set out. The points are familiar enough to cleansing officers anywhere; an ever-mounting increase, and a change in the characteristics, of the mass of material discarded by purchasers of consumer products; a rising tide of scrap and waste materials; serious financial, management, intergovernmental and technical problems in the disposal of industrial, commercial, domestic and other solid wastes in urban areas; health hazards and effect on amenities of inefficient and improper methods of disposal; failure or inability to salvage materials economically. These problems, the preamble concludes, have become a matter national in scope and in concern. Although collection of refuse is not separately mentioned, it is part of the same problem, and the arguments which apply are very similar.

508. Confining ourselves, as we must in this report, to refuse collection and on-site disposal, we would single out for research in this country the following subjects on most of which a certain amount of work has already been or is being done in various ways but which might all repay more intensive efforts:—

- (a) Composition, and quantity per household ('yield'), with a further study of trends.
- (b) Fly control and hygiene in storage.
- (c) Costing of refuse collection and salvage collection (including transport).
- (d) Noise.
- (e) On-site disposal, including waterborne disposal, pneumatic suction and incineration.
- (f) On-site compression.

¹ We understand that research has just begun in Germany, mainly into refuse disposal; but it includes some work on refuse collection.

- (g) The movement of refuse within large buildings or its conveyance by mechanical methods to disposal points outside the buildings.
- (h) Productivity and the application of modern management techniques (work study and operational research).

509. Such research as is being done now has been undertaken by a number of different agencies. Most of the work affecting the design of specialised vehicles and equipment must be set to the credit of the manufacturers, to some extent acting jointly through research associations for their industry (e.g. the motor industry) but in many cases pursuing their own individual lines of development. Some local authorities have undertaken their own research on a limited scale but the average local authority has no staff to spare for this purpose. The Institute of Public Cleansing have had a research committee since 1957, and there is a joint research group of that Institute and the Institute of Housing Managers, but they depend for their results on the spare-time work of the participants and on what can be done in local authority cleansing departments. In the special field of work study and operational research there are, in addition to consultants, the Local Government Work Study Group, the London Boroughs' Management Services Unit, and the Operational Research Unit of the Royal Institute of Public Administration. We have referred to them in Chapter 19. All are concerned with many matters besides refuse collection and disposal. Special subjects are also being pursued in the public health engineering departments of one or two universities.

510. We think it would be agreed by all the organisations mentioned that what is being done at present, limited as it is by the capacities of each and by the resources available to each of them, is not enough.

A refuse research centre?

511. The Association of Public Health Inspectors urged upon us the need for a central organisation to pursue research into all aspects of refuse collection; the Institute of Public Cleansing made a similar suggestion but thought that a research centre should give continuous attention not only to refuse collection but also to refuse disposal, salvage collection and allied services dealt with in the Ministry's annual Public Cleansing Costing Returns, i.e. including street cleansing. As one possibility they suggested that a section might be formed within the Department of Scientific and Industrial Research (that Department has since been dissolved and the majority of its research stations and laboratories have been transferred to the Ministry of Technology); alternatively they thought the Ministry of Housing and Local Government might itself sponsor investigations in the field of public cleansing similar to that of the Technical Committee on the Pollution of Water by Tipped Refuse, whose report was published in 1961¹.

512. One aspect of research in which the Ministry could take a direct part is the development or evaluation of methods of dealing with refuse on new estates of flats or houses. Development projects of this kind could be undertaken by an authority with a large new building programme in collaboration with the Research and Development Group of the Ministry and manufacturers of refuse storage and collection equipment.

¹ In that investigation the Laboratory of the Government Chemist took a major part.

513. A point which has impressed us very much in considering how research could best be organised is the variety of the matters to be investigated and the different types of expertise which would be needed. Work on the composition of refuse requires painstaking analysis which could suitably be guided by statisticians; a costing review can best be undertaken by council treasurers in conjunction with cleansing officers, and indeed, as we mentioned in paragraph 451, an exercise aimed at standardisation of public cleansing costing is being undertaken by their representative bodies; design of on-site disposal methods and vehicles are engineering matters; and some matters could be for consultants.

514. A research centre competent to tackle all these subjects and others related to them, including refuse disposal and street cleansing, would be large and expensive. If it followed the pattern of the research associations set up with Government assistance for many industries, local authorities would have to be prepared to make substantial contributions towards the cost. (This is happening now with the Operational Research Unit of the Royal Institute of Public Administration). Before setting up a centre for general research in public cleansing, however, it would be reasonable to consider more thoroughly than we are able to how far the same work could be undertaken by existing organisations, perhaps with some financial help, and whether so broad-based a centre could be fully employed in the long term.

A refuse research committee

515. It seems to us, therefore, that the right way to begin is for the Ministry of Housing and Local Government to appoint a small research committee who would keep themselves informed of any research projects on public cleansing which might be in progress, consider what might need to be done to ensure the success of worthwhile projects, decide what others ought to be undertaken, and co-operate with the Ministry and probably with the Ministry of Technology in getting desirable research undertaken by competent organisations. If their experience showed that a research centre was necessary, they would be able to offer valuable advice on its scope. Alternatively they might find that subjects which could not be assigned to existing organisations might justify the establishment of something less ambitious than a full-scale research centre, say a small team of specialists, perhaps as a separate unit within an existing Government organisation, but working under the general direction of the committee.

CHAPTER 22

LOCAL AUTHORITIES' STANDARDS

516. We can now draw certain conclusions about local authorities' standards of refuse collection from the replies to some of the main points in our first questionnaire. It is true that the statistics have limitations. They do not measure efficiency, for example. But now that we have decided which methods and types of equipment are acceptable and which are not, what the minimum frequency of collection should be and what services every local authority ought to provide, we can analyse the replies we received and see in how many districts the arrangements measured up to our minimum standards.

517. If we were to require as one test of a satisfactory service that a dustless system should be in use in the whole or most of a local authority's district there would have been hardly any councils who passed all our tests in 1964, and very few more today. We have therefore contented ourselves with testing local authorities' performance by the following set of standards:—

- (1) Collection from all or 99 per cent of premises in the district.
- (2) Collection at least once a week.
- (3) Improvised receptacles not allowed.
- (4) Bins collected and returned by refuse collectors or paper sack system used.
- (5) Bulky household refuse collected free.
- (6) Vehicles used consist of rear loaders or dustless loaders except where the paper sack system is operated.

518. Even so only 44 authorities passed all these tests. 31 of them were urban district councils, 9 borough councils (none of them a metropolitan borough council), 3 rural district councils, and only one a county borough council. No local authority failed solely on item (1); 28 failed solely on item (5), and 90 on the modest enough standard we set in item (6). The exception in item (6) admitted 20 local authorities.

519. We also devised the following combination of tests to see how many local authorities provided what might be regarded as the worst standard of service:—

- (1) Collection from less than 99 per cent of premises in the district.
- (2) Collection fortnightly or less often.
- (3) Improvised receptacles allowed.
- (4) Kerbside collection or skip system used.
- (5) Bulky household refuse not collected at all.

520. We are glad to say that this second analysis netted only one authority, a rural district council (the council in question collected from 94 per cent of premises and from 98 per cent of dwellings in the district).

521. We must acknowledge that every year brings some improvement in refuse collection in some places. From what we know of developments in the last two or three years we think that if the statistics were brought up to date, the results of our tests might look slightly more favourable. But our analytical exercise has satisfied us that almost all local authorities need to take some action to improve their service.

LOCAL AUTHORITIES' STANDARDS

518. We can now draw certain conclusions about local authorities' standards of refuse collection from the replies to some of the main points in our first questionnaire. It seems that the standards have improved. They do not mention efficiency, for example, but now that we have decided which methods and types of equipment are acceptable and which are not, what the minimum frequency of collection should be, what services every local authority ought to provide, we can say that the replies are broadly in line with many of the standards we have set up to our minimum standards.

519. It was to be expected that a test of a local authority's service that a district council should be in the whole or most of a local authority's district there would have been nearly all councils who passed all our tests in 1964, and very few more today. We have therefore presented ourselves with having local authorities' performance by the following set of standards:

- (1) Collection from all or 99 per cent of premises in the district.
- (2) Collection from all or 99 per cent of premises in the district.
- (3) Improvised receptacles allowed.
- (4) Refuse collection of step system used.
- (5) Bulky household refuse not collected at all.
- (6) Refuse collection of step system used.
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CHAPTER 23

SUMMARY

The summary is in three parts:— I, main points; II, general summary; III, recommendations on the law.

I. MAIN POINTS

522. Almost all local authorities need to take some action to improve their service. (521)

523. The only two systems we can recommend for house-to-house collection are continental dustless loading and the paper sack system. The skip system and kerbside collection are the worst of the traditional methods. (227, 228, 174, 168)

524. Refuse should be classified and dealt with according to the kind of premises from which it originates—residential, trade or industrial. (380)

525. The provision of refuse receptacles at residential premises should be a legal responsibility of the local authority. (109)

526. Ordinary domestic refuse should be collected at least once a week and food waste from shops, catering establishments, etc. at least twice weekly. (115, 116)

527. Rear loading collection vehicles should be used, preferably with continuous compression, but forward and rearward tipping vehicles are suitable for smaller authorities. (154, 138)

528. Well designed chute systems, used with containers or on-site compressors, are satisfactory for blocks of flats. On-site incineration would be attractive (for blocks of flats but not for individual dwellings) if it could be shown that the effects on the atmosphere were negligible. Pneumatic systems of removal are a new possibility of some promise. (299, 293–4, 297)

529. Anyone proposing to erect a new building or alter an existing one should be required to seek the approval of the local authority to the arrangements for refuse storage and access for removal of refuse. (308)

530. Bulky household refuse should be collected free of charge. (340, 341)

531. Local authorities should provide or arrange facilities for private persons to dispose of unwanted cars and should take responsibility for the removal of abandoned vehicles. (364)

532. We do not favour salvage collection, except for waste paper where income covers the true cost of collection or there are sound reasons connected with refuse disposal. (328)

533. Totting should be discontinued entirely. (438)

534. In all but the smallest districts refuse collection and associated services should be under the full-time control of an officer qualified and experienced in public cleansing. (489)

535. Research is needed on many aspects of refuse collection. A small standing committee should be appointed to co-ordinate and initiate research. (508, 515)

II. GENERAL SUMMARY

Quantity of refuse

536. The volume of house refuse is likely to continue to increase. After ten to fifteen years the average weekly output per household may be between 4 and 5 cubic feet, perhaps composed by weight of more than 50 per cent paper. (66)

537. The Government should review with trade and industry the possibilities of limiting any excessive use of packaging and of choosing packaging materials which are not difficult to salvage or dispose of. (67)

Restrictions

538. Authorities should be prepared to remove all house refuse, accepting even objectionable or dangerous refuse as far as possible. (69-74)

Storage

539. *Binettes*. The British Standard binette for indoor use is not as convenient or hygienic as some non-standard kinds. (80)

540. *The ordinary dustbin*. The ordinary galvanised iron loose-lidded dustbin is not satisfactory, but is likely to continue in production for some years. Rubber lids and rubber rings at the base of galvanised bins reduce noise. (82, 85)

541. *Improvised receptacles* should not be permitted except for occasional use. (83)

542. *Plastic bins*. Strong and durable plastic bins would be preferable to metal ones. The British Standards Institution should consider urgently whether a British Standard can be produced for plastic bins. (87)

543. *Dustless loading bins* are designed for use with special vehicles. The standard bins are of metal. Strongly made plastic dustless loading bins now in use are expected to last as long as the metal ones. (89)

544. *Size of bins*. The present standard bin sizes of $2\frac{1}{2}$ cubic feet and $3\frac{1}{4}$ cubic feet should continue. Although the yield of refuse from the average family may eventually rise to 4 or 5 cubic feet, it is easier to manage two smaller bins than one large one. (90)

545. *Care of bins*. Simple advice should be issued on the proper care and use of dustbins and other receptacles. (94)

