

VICE-REGAL COMMISSION ON ARTERIAL DRAINAGE (IRELAND).

REPORT

OF THE

ARTERIAL DRAINAGE COMMISSION (IRELAND), 1905.

Presented to both Houses of Parliament by Command of His Majesty.



DUBLIN:

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COMMISSION.

BY THE LORD LIEUTENANT GENERAL AND GENERAL
GOVERNOR OF IRELAND.

DUDLEY.

WHEREAS it is deemed expedient that a Commission should issue to inquire into and report upon the methods of initiating, executing, and maintaining schemes of Arterial Drainage in Ireland under the Statutes now in force, and their practical working; whether any reforms or alterations of the existing methods, or consolidation of existing Statutes, are desirable, and, if so, what legislation is necessary for carrying them into effect.

NOW WE, WILLIAM HUMBLE, Earl of Dudley, Lord Lieutenant General and General Governor of Ireland, do hereby nominate, constitute and appoint you, Sir Alexander Binnie, President-elect of the Institution of Civil Engineers, England (Chairman); the Right Honourable Thomas Andrews, Chairman of the County Down County Council; Stephen Brown, Esquire, Chairman of the County Kildare County Council; James Dillon, Esquire, Member of the Institution of Civil Engineers, Ireland; and J. H. Ryan, Esquire, Member of the Institution of Civil Engineers, Ireland, to be Commissioners for the purpose aforesaid.

And for the better effecting the purpose of this Our Commission, WE do by these presents authorise and empower you, or any two or more of you to be named by you, to call before you or any two or more of you, to be so named, such persons as you may think fit to examine, and by whom you may be the better informed of the matter hereby submitted for your consideration and everything connected therewith, and generally to inquire of and concerning the premises by all other lawful ways and means whatsoever. And also to call for and examine such books, papers, documents, writings, or records as you or any two or more of you as aforesaid shall think useful for the purpose of the Inquiry.

And WE also by these presents authorise and empower you, or any two or more of you as aforesaid, to visit and personally inspect such places as you, or any two or more of you, may deem expedient for the purpose aforesaid, and Our pleasure is that you, or any two or more of you as aforesaid, do from time to time and with all convenient speed report to Us what you shall find touching and concerning the premises.

And WE further by these presents ordain that this Our Commission shall continue in full force and virtue, and that you, Our Commissioners, do from time to time proceed in the execution thereof, although the same be not continued from time to time by adjournment.

And WE do hereby appoint Mr. S. W. Strange, of the Office of Public Works, to act as Secretary to this Our Commission.

Given at His Majesty's Castle of Dublin
this 1st day of September, 1905.

By His Excellency's command.

J. B. DOUGHERTY,

Assistant Under Secretary.

SUPPLEMENTAL COMMISSION.

BY THE LORD LIEUTENANT GENERAL AND GENERAL
GOVERNOR OF IRELAND.

ABERDEEN.

WHEREAS a Commission has been appointed by Warrant dated the 1st day of September, 1905, to inquire and report upon the methods of initiating, executing, and maintaining schemes of Arterial Drainage in Ireland under the Statutes now in force and their practical working; whether any reforms or alterations of the existing methods or consolidation of the existing Statutes are desirable; and, if so, what legislation is necessary for carrying them into effect.

AND WHEREAS it has appeared in the course of the Commission that special inquiry is desirable into certain large catchment areas: Now WE do hereby authorise you Sir Alexander Binnie, the Right Honourable Thomas Andrews, Stephen Brown, Esquire, James Dillon, Esquire, and J. H. Ryan, Esquire, being the Commissioners named in the said Commission, to extend such special Inquiry into the Drainage Areas of the River Barrow; the Lough and River Erne; and the Lough and River Corrib; and WE by these presents authorise and empower you or any two or more of you to be named by you to visit and personally inspect such places in those areas as you or any two or more of you as aforesaid may deem expedient for the purpose aforesaid, and to call before you or any two or more of you, so named, such persons as you may think fit to examine and by whom you may be the better informed of the further matter hereby submitted for your consideration and everything connected therewith, and generally to inquire of and concerning the premises by all other lawful ways and means whatsoever, and also to call for and examine such books, papers, documents, writings, or records, as you or any two or more of you as aforesaid shall think useful for the purpose of the Inquiry.

Given at His Majesty's Castle of Dublin
this 14th day of May, 1906.

By His Excellency's command.

A. P. MACDONNELL

ARTERIAL DRAINAGE COMMISSION, IRELAND, 1905.

REPORT.

MAY IT PLEASE YOUR EXCELLENCY,

1. We, the Commissioners appointed under the Warrant of your Excellency's predecessor, Earl Dudley, and further acting in pursuance of your Excellency's warrant dated 14th May, 1906, have now the honour to lay before your Excellency the following Report as the result of our investigations.