546. *Location of bins*. The best position for refuse receptacles is usually by the side or back door. Where the occupants are out all day, terrace houses without rear access might be served by paper sacks which can be put out on collection day. (96)

547. Bin shelters in external wall recesses would be an advantage for the storage of one or two receptacles. Dustbin cupboards should not be accessible from inside the house. (97, 98)

548. For larger quantities of refuse, bulk containers should be used if possible; otherwise bins should be housed in enclosures which should be regularly cleansed. (97)

549. *Access by refuse collectors.* Some houses are approached by long paths or drives. Before asking householders to bring refuse to a point near the road, authorities should have regard to what is reasonably practicable both for the collectors and for the householder. (103)

550. A small vehicle on a special round can help with collection from isolated houses and farms in rural areas. (103)

551. *Municipal provision of bins or sacks.* Authorities should as soon as possible undertake the provision of receptacles for refuse storage at all the residential premises from which they collect. The cost should be charged on the rates. (109)

552. Authorities should have discretion to provide receptacles at trade and industrial premises and also power to require traders and industrialists to provide receptacles. (110)

Frequency and times of collection; traffic problems

553. To deal with the future volume of refuse it will normally be cheaper to provide receptacles with enough capacity for the weekly output than to collect more often. (113)

554. In both urban and rural areas house refuse should be collected at least once a week to prevent fly infestations. (115)

555. Food wastes from shops, restaurants, hotels, canteens and hospitals should be collected at least twice weekly. (116)

556. Refuse collection should be regular. Where public holidays intervene, every effort should be made to avoid missing a collection. (117)

557. Collections should be as quiet as possible, especially in the early morning or at night. (119, 120)

558. In congested town centres special arrangements may be needed to facilitate evening or night collection from business premises. (120)

559. *Parking restrictions.* Ministry of Transport orders establishing clearways and imposing waiting restrictions on trunk roads include an exemption for refuse collection vehicles. Local authorities imposing waiting restrictions on non-trunk roads may make a similar exemption. (122)

Refuse collection vehicles

560. Vehicles which are not purpose-made for refuse collection should not be used. (128)

561. Side loaders and barrier loaders are not satisfactory and should be taken out of service as quickly as possible. (131, 133)

562. Forward and rearward tipping vehicles have drawbacks but they make good general-purpose vehicles for small authorities. (138)

563. All authorities should use vehicles capable of reasonably clean and dust-free loading; these conditions will only be satisfied by rear loaders. Compression greatly increases capacity, and continuous compression vehicles give greater cleanliness. (154, 141)

564. It would be useful if the local authority associations and vehicle manufacturers could agree on some standardisation of vehicle bodies and of

lifting equipment for bulk containers. Local authorities should ask vehicle manufacturers to give more attention to noise reduction. (150, 155)

565. Before finally choosing vehicles, councils should ask for demonstrations of the types which interest them most on refuse collection rounds in their own districts. (153)

566. Smaller authorities should organise, jointly with their neighbours, a pool of spare vehicles and equipment and joint repair facilities. Specialised vehicles for loading bulk containers should also be provided jointly where there is not enough work for them in one district. (157, 158)

567. The cabs of collection vehicles should have seating for all the loaders employed on the round, storage space for protective clothing, heating and cold air ventilation, and in certain cases washing facilities. (159)

568. Vehicles should be washed inside and out at least once a week; painted or varnished surfaces should be regularly renewed, and drivers encouraged to look after their vehicles. (160, 161)

Refuse collection methods

569. There is no early promise of a revolutionary new system for the 'instant disposal' of refuse, especially for ordinary dwelling houses, although a number of new ideas deserve further research and trial. (162)

Traditional methods of refuse removal

570. *Kerbside collection* is unhygienic, untidy and a hardship for many people. It should be tolerated only where the collectors would otherwise have no access to the refuse receptacles. (164-168).

571. *Skeps* cause litter and dust; this system is potentially the messiest of all and its use is rarely justified. (170-175)

572. *Collection and return of bin* is the best of the traditional bin systems but it can be noisy and untidy. It is not satisfactory where bins with detachable lids are used. (176-179)

573. *Advance preparation of bins*: the bins should (but rarely do) remain covered when brought out; they should stand at the kerb for the shortest possible time and be put back at the right premises. (180 and 181)

574. *Collected bin and exchange bin*: neither can be regarded as satisfactory. (182-186)

575. *The relay system* may be useful in some cases but its effectiveness should be established by local comparative tests. (187)

Dustless collection methods

576. *The paper sack system*, used properly, is hygienic and makes the collectors' work easier. (189-206)

577. *Plastic sacks*: experiments with plastic sacks should be continued to assess their suitability for storing refuse and how they affect refuse disposal. (207)

578. Work at the National Physical Laboratory on the bio-degradation of plastics could have a valuable application to refuse disposal. (208)

579. *Paper and plastic sacks as liners in bins*: paper sacks are not satisfactory for this purpose. More experience is needed before a firm opinion can be expressed on the use of plastic sacks as liners. (209-213)

580. *Dustless loading* is clean and improves the collectors' working conditions. (214-224)

581. *Mechanical (or 'semi-dustless')* loading, using ordinary bins, has some advantages, but is not litter-and dust-free and so is not entirely satisfactory. (225, 226)

Conclusions on refuse collection methods

582. Both dustless loading and the paper sack system, properly used, can give better results than any other system now in use. They are the only two systems we would recommend for house-to-house collection. Plastic sacks still need further trial before they can be considered for general adoption. (227, 228)

Storage and collection at blocks of flats and large buildings

583. Whatever system is chosen, separate provision is needed for the storage and collection of bulky articles. (246)

584. *Dustbins and paper sacks.* It is better to use paper sacks if refuse receptacles have to be kept upstairs. (249)

585. If bins have to be grouped at ground level, they should be housed in properly constructed storage buildings. (252)

586. The collectors should not normally have to carry full dustbins more than about 25 yards. (252)

587. *Communal containers.* To avoid unsightly batteries of six or more bins a communal container should be used, with a chute wherever possible. It may not be long before a 1½ cubic yard container is needed for the weekly output of refuse from five or six flats. (251, 254)

588. These containers also save labour, time in collection and space. (253)

589. The collectors should have satisfactory access to all containers and should not normally have to transport full containers more than about 10 yards. (255)

590. Local authorities should cleanse containers once a month as a general rule. Containers used for wet refuse, e.g. food wastes, should be removed and washed at each emptying. (257)

591. Containers should always be properly housed. Their covers should have a small opening section with a noiseless lid. (258, 259)

592. *Chutes and containers.* Well designed chute and container systems are satisfactory. Chutes should be 18 inches in diameter. Hopper openings should not be more than 10 inches by 14 inches so as to guard against blockages. (263-266)

593. Chutes should not adjoin habitable rooms and should be sound-insulated. Hoppers should be on private balconies, or else outside flats and as close as possible to the doors of the flats. (267)

594. Chutes should never discharge into a chamber without a container. (269)

595. The walls of container chambers should be glazed and the chambers should have space to store salvage and articles too big to go down the chutes. (270)

596. Refuse, especially if wet, should be wrapped in paper before it is dropped into chutes. Soiled articles such as sanitary towels if thoroughly wrapped can also be put down chutes. (271)

597. At council flats responsibility for cleansing the refuse chambers should be clearly allocated. At private flats authorities should endeavour to see that refuse chambers are kept clean by the owners or other persons responsible. (272)

598. *On-site refuse compression.* We have been favourably impressed by a device which compresses refuse dropped into paper sacks through chutes. (273, 274)

599. *Large capacity interchangeable containers* can each do the work of many smaller receptacles and they require a minimum of manpower. They are useful at building sites and some trade premises and under chutes in tall blocks of flats. They should always be covered in transit. Where the output of refuse is very large, either a large container or a trailer may be used. (277, 278)

600. *The Garchey system* gets rid of much household refuse, including waste food, from flats. But it will not take large tins and bottles etc, and does not cope easily with any considerable amount of paper. (279-282)

601. *Kitchen grinders (sink waste disposal units)* get rid of nearly all food remains quickly and efficiently and help to keep dustbins clean. Installation is easy though not cheap. Their use is likely to grow but they do not much reduce the amount of refuse which has to be collected from premises where they are installed. If their use became general in any one area the effect on sewage treatment processes and sewers would need to be watched. (283-286)

602. *On-site incineration.* On-site incinerators greatly reduce the volume of refuse for collection but their effect on the atmosphere must be considered. However good their design it would be undesirable to encourage the use of small incinerators in individual dwellings. Larger units to serve blocks of flats would usually be the responsibility of a caretaker and supervision by the local authority would be easier. The polluting content of the discharges from their chimneys needs study. (287-294)

603. *Pneumatic suction* has been used in Sweden to convey refuse through pipes to collection or disposal points. The system is too new to assess but is one of some promise. Its capital cost is likely to be high but it offers improved hygiene and substantial savings in labour and transport. The most obvious application for this system seems to be for large blocks or estates of flats. (296-298)

Choice of system for high buildings

604. Of the well-tried systems those which we would recommend are chutes feeding into containers of $1\frac{1}{4}$ cubic yards capacity or greater, or into paper sacks or other receptacles used in conjunction with a compression system. (299)

New and altered buildings

605. Developers and architects should not overlook refuse storage and access for the removal of refuse in designing new buildings and estate layouts. (300-308)

Dwellings in multiple occupation

606. The use of the paper sack system for refuse collection from dwellings in multiple occupation may help to improve conditions in some areas. (316)

Salvage

607. A large number of councils do not collect waste paper for salvage and the majority do not collect other kinds of salvage. It no longer seems possible

to ask for salvage recovery regardless of cost or inconvenience to the public or of the effects on refuse collection. In general we do not favour salvage collection except for waste paper where local authorities can at least cover the true cost of collection or where they have sound reasons connected with refuse disposal. (318, 326-328)

608. Trailers are better for waste paper collection than sacks hung on the vehicles but a separate round is preferable where enough is recovered and sold to make this worth while. Enclosed vehicles should be used for separate collection rounds and householders should be provided with clean paper or hessian sacks in which to store their waste paper. (331, 332)

Bulky household refuse and garden refuse

609. All local authorities should collect bulky household refuse free of charge, even large quantities of unwanted domestic chattels (if these are readily accessible) and rubble etc. arising from householders' own decorating and improvement work. We do not suggest that rubble left by builders should be taken free. The collectors should not normally be expected to carry furniture etc. downstairs. Whether bulky items are best collected on the normal rounds or separately depends partly on local methods of collecting and disposing of ordinary house refuse. If there is a special collection service, authorities should aim at removal within a week of receiving a request. Collectors might be provided with prepaid request postcards which householders can send to the council. The service should be well publicised and the arrangements straightforward; both council office staff and collectors should be able to answer enquiries about them. (340-349)

610. Local authorities should accept bulky household refuse for disposal free of charge at their depots or tips. (347)

611. *Garden refuse.* Any vegetable type of garden refuse put in the household's usual receptacles should be accepted without charge. Tree loppings, stone, etc. should be collected by special arrangement, possibly at a charge. (352)

612. *Clearance of dumped rubbish.* Authorities ought to use their statutory power to clear away dumped refuse at the request of any owner or occupier of premises, normally without charge. (355)

Old motor vehicles

613. Local authorities should provide or arrange for car disposal facilities free of charge to private persons and they should take responsibility for the removal of vehicles abandoned in the street or elsewhere in the open. Joint action for removal and disposal might be taken by smaller authorities, with the help of county councils as coordinators. (364)

614. Authorities might review whether their arrangements with contractors are the best possible. (366)

615. It is not legally necessary for abandoned cars to be left where they were found while enquiries are made. (369)

Trade refuse and classification of refuse

616. Authorities should be ready to advise and help industrialists on any refuse collection or disposal problem. (390) On amendment of the law see paragraphs 642 and 647 to 649.

Litter collection

617. The Minister of Transport will bear the whole cost of the provision and clearance of litter bins in specified locations on trunk roads. Elsewhere, there may be some confusion through the overlapping powers of county councils, rural district councils and parish councils to provide and empty litter bins; the local authority associations should consider the allocation of responsibilities and whether the law needs amendment. (410, 414)

618. Litter bins of adequate size and number should be provided at all places frequented by the public and should be emptied as frequently as necessary to prevent them overflowing. At some busy laybys bulk containers can be used. Litter bins should not be fired to dispose of their contents. (404, 415–418)

619. *Markets and special events.* At markets, races, etc. it is usually possible to arrange a system of collection from receptacles rather than rely entirely on the cleansing of the site. Market authorities ought to provide refuse receptacles for the use of stallholders. (421)

Labour

620. *Crew strengths* need to be studied locally. The largest teams are not necessarily the most productive. The job of the refuse collector could be made more attractive by improving working conditions. Joint consultation helps to secure the cooperation of the refuse collectors. (426, 434, 435, 439)

621. *Totting* should be discontinued altogether. If incentives for the refuse collectors are needed, they should take a different form. Dustless systems will discourage totting. (438)

622. *Collection by contract.* Local authorities should not employ contractors to collect house refuse. If necessary, the smallest councils could make joint arrangements for collection with a neighbouring authority. (442)

Costs

623. *Collection from houses.* There is a lack of reliable information on the comparative costs of different methods of refuse collection, except in regard to the labour element of these costs. The Institute of Municipal Treasurers and Accountants and the Institute of Public Cleansing are jointly considering the standardisation of accounts. (444–454)

624. Compared with the 'carry out and return' system using ordinary bins, labour costs are lower with the paper sack system and higher with dustless loading (455–461)

625. According to estimates made for one authority the *total* costs of dustless loading and paper sack collection in their district would be almost identical at about 30 per cent above the cost of back door collection from ordinary bins provided by the council. Separate calculations would be needed for other districts (462–464)

626. Where ordinary bins are owned by the householder the order of *total* collection cost is (lowest first):—kerbside; bins put out by the householder and returned by the collector; skep system; bins carried out and in by the collectors. The saving made by preferring a bad system like the skep system to the 'carry-out-and-return' of bins is comparatively small. (462)

627. *Collection from blocks of flats.* Again there is little information from local authorities on the comparative costs of different methods of collection. At

small groups of flats communal containers will usually provide a cheaper service than bins. (465-467)

Costing, work study and bonus schemes

628. Authorities should keep their costs and methods under regular review. The Ministry's Public Cleansing Costing Returns will not suffice for this purpose. (468)

629. *Work study* should be accepted generally by local authorities. (469-471)

630. *Operational research* may, in time, help authorities to choose refuse collection methods and solve organisational problems. (472-474)

631. *Incentive bonuses*. Considerable advantages may be gained in suitable cases from incentive bonus schemes based on work study. Authorities should bear possible disadvantages in mind. Good supervision is essential. (475-481)

Administration

632. In all but the smallest authorities refuse collection and associated services should be under the full-time control of an officer qualified and experienced in public cleansing. (489)

633. Councils in the 40,000 to 100,000 population range should have a separate cleansing section, which may be part of an engineer's or surveyor's or public health department. The cleansing officer, if he does not have chief officer status, should report directly to a chief officer or his deputy. (490)

634. Authorities of 100,000 population or more should have a separate cleansing department; its head should preferably have chief officer status and should report directly to the committee responsible for the cleansing service. (491)

635. In authorities under 40,000 population, the responsible chief officer should not treat public cleansing as a matter of secondary importance. (493)

636. There should be cooperation between the cleansing officer and the public health inspector. (494, 495)

637. *Training for management*. There is no lack of training schemes at various levels for supervisory and senior officers. All authorities should be prepared to release staff for part-time study at technical colleges. (497-504)

638. *Manual workers*. New men should receive some explanation of the importance of refuse collection and should spend some days as supernumeraries with teams. There should be a second driver in every crew. Safe drivers might be encouraged by a cash bonus. Selected men should be groomed for promotion to foremen. (505)

Research

639. Research is needed on many aspects of refuse collection, particularly the yield of refuse and future trends; fly control and hygiene in storage; costs; noise; on-site disposal; on-site compression; the movement of refuse in and from large buildings; and productivity. The Ministry of Housing and Local Government should appoint a small standing committee to coordinate and initiate research. Live research should be undertaken by a large authority in collaboration with the Ministry's Research and Development Group and equipment manufacturers. (508-515)

Standards

640. The replies to the Working Party's questionnaires show that almost all local authorities need to take some action to improve their service. (521)

III. RECOMMENDATIONS ON THE LAW

641. *The model byelaws series IA* should be replaced by general regulations. (101)

642. *Municipal provision of receptacles.* Local authorities should be required to provide receptacles for the storage of refuse at all the residential premises from which they collect, and empowered to provide, or require traders and industrialists to provide, adequate receptacles for the storage of refuse. (109, 110)

643. *Paper sacks.* Provisions in the Public Health Act 1936 relating to dustbins should be extended to include paper sacks and sackholders explicitly. (100, 205)

644. *New and altered buildings.* Anyone proposing to erect a new building or alter an existing one should be required to seek the approval of the local authority to the proposed arrangements for refuse storage as well as access for removal of refuse. Any difference of opinion should be dealt with by a court of summary jurisdiction. (308)

645. *Dumped rubbish.* The power in section 34, Public Health Act 1961, to remove certain accumulations of rubbish should be extended. (358)

646. *Old motor vehicles.* The model clause relating to the removal of abandoned cars from private land (used in Private Bills), or equivalent powers, should be incorporated in general legislation at the earliest opportunity. (368)

647. *Trade refuse and classification of refuse.* Refuse should be classified according to the kind of premises from which it originates:—

I: mainly houses and similar residential premises. Authorities should be obliged to collect all the refuse from these; collection should be free, subject to limited exceptions for garden refuse and builders' rubbish. (380, 382–384)

II: commercial or trade premises. Collection should be obligatory on request but with a discretion to charge. (385, 386, 396)

III: consisting mainly of industrial premises. There should be discretion to collect and discretion to charge. (387, 388, 396)

648. Where occupiers of Category III premises make their own arrangements for refuse collection, whether direct or through a private contractor, authorities should have power to see that the arrangements are satisfactory. (390)

649. One outcome of our recommendations would be that refuse from hotels, restaurants and canteens would no longer be regarded as house refuse. (399)

We cannot conclude without expressing our warm thanks to our Secretary, Mr. M. Hoffman of the Ministry, and his assistant Mr. J. R. Layton for their tireless service to the Working Party. Their knowledge and grasp of the subject and their sifting of the large volume of evidence facilitated our task immeasurably. The drafting of this report inevitably placed a heavy burden on them, which they bore cheerfully. We are also grateful to Mr. E. R. Green, F.Inst.P.C., F.R.S.H., of the Ministry, who sat with us from February 1964, for his valuable contributions to our discussions.

(Signed)

H. H. Browne (Chairman)

F. B. Anstey

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G. T. Bakewell

A. E. Barton

S. I. Benson

H. F. Critchley

Elizabeth Dalrymple

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F. L. D. Flintoff

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J. N. Matson

R. F. Millard

G. E. Sewell

H. L. Snowden

J. Sumner

M. Hoffman (Secretary)

J. R. Layton (Assistant Secretary)

December 1966.

APPENDIX A

LIST OF ORGANISATIONS AND INDIVIDUALS WHO PROVIDED EVIDENCE OR INFORMATION

Organisations:—

American Public Works Association
Amphill and District Preservation Society
Association of Public Health Inspectors
Association of Municipal Corporations
Association of Rural District Council Surveyors
Bedford Preservation Societies
Berkeley Borough Parish Council
Richard Biffa Limited
Birmingham City Council
British Standards Institution
British Plastics Federation
Broads Manufacturing Co. Ltd.
Building Research Station
W. P. Butterfield Ltd.
Cheshire County Federation of Ratepayers and Kindred Associations
Frank Clifford and Co. Ltd.
Co-operative Union Ltd.
Corporation of the City of London
Council for the Preservation of Rural England
County Councils Association and the County Surveyors' Society
Davidsons Paper Sales Ltd.
Dennis Bros. Ltd.
Dowson and Mason Ltd.
Eagle Engineering Co. Ltd.
Federation of British Industries
Philip Fisher and Co.
Fletcher and Stewart Ltd.
Furniture Development Council
Gas Council
John Gibson & Son Ltd.
Glass Manufacturers' Federation
Glover, Webb and Liversidge Ltd.
Greater London Council
Matthew Hall and Co. Ltd.
Thomas Hancock Ltd.
Hatfield, St. Albans and Welwyn Garden City Consumers' Group
Ministry of Health
Ministry of Housing and Local Government
Hydraulic Engineering Co. Ltd.
Industrial Association of Wales and Monmouthshire

Institute of Housing Managers
 Institution of Municipal Engineers
 Institute of Public Cleansing
 Karrier Motors Ltd.
 *Keep Britain Tidy Group
 Local Government Operational Research Unit (Royal Institute of Public
 Administration)
 *Local Government Work Study Group
 *London Boroughs' Management Services Unit
 Thomas Marshall and Son Ltd.
 Metropolitan Boroughs Standing Joint Committee
 Milk Marketing Board
 National Association of Retail Furnishers
 National Dairymen's Association
 National Farmers' Union
 National Federation of Women's Institutes
 National Galvanizers Ltd.
 National Grocers' Federation
 National Society for Clean Air
 National Union of Townswomen's Guilds
 North Kensington Family Study
 *P.A. Management Consultants Ltd.
 Paper Sack Development Association
 Pest Infestation Laboratory
 Pleck Sheet Metal Co. Ltd.
 Powell Duffryn Engineering Co. Ltd.
 Ministry of Power
 Province of Alberta, Canada (Department of Public Health)
 River Thames Society
 Royal Institute of British Architects
 Rural District Councils Association
 Sargeant Turner and Sons Ltd.
 Shelvoke and Drewry Ltd.
 Simon Engineering Ltd.
 S. Sims and Sons Ltd.
 South Bedfordshire Preservation Society
 Suttons Holloware Co.
 Eliza Tinsley and Co. Ltd.
 Board of Trade
 Ministry of Transport
 Urban District Councils Association
 *Westminster City Council
 The Yare Group
 Yorkshire Patent Steam Wagon Co.

Individuals:—

Mr. G. C. Austin
 *Professor J. R. Busvine, D.Sc., F.I.Biol.
 Mr. W. Carmichael, M.Inst.P.C.

* Submitted both written and oral evidence.

Mr. R. H. T. Chappell, B.Sc., M.A.P.H.I.
 Mr. D. A. Cheater
 Mr. W. E. Colston, F.R.S.H., M.Inst.H.E.
 Mr. R. G. Coyle, B.Sc.(Eng.), A.R.S.M., A.M.A.I.I.E.
 Mr. E. H. Davies
 Councillor Mrs. Phyllis Fiander
 Mr. A. E. Higginson, F.Inst.P.C.
 Mr. G. E. Millar, M.R.S.H., M.A.P.H.I.
 Mr. C. B. Pullen
 Mrs. E. J. Reid
 Mr. J. Ruck
 Mr. J. W. Snape, C.Eng., M.Inst.Mun.E., F.R.S.H., M.Inst.H.E.
 Mr. J. Southwick
 Mr. C. C. Stevens
 Mr. P. Wall
 Mr. R. Woodings

APPENDIX B

PLACES VISITED BY THE WORKING PARTY

Atcham R.D.
Birmingham C.B.
Cardiff C.B.
Cardiff R.D.
City of Westminster
Crawley U.D.
Ellesmere R.D.
Fulham Met. B.
Gas Council Laboratories (Fulham)
Harrogate B.
Hitchin U.D.
Loughborough B.
Manchester C.B.
Margate B.
Nottingham C.B.
Sheffield C.B.
Wandsworth L.B.
Wolverton U.D.

APPENDIX C

SPECIMEN LEAFLET (Paragraph 94)

GET A GOOD BIN

Paper and dust blow about
Foodscraps and unwashed tins and
bottles attract flies
Broken glass and jagged metal cause
accidents
They should be kept in a covered
dust bin

USE YOUR BIN PROPERLY

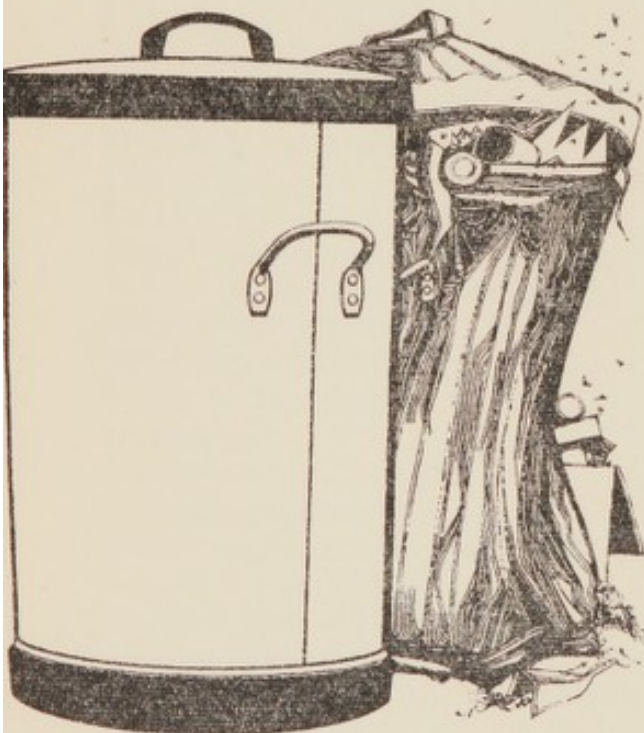
Place a few sheets of newspaper at the
bottom
Drain off water from kitchen and food
wastes to prevent bad smells and for
the sake of your bin
Wrap the wastes in newspaper
Rinse out empty tins, bottles and other
containers
Flatten cartons—then they will take up
less space
Treat the inside of the lid with fly spray
Make sure the lid is firmly on

PLEASE . . .

WARN THE COLLECTOR if you
have any objectionable or dangerous
(e.g. corrosive) refuse
DO NOT put liquids in your bin
DO NOT put in hot ashes which may
set fire to the bin—or even to the
collection vehicle. Allow the ashes to
cool off in an old bucket or bin
DO NOT burn refuse in your bin; this
will damage it and may cause a
nuisance

PLEASE . . .

Make sure the collector can get to your
bin
Unlock gates in readiness
Do not place articles next to the bin if
you don't want the refuse collectors
to take them away
Replace your bin with a new one if it is
in bad condition—a damaged bin may
injure you or the collector, as well as
spilling refuse
Get a second bin if you often have more
refuse than your bin will hold



Note: the leaflet would need to be adapted
where the paper sack system is used or
municipal bins are supplied.

APPENDIX D

SPECIMEN LETTER 1: MUNICIPAL BIN SCHEME

(paragraph 109)

Dear Householder,

Refuse collection

In future your Council will supply dustbins without charge to all houses and other premises which receive a free collection service in order to make sure that only suitable bins in good condition are used.

This will make your refuse collection service cleaner and better.

A new dustbin will be delivered to you shortly. It is Council property, but there is no objection to your painting the number of your house on it. The bin should be removed only by the Council's authorised employees and should be left on your premises if you move.

The bin is strongly made and should last at least seven years. If a replacement is necessary within that period, you may be called upon to contribute to the cost of the new one.

The refuse collectors will take away your present dustbin unless you want to keep it.

How to look after the new dustbin:—

Place a few sheets of newspaper at the bottom and wrap kitchen and food waste in newspaper after draining off any water. Rinse out empty tins, bottles and other food containers. This will prevent refuse from sticking to the bin and will help to keep away flies and smells.

Flatten cartons so that they take up less space.

Treat the inside of the lid with fly spray.

Do not put in liquids or hot ashes. Hot ashes may start a fire in the bin or even in the refuse collection vehicle. Put them in another container such as an old bucket until they are cool. Never burn refuse in the bin; this will damage it and may be a nuisance to your neighbours.

If you often have more refuse than the bin will hold, you should apply for a second bin.

Please do not hesitate to let my office know if you have any difficulties with the refuse collection service.

Yours sincerely,

Note: the letter provides a useful opportunity to remind householders of the local arrangements for the collection of bulky refuse.

SPECIMEN LETTER 2: PAPER SACK SYSTEM
(paragraph 200)

Dear Householder,

Refuse Collection

Your Council are introducing a new refuse collection system using strong paper sacks instead of dustbins. This will give you a cleaner service; it will also make the work of the refuse collectors easier and cleaner.

This letter tells you how you can help to make the new arrangements a success.

You will be supplied with a sack holder by the council free of charge. With this will be left a new paper sack for you to fit in the holder. The refuse collector will remove the filled sack from the holder at each collection and will leave a new sack for you to fit.

The paper sacks are easily strong enough to hold all the refuse you have been accustomed to putting in your bin. They are resistant to rain and snow so long as they do not stand on wet ground for any length of time. The holders keep them clear of the ground. It is best to put the holder where it will not get the full force of the wind.

The refuse collectors will take away your dustbin, unless you want to keep it. In any event they will not collect refuse from it except in an emergency.

How you can help:—

Fit the empty sack in the holder. The diagram shows you how*.

Don't put ashes into the sack while they are hot. Put them in another container such as an old bucket until they are cool.

Flatten cartons and make sure that they do not waste space by getting wedged in the sack.

Do not put liquids in the sack.

To keep flies and smells away, wrap up kitchen and food wastes in newspaper after draining off any water and rinse out empty tins, bottles and other food containers.

Wrap up broken glass, crockery and other sharp objects so that they do not tear the sack.

Make sure the lid of the holder is always properly closed.

Do not try to get too much refuse into the sack. It will hold as much as a dustbin, but it may tear if you force refuse into it.

If you need more than one sack (a week), ask the (public cleansing department), telephone, not the refuse collectors, who will only issue extra sacks on orders from this office. If you have more than one sack, fit it in the holder and stand the full one alongside.

Please do not hesitate to let my office know if you have any difficulty with the new system.

Yours sincerely,

* The details of the diagram will vary according to the make of holder.

Note: the letter provides a useful opportunity to remind householders of the local arrangements for the collection of bulky refuse.

SPECIMEN LETTER 3: DUSTLESS LOADING SYSTEM

(paragraph 224)

Dear Householder,

Refuse collection

Your Council are introducing a new refuse collection system, known as dustless loading, which will give you a cleaner service; it will also make the work of the refuse collectors easier and cleaner.

This letter tells you how you can help to make the new arrangements a success.

A special dustbin with a hinged lid will be supplied to you by the Council free of charge. The refuse will be collected in a vehicle specially designed to prevent the escape of dust and refuse when bins are emptied into it.

The bin is Council property, but there is no objection to your painting the number of your house on it. The bin should be removed only by the Council's authorised employees and should be left on your premises if you move.

The bin is strongly made and should last at least seven years. If a replacement is necessary within that period, you may be called upon to contribute to the cost of the new one.

The refuse collectors will take away your present dustbin unless you want to keep it. In any event they will not collect refuse from it except in an emergency.

How you can help:—

Please take care of your bin and especially avoid damaging the lid and rim.

Place a few sheets of newspaper at the bottom and wrap kitchen and food wastes in newspaper after draining off any water. Rinse out empty tins, bottles and other food containers. This will prevent refuse from sticking to the bin and will help to keep away flies and smells.

Flatten cartons so that they take up less space.

Treat the inside of the lid with fly spray.

Do not put in liquids or hot ashes. Hot ashes may start a fire in the bin or even in the refuse collection vehicle. Put them in another container such as an old bucket until they are cool.

Never burn refuse in the bin; this will damage it and may be a nuisance to your neighbours.

If you often have more refuse than the bin will hold, you should apply for a second bin.

Please do not hesitate to let my office know if you have any difficulty with the new system.

Yours sincerely,

Note: the letter provides a useful opportunity to remind householders of the local arrangements for the collection of bulky refuse.

APPENDIX E

REMOVAL OF VEHICLES—NEW MODEL CLAUSE

(paragraph 368)

(1) If a vehicle is left in the (borough) elsewhere than on a road or in an off-street parking-place provided under section 81 of the Road Traffic Act 1960, the (Corporation) may, with the consent of the occupier of the land on which the vehicle is left and after giving not less than seven days' notice to the owner of the vehicle, cause it to be removed:

Provided that, where the vehicle appears to the (Corporation) to be abandoned:—

(a) the (Corporation) may cause it to be removed without the consent of the occupier of the land if they are unable after reasonable inquiry to ascertain his name and address and

(b) the (Corporation) may cause the vehicle to be removed without notice to the owner thereof if they are unable after reasonable inquiry to ascertain his name and address.

(2) The provisions of any regulations for the time being in force under section 43 of the Road Traffic Act 1960 about the method of removing vehicles and their loads and arrangements for the safe custody of vehicles and their loads shall apply to vehicles removed under this section.

(3) Section 15 of the Road Traffic and Roads Improvement Act 1960 and any order for the time being in force under that section shall apply to a vehicle removed under this section as if it had been removed from a road in pursuance of regulations under section 43 of the Road Traffic Act 1960.

(4) For the purpose of the said section 15 and any such order as applied by the last preceding subsection, 'the appropriate authority' means the (Corporation), and any reference in regulations made under section 43 of the Road Traffic Act 1960 to a charge to payment of which the (Corporation) are entitled under the said section 15 shall be construed accordingly.

(5) If it appears to the (Corporation) that a vehicle removed under this section has been abandoned the (Corporation) may sell or otherwise dispose of it subject to compliance with such regulations as are for the time being in force under section 43 of the Road Traffic Act 1960 relating to the disposal of vehicles abandoned on roads; and the provisions of any regulations under that section relating to the proceeds of the sale of vehicles abandoned on roads and to the recoupment of costs incurred in connection with the disposal of such vehicles shall, with the necessary modifications, apply to the sale and disposal of vehicles under this subsection.

(6) In this section 'owner' in relation to a vehicle which is the subject of a hiring agreement or hire-purchase agreement means the person in possession of the vehicle under that agreement and 'road' means a highway or other road to which the public has access and includes bridges over which the road passes.

APPENDIX F

TRADE REFUSE CHARGES

Information about trade refuse charges was sought from 276 selected authorities.

(1) Trade refuse collected separately

191 authorities gave information.

<i>Basis of charge</i>	<i>No. of authorities</i>	<i>Remarks</i>
1. Cost	33	Seven councils included administrative costs.
2. Time	15	Four councils stated their charges. The range was 15s. to 30s. an hour.
3. Volume	33	Per cubic yard (where so charged): 4s. to 25s. Per 1½ cubic yard container: 3s. to 15s., but generally about 10s.
4. Per bin	77	Thirteen councils allowed one free bin, one allowed two free bins. Sixty-one councils charged per bin per week (thirty charged from 3d. to 9d. a bin; twenty-four from 10d. to 1s. 6d.; seven charged up to 3s.). Sixteen councils charged from £1 to £4 a year.
5. Weight	22	Per ton (where so charged): 6s. 6d. to £3 10s. Per load (unspecified): from under £1 to £8.
6. Other methods	12	Nine councils had scaled charges which varied according to the number of bins and frequency of collection.

(2) Trade refuse collected with house refuse

124 authorities gave information.

<i>Basis of charge</i>	<i>No. of authorities</i>	<i>Remarks</i>
1. Time	4	Two councils stated their charges: 15s. and 25s. an hour.
2. Volume	9	Per cubic yard (where so charged): 8s. 8d. to 18s. 9d. Per 1½ cubic yard container: 3s. to 10s.

<i>Basis of charge</i>	<i>No. of authorities</i>	<i>Remarks</i>
3. Per bin	95	Nine councils allowed one free bin, five allowed two free bins. Fifty-nine councils charged from 2d. to 3s. per bin per week (seventeen charged 6d.; nine charged 9d.; thirteen charged 1s.). Twenty-five councils charged from 2s. 0d. to £4 per year. The charges were mostly between £1 and £2. Eleven councils charged monthly, quarterly or half-yearly.
4. Weight	5	Per ton (where so charged); £3 7s. 6d. to £3 15s. Per load (a few councils stated 'lorry load'): 10s. to £2 2s. 0d.
5. Other methods	14	Eight councils had scaled charges which varied according to the number of bins and frequency of collection.

Note: Some authorities made use of a ticket payment system. A few had more than one method of charging.

APPENDIX G ADMINISTRATION

Extract from the annual reports of the Ministry of Health for 1929-30 and 1930-31 (referred to in Chapter 20)

While there has, on the whole, been a marked improvement in recent years, there are still indications that sufficient thought is not always given by Local Authorities to the organisation and arrangement of their cleansing work. They should realise that nowadays cleansing work in any town of size should be in charge of an official who has had training and experience qualifying him for the work, and that to employ a man without the needed competence may be a costly economy.

The amount and nature of cleansing work differ from town to town; it is not practicable to lay down any general rule, but experience suggests that, with the usual amount and kind of work, it pays to have a cleansing officer exclusively for this work in a town with a population of about 75,000 or over. Whether the cleansing officer is himself a principal officer, or is placed under another principal officer, must depend upon the general organisation adopted by the Local Authority. The former is becoming the general practice in the larger towns and it has usually proved successful.

When the work comes within the sphere of a principal officer who has other duties, it is important to prevent what has sometimes happened in the past, the treatment of cleansing work as of secondary importance, the chief interest of the principal officer being in other directions. In any event, the officer who is in actual charge of the cleansing work should be given adequate scope and responsibility.

Cleansing work, or part of it, is sometimes under the general direction of the medical officer of health. The efficient carrying out of this work undoubtedly is closely connected with the public health service for which this officer is responsible. In the Sanitary Officers Order 1926, it is contemplated that cleansing work may be an appropriate function of the sanitary inspector, and this is, in fact, the arrangement in many small districts.

The Ministry have, however, been increasingly impressed with the advantage which has been gained by those local authorities who have established separate cleansing departments to administer the work of refuse collection and disposal, and street cleansing. This procedure rightly recognises that the work touches closely on other branches of local administration besides public health and calls for special qualifications, and is therefore best co-ordinated with the other services by being itself formed into a special service. Such a course would not deprive the medical officer of health of his necessary and proper rights of satisfying himself that this service is efficient, and of criticising it, in doing which the independence of his position would be an advantage rather than otherwise.

The appropriate committee of the council, whether a separate committee, as is now becoming common in the larger towns, or a committee with other duties, should make sure that the attention given to cleansing work is adequate. It is one of the costliest of services, and for this reason alone merits close attention.

APPENDIX H

(paragraph 100)

Model byelaws: series 1A

BYELAWS as to the removal of house refuse, etc.,

made by the

under

section 72(3) of the Public Health Act 1936.

1. In these byelaws 'the council' means the

2. (1) Where the council serve on the occupier of premises provided with a dustbin a notice specifying the times at which they propose to remove house refuse therefrom, the occupier shall, by every such time, place any house refuse intended for removal by the council at a point on the premises which can be conveniently reached from a street used as a means of access for the removal of house refuse and does not necessitate the removal of refuse through a dwelling-house if other means of access are available.

(2) All such refuse shall so far as is practicable be placed in a dustbin, and where the council have themselves provided a dustbin for a building that dustbin shall be used.

3. No liquid matter shall be deposited in any dustbin used for house refuse intended for removal by the council.

4. No person shall remove any matter which the council have undertaken to remove, not being matter produced on his own premises which he intends to remove for sale or for his own use, and which is kept in the meantime so as not to be a nuisance.

5. Any person who offends against any of the provisions of these byelaws shall be liable on summary conviction to a fine not exceeding five pounds.

6. The byelaws

which were made by

on the

day of

,

, and were

confirmed by the

on the

day of

,

, are hereby revoked.

APPENDIX I
(Paragraph 456)

**Comparison of labour content of different methods of refuse collection by the
London Boroughs' Management Services Unit**

Method	Index for full day's work (with varied carries)
Ordinary bins, kerbside	57
Dustless bins, kerbside	60
Paper sack system	78
Ordinary bins, put out by householder	85
Dustless bins, put out by householder	91
Skep system	92
<i>Ordinary bins, carried out and in by collectors</i>	<i>100</i>
Dustless bins, carried out and in by collectors	106

TONNAGE COLLECTED IN THE FINANCIAL YEAR 1962-63

All local authorities

TABLE 5

Type of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
County boroughs ..	83	4,170,318	191,714	101,591	4,463,623	328
Metropolitan boro's. and City of London	28	959,464	23,488	16,907	999,859	336
Non-county boroughs	270	3,108,539	168,999	83,650	3,361,188	328
Urban districts ..	443	3,000,640	107,949	62,405	3,170,994	385
Rural districts ..	363	2,378,247	20,328	12,297	2,410,872	312
Totals ..	1,187	13,617,208	512,478	276,850	14,406,536	337

TABLE 6

Population of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
Over 250,000 ..	16	2,043,331	74,426	47,056	2,164,813	316
100,000—250,000	63	2,530,952	115,222	60,706	2,706,880	315
50,000—100,000 ..	140	2,920,419	132,829	71,630	3,124,878	327
20,000—50,000 ..	368	3,839,031	132,118	64,418	4,035,567	351
10,000—20,000 ..	307	1,569,373	39,856	28,172	1,637,401	352
under 10,000 ..	293	714,102	18,027	4,868	736,997	436
Totals ..	1,187	13,617,208	512,478	276,850	14,406,536	337

TABLE 7

Population density of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
Over 20 per acre ..	60	2,589,674	75,450	48,127	2,713,251	308
10—19 " " ..	162	4,028,677	239,509	128,282	4,396,468	330
7—9 " " ..	97	1,259,970	69,924	25,354	1,355,248	408
5 and 6 " " ..	118	1,087,249	28,800	29,869	1,145,918	385
3 and 4 " " ..	178	1,376,042	52,279	21,298	1,449,619	411
1 and 2 " " ..	192	1,217,301	28,888	11,819	1,258,008	379
0.5 to 0.9 " " ..	106	924,048	11,320	6,522	941,890	353
up to 0.4 " " ..	274	1,134,247	6,308	5,579	1,146,134	231
Totals ..	1,187	13,617,208	512,478	276,850	14,406,536	337

Note: Authorities who do not weigh their refuse (see Tables 14 and 15) tend to overestimate weights (see paragraph 44).

TONNAGE COLLECTED IN THE FINANCIAL YEAR 1962/63
Mining Towns

TABLE 8

Type of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
County boroughs ..	11	399,633	13,535	17,546	430,714	328
Non-county boroughs ..	19	254,603	22,108	8,021	284,732	360
Urban districts ..	87	799,203	17,148	7,134	823,485	476
Rural districts ..	34	453,902	1,530	1,823	457,255	393
Totals ..	151	1,907,341	54,321	34,524	1,996,186	400

TABLE 9

Population of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
Over 250,000 ..	2	141,428	—	11,931	153,359	287
100,000—250,000 ..	4	139,678	5,183	1,188	146,049	346
50,000—100,000 ..	17	425,239	26,184	8,279	459,702	403
20,000—50,000 ..	64	810,501	13,448	10,185	834,134	429
10,000—20,000 ..	51	345,171	7,888	2,509	355,568	434
under 10,000 ..	13	45,324	1,618	432	47,374	488
Totals ..	151	1,907,341	54,321	34,524	1,996,186	400

TABLE 10

Population density of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
Over 20 per acre ..	3	160,195	4,017	2,518	166,730	346
10—19 " " ..	14	279,000	11,322	14,197	304,519	344
7—9 " " ..	22	266,441	22,621	6,899	295,961	360
5 and 6 " " ..	20	204,489	2,064	1,718	208,271	485
3 and 4 " " ..	35	376,839	10,706	5,236	392,781	488
1 and 2 " " ..	28	345,218	2,221	2,837	350,276	467
0.5 to 0.9 " " ..	14	161,642	1,086	966	163,694	329
up to 0.4 " " ..	15	113,517	284	153	113,954	387
Totals ..	151	1,907,341	54,321	34,524	1,996,186	400

TONNAGE COLLECTED IN THE FINANCIAL YEAR 1962-63

Seaside Resorts

TABLE 11

Type of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
County boroughs ..	16	611,435	16,516	17,010	644,961	352
Non-county boroughs	52	529,233	22,543	9,477	561,253	377
Urban districts ..	60	365,562	16,220	5,865	387,647	412
Rural districts ..	—	—	—	—	—	—
Totals ..	128	1,506,230	55,279	32,352	1,593,861	374

TABLE 12

Population of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
Over 250,000 ..	—	—	—	—	—	—
100,000—250,000 ..	10	482,271	15,602	14,104	511,977	341
50,000—100,000 ..	15	322,566	3,762	6,614	332,942	326
20,000—50,000 ..	37	438,814	22,206	8,695	469,715	402
10,000—20,000 ..	30	161,088	7,919	2,552	171,559	412
under 10,000 ..	36	101,491	5,790	387	107,668	587
Totals ..	128	1,506,230	55,279	32,352	1,593,861	374

TABLE 13

Population density of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
Over 20 per acre ..	2	116,687	2,893	4,691	124,271	307
10—19 " " ..	22	526,070	26,973	16,216	569,259	374
7—9 " " ..	19	260,141	2,529	3,044	265,714	366
5—6 " " ..	19	225,676	2,970	2,992	231,638	355
3 and 4 " " ..	29	179,126	11,114	3,405	193,645	467
1 and 2 " " ..	32	184,512	7,998	2,004	194,514	387
0.5 to 0.9 " " ..	3	10,998	802	—	11,800	672
up to 0.4 " " ..	2	3,020	—	—	3,020	526
Totals ..	128	1,506,230	55,279	32,352	1,593,861	374

PERCENTAGE OF ALL REFUSE WEIGHED

TABLE 14

Type of local authority	Number of authorities who weigh over 50% of refuse
County boroughs	18
Metropolitan boroughs and City of London	28
Non-county boroughs	59
Urban districts	25
Rural districts	4
Total	134

TABLE 15

Population of local authority	Number of authorities who weigh over 50% of refuse
Over 250,000	4
100,000—250,000	32
50,000—100,000	48
20,000—50,000	37
10,000—20,000	6
under 10,000	7
Total	134

TONNAGE COLLECTED IN THE FINANCIAL YEAR 1962-63

Local authorities who weigh 80% or more of their refuse

TABLE 16

Type of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
County boroughs ..	13	734,866	14,245	11,419	760,530	305
Metropolitan boro's.	27	930,179	23,488	16,907	970,574	326
Non-county boroughs	59	1,068,905	54,658	40,035	1,163,598	244
Urban districts ..	24	169,116	4,505	10,485	184,106	281
Rural districts ..	3	20,275	966	65	21,306	192
Totals ..	126	2,923,341	97,862	78,911	3,100,114	298
City of London ..	1	29,285	—	—	29,285	6,366*

*See footnote to table 18.

TONNAGE COLLECTED IN THE FINANCIAL YEAR 1962-63

Local authorities who weigh 80% or more of their refuse

TABLE 17

Population of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
Over 250,000 ..	3	478,403	—	6,357	484,760	284
100,000—250,000 ..	28	1,095,044	41,030	26,044	1,162,118	298
50,000—100,000 ..	48	938,908	38,413	29,307	1,006,628	296
20,000—50,000 ..	36	381,259	17,422	16,321	415,002	326
10,000—20,000 ..	6	23,904	604	807	25,315	271
under 10,000 ..	5	5,823	393	75	6,291	254
Totals ..	126	2,923,341	97,862	78,911	3,100,114	298
City of London (4,600) ..	1	29,285	—	—	29,285	6,366*

TABLE 18

Population density of local authority	Number of local authorities	Excluding trade refuse and salvage collected separately	Trade refuse collected separately	Salvage collected separately	Total tonnage	Average tonnage per 1,000 population
Over 20 per acre ..	45	1,614,917	53,396	30,087	1,698,400	304
10—19 " " ..	36	817,351	26,573	33,847	877,771	259
7—9 " " ..	15	223,788	7,015	7,144	237,947	276
5 and 6 " " ..	15	180,498	5,732	4,971	191,201	306
3 and 4 " " ..	6	29,001	580	1,380	30,961	274
1 and 2 " " ..	6	29,186	4,200	622	34,008	281
0.5 to 0.9 " " ..	2	25,544	341	860	26,745	307
up to 0.4 " " ..	1	3,056	25	—	3,081	134
Totals ..	126	2,923,341	97,862	78,911	3,100,114	298
City of London (6 per acre) ..	1	29,285	—	—	29,285	6,366*

* The City of London has been shown separately since the resident or night population is 4,600: some 355,000 enter the City daily to work.

METHODS OF REFUSE STORAGE HOUSES AND BUNGALOWS

Estimated number of houses and bungalows where the following types of receptacles were in use in 1964†

TABLE 19

Type of local authority	Ordinary metal bins	Dustless loading bins (hinged lids)	Paper sacks	Other purpose made receptacles	Improvised receptacles
County boroughs	3,745,269	204,898	8,109	28,988	72,527
Metropolitan boroughs and City of London	536,499	3,400	594	450	4,450
Non-county boroughs	3,200,382	5,884	11,170	5,121	74,046
Urban districts	2,687,107	7,230	20,266	10,603	98,863
Rural districts	2,528,837	—	22,075	27,161	256,530
Total numbers of houses and bungalows ..	12,698,094	221,412	62,214	72,323	506,416

TABLE 20

Population of local authority	Ordinary metal bins	Dustless loading bins (hinged lids)	Paper sacks	Other purpose made receptacles	Improvised receptacles
Over 250,000	1,756,727	203,578	3,140	20,455	10,740
100,000—250,000	2,296,503	1,900	5,022	6,210	69,100
50,000—100,000	2,766,851	8,354	3,076	7,664	31,212
20,000—50,000	3,536,334	5,580	35,510	24,842	187,210
10,000—20,000	1,654,893	2,000	10,122	8,046	132,345
under 10,000	686,786	—	5,344	5,106	75,809
Total numbers of houses and bungalows ..	12,698,094	221,412	62,214	72,323	506,416

† But see paragraphs 49 to 51.

**METHODS OF REFUSE STORAGE
BLOCKS OF FLATS AND MAISONNETTES**

Approximate number of flats etc. where the following types of
receptacle or disposal methods were in use in 1964

TABLE 21

Type of local authority	Chute and containers	Individual dustbins	Garchey system	Kitchen grinders	Other methods
County boroughs	89,692	147,575	2,986	321	6,225
Metropolitan boroughs and City of London	165,711	59,755	129	6,252	8,153
Non-county boroughs	34,476	136,871	—	2,037	2,823
Urban districts	7,726	95,514	—	865	5,585
Rural districts	3,009	29,236	—	230	1,205
Total numbers of flats and maisonnettes	300,614	468,951	3,115	9,705	23,991

TABLE 22

Population of local authority	Chute and containers	Individual dustbins	Garchey system	Kitchen grinders	Other methods
Over 250,000	73,869	69,739	2,986	461	4,977
100,000—250,000	115,323	140,936	—	591	4,876
50,000—100,000	85,529	127,337	—	7,713	6,240
20,000—50,000	24,038	86,684	129	755	5,859
10,000—20,000	1,592	30,450	—	107	1,793
Under 10,000	263	13,805	—	78	246
Total numbers of flats and maisonnettes	300,614	468,951	3,115	9,705	23,991

**METHODS OF REFUSE STORAGE
BUSINESS AND INDUSTRIAL PREMISES**

Approximate number of premises where the following types of
receptacle or disposal methods were in use in 1964

TABLE 23

Type of local authority	Ordinary metal bins	Paper sacks	Refuse storage containers (British Standard)	Refuse storage containers over 1½ cu. yds.	Improvised receptacles	Other methods
County boroughs ..	490,450	245	2,288	1,038	11,608	2,371
Metropolitan boroughs and City of London	151,286	137	1,785	78	7,410	389
Non-county boroughs	318,970	717	3,053	559	12,909	1,529
Urban districts ..	216,900	935	2,032	91	15,107	1,354
Rural districts ..	142,375	1,050	1,031	244	12,206	1,362
Total numbers of business and industrial premises	1,319,981	3,084	10,189	2,010	59,240	7,005

TABLE 24

Population of local authority	Ordinary metal bins	Paper sacks	Refuse storage containers (British Standard)	Refuse storage containers over 1½ cu. yds.	Improvised receptacles	Other methods
Over 250,000 ..	235,250	74	765	937	5,053	1,741
100,000—250,000 ..	297,610	201	2,292	147	5,828	416
50,000—100,000 ..	272,031	257	2,059	545	11,501	804
20,000—50,000 ..	295,771	1,744	3,763	167	20,251	1,739
10,000—20,000 ..	132,325	625	1,149	197	10,185	879
under 10,000 ..	86,994	183	161	17	6,422	1,426
Total numbers of business and industrial premises	1,319,981	3,084	10,189	2,010	59,240	7,005

MUNICIPAL PROVISION OF DUSTBINS AND CONTAINERS

TABLE 25

Type of local authority	Entirely on the rates	Provision of bins by local authorities				No. of local authorities (not providing bins) who require use of standard receptacles	No. of local authorities who sell or hire out communal containers
		Partly on the rates and partly by charging the householder		Entirely by charging the householder			
		Less than 7s. 6d. a year	7s. 6d. a year	Less than 7s. 6d. a year	7s. 6d. a year		
County boroughs	29	—	—	8	4	42	22
Metropolitan boroughs & City of London)	2	—	1	1	—	13	26
Non-county boroughs	32	1	3	10	17	196	30
Urban districts	71	3	—	15	17	346	23
Rural districts	22	4	3	20	16	283	16
Totals	156	8	7	54	54	880	117

TABLE 26

Population of local authority	Entirely on the rates	Provision of bins by local authorities				No. of local authorities (not providing bins) who require use of standard receptacles	No. of local authorities who sell or hire out communal containers
		Partly on the rates and partly by charging the householder		Entirely by charging the householder			
		Less than 7s. 6d. a year	7s. d. a year	Less than 7s. 6d. a year	7s. 6d. a year		
Over 250,000	5	—	—	1	—	8	7
100,000—250,000	14	1	1	4	1	35	29
50,000—100,000	23	—	—	11	8	96	30
20,000—50,000	51	4	2	21	21	258	32
10,000—20,000	44	—	2	9	11	229	7
under 10,000	19	3	2	8	13	254	12
Totals	156	8	7	54	54	880	117

Note: 7s. 6d. a year is the maximum permissible charge (see paragraph 34).

BYELAWS

TABLE 27

Type of local authority	No. with byelaws in force under section 72(3)†	No. with refuse collection byelaws under section 72(4)*	No. with both	No. with neither
County boroughs	27	2	2	56
Metropolitan boroughs and City of London	—	—	—	28
Non-county boroughs	50	4	4	245
Urban districts	50	3	1	463
Rural districts	38	6	4	403
Totals	165	15	11	1,195

* Requiring householders to dispose of their own refuse. As far as is known no such byelaws have been confirmed since 1938.

† See the model byelaws at Appendix H.

FREQUENCY OF COLLECTION

Average frequency of collection from houses and bungalows

TABLE 28

Type of local authority	Less than once a fortnight	Between 8 and 14 days	Once weekly	Twice weekly	3 or 4 times weekly	5 or more times weekly
County boroughs	—	4	75	4	—	—
Metropolitan boroughs and City of London	—	—	17	10	—	1
Non-county boroughs	1	11	267	15	1	—
Urban districts	4	32	444	29	5	1
Rural districts	18	167	245	12	1	—
Totals	23	214	1,048	70	7	2

TABLE 29

Population of local authority	Less than once a fortnight	Between 8 and 14 days	Once weekly	Twice weekly	3 or 4 times weekly	5 or more times weekly
Over 250,000	—	—	16	—	—	—
100,000—250,000	—	2	56	5	1	—
50,000—100,000	—	5	126	9	—	—
20,000—50,000	3	37	316	27	1	1
10,000—20,000	2	89	265	9	2	—
under 10,000	18	81	269	20	3	1†
Totals	23	214	1,048	70	7	2

† The City of London.

FREQUENCY OF COLLECTION
Average frequency of collection from flats and maisonettes

TABLE 30

Type of local authority	No flats or blank answers	Less than once a fortnight	Between 8 and 14 days	Once weekly	Twice weekly	3 or 4 times weekly	5 or more times weekly
County boroughs ..	1	—	2	63	15	1	1
Metropolitan boroughs and City of London ..	—	—	—	5	17	5	1
Non-county boroughs ..	24	1	7	235	24	3	1
Urban districts ..	85	4	22	368	33	3	—
Rural districts ..	156	8	91	177	9	2	—
Totals	266	13	122	848	98	14	3

TABLE 31

Population of local authority	No flats or blank answers	Less than once a fortnight	Between 8 and 14 days	Once weekly	Twice weekly	3 or 4 times weekly	5 or more times weekly
Over 250,000	—	—	—	11	5	—	—
100,000—250,000 ..	—	—	1	44	16	2	1
50,000—100,000 ..	4	—	3	111	17	4	1
20,000—50,000	53	1	27	262	36	6	—
10,000—20,000	85	2	51	221	8	—	—
under 10,000	124	10	40	199	16	2	1†
Totals	266	13	122	848	98	14	3

† The City of London.

FREQUENCY OF COLLECTION
Average frequency of collection of trade refuse

TABLE 32

Type of local authority	Blank answers	Less than once a fortnight	Between 8 and 14 days	Once weekly	Twice weekly	3 or 4 times weekly	5 or more times weekly
County boroughs ..	—	—	1	43	21	12	6
Metropolitan boroughs and City of London ..	2	—	—	12	10	1	3
Non-county boroughs ..	13	2	2	178	64	28	8
Urban districts ..	34	7	17	346	89	12	10
Rural districts ..	85	15	93	224	23	3	—
Totals	134	24	113	803	207	56	27

TABLE 33

Population of local authority	Blank answers	Less than once a fortnight	Between 8 and 14 days	Once weekly	Twice weekly	3 or 4 times weekly	5 or more times weekly
Over 250,000 ..	—	—	—	11	2	2	1
100,000—250,000 ..	2	—	—	37	16	7	2
50,000—100,000 ..	6	—	1	90	28	11	4
20,000—50,000 ..	30	5	18	246	61	17	8
10,000—20,000 ..	39	3	53	212	41	11	8
under 10,000 ..	57	16	41	207	59	8	4
Totals	134	24	113	803	207	56	27

NORMAL STARTING AND FINISHING TIMES OF COLLECTION

TABLE 34

Type of local authority	Normal starting time		Normal finishing time			
	Before 7 a.m.	After 7 a.m.	Before 3 p.m.	3-4 p.m.	4-5 p.m.	After 5 p.m.
County boroughs ..	2	81	—	18	56	9
Metropolitan boroughs and City of London ..	4	24	3	10	15	—
Non-county boroughs ..	12	283	5	31	224	35
Urban districts ..	16	499	11	59	372	72
Rural districts ..	9	434	7	77	296	63
Totals	43	1,321	26	195	963	179

NUMBERS AND TYPES OF REFUSE COLLECTION VEHICLES IN USE

TABLE 35

Type of local authority	Side loaders	Enclosed rear loaders		Dustless loading vehicles		Other purpose-made vehicles	Other vehicles not purpose-made for refuse collection	Total number of vehicles
		with compression devices	without compression devices	with compression devices	without compression devices			
County boroughs ..	758	724	787	62	87	94	94	2,606
Metropolitan boroughs and City of London ..	43	380	263	8	8	50	7	759
Non-county boroughs ..	572	708	558	50	36	121	84	2,129
Urban districts ..	683	588	420	52	16	32	75	1,866
Rural districts ..	748	598	381	37	9	41	52	1,866
Totals ..	2,804	2,998	2,409	209	156	338	312	9,226

TABLE 36

Population of local authority	Side loaders	Enclosed rear loaders		Dustless loading vehicles		Other purpose-made vehicles	Other vehicles not purpose-made for refuse collection	Total number of vehicles
		with compression devices	without compression devices	with compression devices	without compression devices			
Over 250,000 ..	339	324	469	51	81	64	35	1,363
100,000—250,000 ..	421	617	473	29	11	97	62	1,710
50,000—100,000 ..	459	732	502	35	10	86	65	1,889
20,000—50,000 ..	783	826	575	69	26	60	69	2,408
10,000—20,000 ..	486	358	263	18	5	17	39	1,186
under 10,000 ..	316	141	127	7	23	14	42	670
Totals ..	2,804	2,998	2,409	209	156	338	312	9,226

Number of refuse collection vehicles per authority

TABLE 37

Type of local authority	Authorities having						Total
	1-5 vehicles	6-10 vehicles	11-50 vehicles	51-100 vehicles	101-200 vehicles	201 or more vehicles	
County boroughs ..	1	7	66	4	4	1	83
Metropolitan boroughs and City of London ..	—	3	21	4	—	—	28
Non-county boroughs ..	153	78	63	1	—	—	295
Urban districts ..	419	79	17	—	—	—	515
Rural districts ..	339	83	21	—	—	—	443
Total numbers of authorities ..	912	250	188	9	4	1	1,364

TABLE 38

Population of local authority	Authorities having						Total
	1-5 vehicles	6-10 vehicles	11-50 vehicles	51-100 vehicles	101-200 vehicles	201 or more vehicles	
Over 250,000 ..	—	—	6	5	4	1	16
100,000—250,000 ..	—	—	61	3	—	—	64
50,000—100,000 ..	—	41	98	1	—	—	140
20,000—50,000 ..	172	191	22	—	—	—	385
10,000—20,000 ..	349	18	—	—	—	—	367
under 10,000 ..	391	—	1*	—	—	—	392
Total numbers of authorities ..	912	250	188	9	4	1	1,364

* The City of London had 40 vehicles.

AVERAGE HAUL OF COLLECTION VEHICLE TO FINAL DISPOSAL POINT

TABLE 39

Type of local authority	Under 6 miles	6 to 10 miles	11 to 20 miles	21 miles or more	Total
County boroughs ..	75	6	2	—	83
Metropolitan boroughs and City of London ..	1	—	5	22	28
Non-county boroughs ..	270	13	11	1	295
Urban districts ..	483	27	4	1	515
Rural districts ..	203	204	28	8	443
Totals ..	1,032	250	50	32	1,364

METHODS OF COLLECTION
Approximate number of premises where the following methods are in use

TABLE 40

Type of local authority	Receptacles collected from premises and returned after emptying	Skip system	Exchange bin system	Kerbside collection			Paper sack collection	Other methods
				Bins set out and returned by		collectors		
				occupier				
County boroughs City of	3,064,502	983,370	36,804	362,562	336,914	8,619	2,728	
Metropolitan boroughs and London	789,438	136,852	6,433	68,485	—	1,975	5,586	
Non-county boroughs	2,155,793	864,368	—	381,258	367,482	7,468	5,725	
Urban districts	1,594,761	774,161	—	359,458	467,623	24,052	5,948	
Rural districts	874,660	626,724	3,689	1,164,039	261,944	22,206	11,057	
Totals	8,479,154	3,385,475	46,926	2,335,802	1,433,963	64,320	31,044	

TABLE 41

Population of local authority	Receptacles collected from premises and returned after emptying	Skip system	Exchange bin system	Kerbside collection			Paper sack collection	Other methods
				Bins set out and returned by		collectors		
				occupier				
Over 250,000 ..	1,763,239	453,460	32,264	111,583	—	3,243	2,007	
100,000—250,000 ..	1,845,590	596,627	6,440	265,001	236,309	6,341	4,769	
50,000—100,000 ..	1,704,435	1,060,270	5,244	152,949	359,196	5,923	6,333	
20,000—50,000 ..	1,880,188	857,422	433	975,575	548,850	33,436	8,831	
10,000—20,000 ..	915,140	291,439	—	531,302	223,968	10,027	4,965	
under 10,000 ..	370,562	126,257	2,545	299,392	65,640	5,350	4,139	
Totals ..	8,479,154	3,385,475	46,926	2,335,802	1,433,963	64,320	31,044	

KERBSIDE COLLECTION
Average number of hours bin standing at kerb

TABLE 42

Type of local Authority	Under 1 hour	Over 1 but under 2 hours	2-5 hours	6-11 hours	Over 12 hours	Number of local authorities
County boroughs ..	1	11	18	3	—	33
Metropolitan boroughs and City of London ..	1	1	7	1	—	10
Non-county boroughs ..	24	23	85	5	1	138
Urban districts ..	62	65	87	7	1	222
Rural districts ..	14	24	179	44	5	266
Totals	102	124	376	60	7	669

PERCENTAGE OF PREMISES FROM WHICH HOUSE REFUSE IS NOT COLLECTED

TABLE 43

Type of local authority	None	1-5%	6-10%	11-20%	Over 20%
County boroughs	76	4	3	—	—
Metropolitan boroughs and City of London	20	3	1	4	—
Non-county boroughs	266	25	4	—	—
Urban districts	452	55	6	1	1
Rural districts	262	106	38	23	14
Totals	1,076	193	52	28	15

TABLE 44

Population of local authority	None	1-5%	6-10%	11-20%	Over 20%
Over 250,000	16	—	—	—	—
100,000—250,000	57	6	—	1	—
50,000—100,000	125	9	4	2	—
20,000—50,000	316	49	13	6	2
10,000—20,000	277	65	15	8	2
under 10,000	285	64	20	11	11
Totals	1,076	193	52	28	15

NUMBER OF LOCAL AUTHORITIES COLLECTING SALVAGE AT SOURCE

TABLE 45

Type of local authority	Waste paper	Other salvage
County boroughs	69	41
Metropolitan boroughs and City of London	12	12
Non-county boroughs	207	138
Urban districts	352	230
Rural districts	217	149
Totals	857	570

COLLECTION OF BULKY HOUSEHOLD REFUSE

TABLE 46

Type of local authority	Together with the ordinary collection			Separately from the ordinary collection			Local authorities	
	Always free	Always on payment	Free or on payment according to quantity	Not at all	Always free	Always on payment	Free or on payment according to quantity	Not at all
County boroughs ..	37	—	14	32	17	27	36	3
Metropolitan boroughs and City of London ..	5	—	9	14	4	7	17	—
Non-county boroughs ..	96	3	43	152	56	91	129	19
Urban districts ..	203	11	97	203	120	145	189	60
Rural districts ..	225	1	75	141	62	95	135	149
Totals ..	566	15	238	542	259	365	506	231
								79
								424

TABLE 47

Population of local authority	Together with the ordinary collection			Separately from the ordinary collection			Local authorities	
	Always free	Always on payment	Free or on payment according to quantity	Not at all	Always free	Always on payment	Free or on payment according to quantity	Not at all
Over 250,000 ..	10	—	4	2	2	3	11	—
100,000—250,000 ..	18	—	14	32	13	23	26	2
50,000—100,000 ..	47	2	15	75	33	37	62	7
20,000—50,000 ..	156	5	68	155	82	101	156	46
10,000—20,000 ..	167	3	57	139	78	87	131	70
under 10,000 ..	168	5	80	139	51	114	120	106
Totals ..	566	15	238	542	259	365	506	231
								79
								424

COLLECTION OF GARDEN REFUSE

TABLE 48

Type of local authority	Number who collect garden refuse		
	Free	On payment	Not at all
County boroughs	14	55	14
Metropolitan boroughs and City of London	4	12	12
Non-county boroughs	30	89	176
Urban districts	65	103	347
Rural districts	36	20	387
Totals	149	279	936

TABLE 49

Population of local authority	Number who collect garden refuse		
	Free	On payment	Not at all
Over 250,000	3	12	1
100,000—250,000	10	40	14
50,000—100,000	15	64	61
20,000—50,000	35	78	272
10,000—20,000	44	45	278
under 10,000	42	40	310
Totals	149	279	936

SPECIAL ARRANGEMENTS FOR DISPOSAL
OF OLD CARS

TABLE 52

	No. of local authorities who make provision for taking away used motor cars at owners' request		
	Free	On payment	Not at all
7	7	35	41
1	1	12	15
7	7	84	203
12	12	83	419
13	13	47	383
	40	261	1,061

TABLE 53

	No. of local authorities who make provision for taking away used motor cars at owners' request		
	Free	On payment	Not at all
1	1	5	10
4	4	30	30
9	9	63	68
14	14	89	283
5	5	35	328
7	7	39	342
	40	261	1,061

SPECIAL ARRANGEMENTS FOR DISPOSAL OF REFUSE BY HOUSEHOLDER

TABLE 50

Type of local authority	No. of local authorities who make provision for owners/occupiers of premises to take refuse to places appointed by the council		
	Free	On payment	Not at all
County boroughs	14	64	5
Metropolitan boroughs and City of London	1	18	9
Non-county boroughs	90	150	54
Urban districts	246	153	115
Rural districts	302	65	76
Totals	653	450	259

TABLE 51

Population of local authority	No. of local authorities who make provision for owners/occupiers of premises to take refuse to places appointed by the council		
	Free	On payment	Not at all
Over 250,000	1	14	1
100,000—250,000	7	47	10
50,000—100,000	29	87	24
20,000—50,000	183	132	70
10,000—20,000	201	98	68
under 10,000	232	72	86
Totals	653	450	259

COLLECTION OF TRADE REFUSE

TABLE 54

Type of local authority	Number who collect trade refuse				Number who restrict trade refuse collection in any way
	With house refuse	Separately from house refuse	Both	Not at all	
County boroughs ..	8	10	65	—	41
Metropolitan boroughs and City of London ..	3	5	20	—	12
Non-county boroughs ..	63	55	168	8	116
Urban districts ..	159	101	226	28	203
Rural districts ..	247	23	113	60	216
Totals ..	480	194	592	96	588

TABLE 55

Population of local authority	Number who collect trade refuse				Number who restrict trade refuse collection in any way
	With house refuse	Separately from house refuse	Both	Not at all	
Over 250,000 ..	2	—	14	—	10
100,000—250,000 ..	5	8	51	—	34
50,000—100,000 ..	20	24	92	4	66
20,000—50,000 ..	127	54	184	20	178
10,000—20,000 ..	145	53	141	28	162
under 10,000 ..	181	55	110	44	138
Totals ..	480	194	592	96	588

CHARGES FOR INCREASED FREQUENCY OF HOUSE REFUSE COLLECTIONS FROM TRADE OR BUSINESS PREMISES

TABLE 56

Type of local authority	Number who charge
County boroughs ..	56
Metropolitan boroughs and City of London ..	11
Non-county boroughs ..	156
Urban districts ..	201
Rural districts ..	122
Totals ..	546

TABLE 57

Population of local authority	Number who charge
Over 250,000 ..	12
100,000—250,000 ..	46
50,000—100,000 ..	81
20,000—50,000 ..	166
10,000—20,000 ..	112
under 10,000 ..	129
Totals ..	546

PERSONNEL—TOTAL NUMBERS

TABLE 58

Type of local authority	Number of men employed on refuse collection (including drivers)	Number of local authorities
County boroughs	9,723	83
Metropolitan boroughs and City of London	2,502	28
Non-county boroughs	7,797	295
Urban districts	7,141	515
Rural districts	5,873	443
Totals	33,036	1,364

TABLE 59

Population of local authority	Number of men employed on refuse collection (including drivers)	Number of local authorities
Over 250,000	4,702	16
100,000—250,000	6,250	64
50,000—100,000	7,248	140
20,000—50,000	8,869	385
10,000—20,000	4,133	367
under 10,000	1,834	392
Totals	33,036	1,364

PERSONNEL—NUMBERS PER AUTHORITY AND NUMBERS PER TEAM
TABLE 60

Type of local authority	Numbers of refuse collectors (including drivers)				Average numbers per collection team		
	Up to 20	21–50	51–100	Over 100	Up to 3	4–6	More than 6
County boroughs ..	1	13	39	30	5	72	6
Metropolitan boroughs and City of London ..	—	9	8	11	6	22	—
Non-county boroughs ..	142	116	32	5	70	200	25
Urban districts	403	103	8	1	148	345	22
Rural districts	357	77	8	1	309	132	2
Totals	903	318	95	48	538	771	55

TABLE 61

Population of local authority	Numbers of refuse collectors (including drivers)				Average numbers per collection team		
	Up to 20	21–50	51–100	Over 100	Up to 3	4–6	More than 6
Over 250,000	—	—	—	16	1	14	1
100,000—250,000	—	1	35	28	4	50	10
50,000—100,000	—	79	57	4	14	111	15
20,000—50,000	163	220	2	—	114	253	18
10,000—20,000	350	17	—	—	151	209	7
under 10,000	390	1	1	—	254	134	4
Totals	903	318	95	48	538	771	55

BONUS AND TASK SYSTEMS

TABLE 62

Type of local authority	Number with bonus scheme based on				Total number with bonus schemes	No bonus scheme	Number using a task system
	number of bins or premises	salvage only	time	other methods			
County boroughs ..	21	29	—	3	53	30	45
Metropolitan boroughs and City of London ..	4	8	2	2	16	12	19
Non-county boroughs ..	46	99	8	8	161	134	117
Urban districts ..	79	114	22	23	238	274	139
Rural districts ..	42	97	14	16	169	271	96
Totals ..	192	347	46	52	637	721	416

TABLE 63

Population of local authority	Number with bonus scheme based on				Total number with bonus schemes	No bonus scheme	Number using a task system
	number of bins or premises	salvage only	time	other methods			
Over 250,000 ..	4	6	—	1	11	5	10
100,000—250,000 ..	14	23	3	3	43	21	47
50,000—100,000 ..	45	51	2	7	105	35	77
20,000—50,000 ..	73	117	17	15	222	163	144
10,000—20,000 ..	46	102	15	12	175	192	87
under 10,000 ..	10	48	9	14	81	305	51
Totals ..	192	347	46	52	637	721	416

COST OF REFUSE COLLECTION 1962/63

TABLE 64*

Type of local authority	Number of local authorities	Administra- tion £	Labour £	Transport £	Plant equipment land and buildings £	Other items £	Total cost £	Income £	Net expenditure £
County boroughs ..	82	463,671	5,900,429	4,507,368	578,621	377,788	11,827,877	544,442	11,283,435
Metropolitan boroughs and City of London..	28	125,114	1,541,753	1,306,495	172,879	144,289	3,290,530	255,320	3,035,210
Non-county boroughs ..	283	282,921	4,778,505	3,002,511	285,051	196,623	8,545,611	420,739	8,124,872
Urban districts ..	503	261,637	4,209,095	2,043,398	278,573	222,335	7,015,038	314,025	6,701,013
Rural districts ..	429	250,547	3,412,297	1,636,304	260,906	201,667	5,761,721	158,609	5,603,112
Totals ..	1,325	1,383,890	19,842,079	12,496,076	1,576,030	1,142,702	36,440,777	1,693,135	34,747,642

TABLE 65*

Population of local authority	Number of local authorities	Administra- tion £	Labour £	Transport £	Plant equipment land and buildings £	Other items £	Total cost £	Income £	Net expenditure £
Over 250,000 ..	16	242,812	2,968,559	2,519,781	359,363	245,236	6,335,751	323,397	6,012,354
100,000—250,000 ..	63	250,989	3,747,061	2,847,190	273,397	241,698	7,360,335	393,354	6,966,981
50,000—100,000 ..	137	305,228	4,332,013	2,854,983	266,775	174,442	7,933,441	345,712	7,587,729
20,000—50,000 ..	373	306,292	5,237,663	2,881,398	384,248	264,981	9,074,582	390,963	8,683,619
10,000—20,000 ..	355	187,281	2,491,218	967,608	185,269	142,816	3,974,192	178,636	3,795,556
under 10,000 ..	381	91,288	1,065,565	425,116	106,978	73,529	1,762,476	61,073	1,701,403
Totals ..	1,325	1,383,890	19,842,079	12,496,076	1,576,030	1,142,702	36,440,777	1,693,135	34,747,642

* These tables exclude the figures given by a number of authorities who said that they were unable to separate collection and disposal costs.

TABLE 66*

Population density of local authority	Number of local authorities	Administra- tion £	Labour £	Transport £	Plant equipment land and buildings £	Other items £	Total cost £	Income £	Net expenditure £
Over 20 per acre	60	342,271	4,028,350	3,330,570	468,388	327,200	8,496,779	556,907	7,939,872
10—19 per acre	162	373,502	5,794,584	4,012,347	382,025	330,654	10,893,112	478,821	10,414,291
7—9 per acre	100	112,319	1,819,572	1,068,195	127,124	78,546	3,205,756	144,739	3,061,017
5 and 6 per acre	124	102,936	1,600,530	893,004	135,205	66,404	2,798,079	127,021	2,671,058
3 and 4 per acre	190	123,396	1,895,041	1,003,423	124,925	82,259	3,229,043	127,142	3,101,901
1 and 2 per acre	230	110,634	1,661,240	901,324	116,036	87,282	2,876,516	100,892	2,775,624
0.5 to 0.9 per acre	111	84,585	1,286,490	535,099	79,297	63,384	2,048,855	63,836	1,985,019
Up to 0.4 per acre	348	134,247	1,756,272	752,114	143,031	106,973	2,892,637	93,777	2,798,860
Totals	1,325	1,383,890	19,842,079	12,496,076	1,576,030	1,142,702	36,440,777	1,693,135	34,747,642

* This table excludes the figures given by a number of authorities who said that they were unable to separate collection and disposal costs.

AVERAGE UNIT COST 1962/63

TABLE 67*

Type of local authority	Average net cost				
	Number of local authorities	Shillings per ton	Number of local authorities	£ per 1,000 premises	Number of local authorities
County boroughs	82	49	82	2,215	82
Metropolitan boroughs	27	60	27	2,971	27
Non-county boroughs	264	45	283	2,102	283
Urban districts	407	42	504	2,054	504
Rural districts	336	45	430	1,790	431
	1,116	44	1,326	2,002	1,327
City of London	1	118	1	9,467	1
					37,710†

TABLE 68*

Population of local authority	Average net cost				
	Number of local authorities	Shillings per ton	Number of local authorities	£ per 1,000 premises	Number of local authorities
Over 250,000	16	53	16	2,309	16
100,000—250,000	63	51	63	2,345	63
50,000—100,000	137	51	137	2,316	137
20,000—50,000	351	45	375	2,124	375
10,000—20,000	273	42	355	1,948	355
under 10,000	276	39	380	1,748	381
	1,116	44	1,326	2,002	1,327
City of London (4,600)	1	118	1	9,467	1
					37,710†

* These tables exclude the figures given by a number of authorities who said that they were unable to separate collection and disposal costs.

† The City of London has been shown separately as the resident or night population is 4,600; about 355,000 enter the City daily to work.

TABLE 69*

Population density of local authority	Average net cost					
	Number of local authorities	Shillings per ton	Number of local authorities	£ per 1,000 premises	Number of local authorities	£ per 1,000 population
Over 20 per acre	60	57	60	2,599	60	917
10-19 per acre	162	47	162	2,136	162	762
7-9 per acre	101	42	100	2,112	100	763
5-6 per acre	110	42	125	2,124	125	773
3-4 per acre	155	43	188	2,179	188	832
1-2 per acre	178	41	229	2,038	229	787
0.5-0.9 per acre	90	43	112	2,009	112	719
up to 0.4 per acre	260	44	350	1,674	351	582
	1,116	44	1,326	2,002	1,327	735
City of London (6 per acre)	1	118	1	9,467	1	37,710†

* This table excludes the figures given by a number of authorities who said that they were unable to separate collection and disposal costs.

† The City of London has been shown separately as the resident or night population is 4,600; about 355,000 enter the City daily to work.

METHODS OF REFUSE DISPOSAL
Number of authorities using the following methods for any of their refuse

TABLE 70

Type of local authority	Crude tipping	Semi-controlled tipping	Controlled tipping	Separation and controlled tipping	Direct incineration	Separation-incineration	Pulverisation and controlled tipping	Composting
County boroughs ..	—	1	78	7	22	14	—	1
Metropolitan boroughs and City of London ..	—	1	25	2	—	1	—	—
Non-county boroughs ..	17	49	221	10	17	31	1	2
Urban districts ..	29	161	346	10	21	16	2	3
Rural districts ..	69	248	218	4	2	3	1	—
Totals ..	115	460	888	33	62	65	4	6

TABLE 71

Population of local authority	Crude tipping	Semi-controlled tipping	Controlled tipping	Separation and controlled tipping	Direct incineration	Separation-incineration	Pulverisation and controlled tipping	Composting
Over 250,000 ..	—	1	16	—	6	5	—	—
100,000—250,000 ..	2	2	54	6	10	13	—	1
50,000—100,000 ..	1	8	120	8	11	20	—	—
20,000—50,000 ..	15	92	305	5	16	14	2	4
10,000—20,000 ..	28	155	230	7	7	8	2	—
under 10,000 ..	69	202	163	7	12	5	—	1
Totals ..	155	460	888	33	62	65	4	6

METHODS OF REFUSE DISPOSAL
Number of authorities using the following methods for 50% or more of all refuse

TABLE 72

Type of local authority	Crude tipping	Semi-controlled tipping	Controlled tipping	Separation and controlled tipping	Direct incineration	Separation-incineration	Pulverisation and controlled tipping	Composting
County boroughs	—	—	73	3	—	7	—	—
Metropolitan boroughs and City of London ..	—	1	24	2	—	1	—	—
Non-county boroughs ..	11	45	204	7	4	23	1	1
Urban districts ..	18	135	335	3	10	14	2	1
Rural districts ..	33	211	198	3	—	2	1	—
Totals ..	62	392	834	18	14	47	4	2

TABLE 73

Population of local authority	Crude tipping	Semi-controlled tipping	Controlled tipping	Separation and controlled tipping	Direct incineration	Separation-incineration	Pulverisation and controlled tipping	Composting
Over 250,000 ..	—	—	14	—	—	2	—	—
100,000—250,000 ..	1	2	50	3	—	8	—	—
50,000—100,000 ..	—	6	111	5	1	17	—	—
20,000—50,000 ..	6	76	284	4	3	13	2	2
10,000—20,000 ..	9	135	221	2	1	4	2	—
under 10,000 ..	46	173	154	4	9	3	—	—
Totals ..	62	392	834	18	14	47	4	2





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