2. To indicate the extent of our Inquiry, we may state that we have had thirty-five meetings, held twenty-six sittings for the purpose of taking evidence, examined 146 witnesses, and inspected the districts of the Lough Erne, the River Barrow, and the Lough Corrib. The witnesses have been largely nominated by the County Councils and Boards of Drainage Districts, as those bodies are in a most favourable position to name witnesses who are acquainted with the defects of the Drainage Acts and to suggest suitable remedies. In the special areas into which we were instructed by the warrant of 14th May last to inquire, witnesses from flooded areas and those who spoke on behalf of fishing and navigation interests were examined. Official witnesses from the Board of Works, the Irish Land Commission, the Local Government Board, and the Congested Districts Board were also heard. In addition, we have read the Reports of various Commissions dealing with the subject of arterial drainage, especially those presided over by Lord Castletown in 1885, dealing with the drainage of the River Barrow and its tributaries, and by Sir James Allport, relating to arterial drainage generally.

3. We have reason to believe from the communications addressed to us from time to time that a certain amount of misconception has prevailed in the public mind as to the scope and objects of our inquiry. It has apparently been believed that we were authorised to ascertain, among other things, to what extent drainage works could be carried out and even to inquire into the merits of particular schemes. We have, by the means in our power, made it clear that we were appointed to report only on the practical working of the Drainage Acts and to state what amendments of the law are necessary to facilitate the initiation, execution and maintenance of arterial drainage works. While, therefore, we have received sufficient information to show that a considerable amount of drainage work could with advantage be undertaken if suitable facilities existed, we have confined ourselves primarily to inquiring into the actual working of the Drainage Acts and ascertaining what amendments are desirable.

4. There are at present two Drainage Codes in operation in Ireland. One, the Code of 1842, which is obsolete, except in its application to one hundred and twenty Drainage Districts constituted under its provisions; the other, the Code of 1863, under the provisions of which sixty-three districts have been constituted and new Drainage Districts may be formed, but which is in many respects inoperative owing in part to inherent defects, but mainly to changes made in the tenure of land by recent land legislation, dating from the Land Law (Ireland) Act of 1881.

5. Of the Code of 1842 it is only necessary to speak briefly. It consists of the Principal Act, the 5th & 6th Vic., c. 89, and some ten modifying Acts. These Acts enabled one or more proprietors of lands injuriously affected by floods to present a memorial to the Board of Works, and the duty then devolved on that Board of making the necessary inquiries, devising plans and preparing estimates, obtaining assents, and carrying out the works. On receiving the assents of the owners of two-thirds (afterwards reduced to one-half) in value of the lands proposed to be drained and improved, the Board of Works could proceed with the scheme. When the works were completed the cost was divisible among the proprietors of the benefited lands in proportion to the benefit received.

It may justly be said that the Act of 1842 never had a fair trial. Several districts had been commenced under that Act and were in progress when the approach of the great Famine of 1846-7 led to the passing of the Act 9 Vic., c. 4, having for its object the affording of profitable employment on such works and the facilitating and hastening the commencement of new works by clauses providing for summary proceedings. Schemes were rapidly prepared and assented to, under circumstances not conducing to perfection, while the works themselves were carried on in an uneconomic manner. Destitution, not skill, was the test of employment, and works were continued throughout the winter months in order to relieve distress. Naturally, much extra cost was thrown on the districts, and in 1853 the Government passed an Act, the 16-17 Vic., c. 130, authorising the Treasury to remit part of the cost of the works, where, after inquiry, it should appear just to do so. In fixing the amount payable by the proprietors in a Drainage District the principle acted on was to ascertain the actual improved value of the lands resulting from the drainage works, to capitalise that sum and charge it on the improved lands as an annuity, including interest at 4 per cent. per annum for periods ranging from twenty-two to thirty years. The balance of the cost was then remitted. The ultimate financial result as regards Drainage Districts formed under the Code of 1842 was, that while the total expenditure was £2,390,612, only £1,041,934 was charged against the proprietors, the remainder, viz., £1,348,678 being either a free grant or remitted by the State.

6. Under the Code of 1842 many considerable schemes were undertaken, among others the Lough Neagh and River Bann drainage and navigation, the Lough Corrib drainage and navigation, and the drainage works of the Boyne, the Inny, the Brosna, and the Loughs Oughter and Gowna and River Erne Drainage Districts. In all 120 Drainage Districts were formed. Their maintenance is placed in the hands of Trustees, not to exceed fifteen in number, elected every three years by the proprietors in the district, each proprietor's voting power being exactly in proportion to his liability for payment of the maintenance rate. It was made a subject of complaint by a witness giving evidence respecting the Lough Neagh Drainage District that a limited number of proprietors, having half the voting power in the district, can elect their nominees as Trustees without regard to the wishes of the majority in number, though not in value. In the past these Drainage Trustees do not appear on the whole to have discharged their duties satisfactorily, and they share with the Drainage Boards of Districts constituted under the Code of 1863 administrative difficulties which are likely to become more acute as the operations of the Land Purchase Act of 1903 become more widespread. Having referred to the existence of these districts, we shall reserve our recommendations concerning them till a later stage.

7. Of the Code of 1863 it is necessary to speak at greater length, because it is under it that Drainage Districts may be at present constituted. The Code consists of the principal Act, the 26-27 Vic., cap. 88, and some fourteen modifying Acts, exclusive of a number of special Acts relating to the Lough Erne and River Suck Drainage Districts. By the passing of the Drainage and Improvement of Lands Act (Ireland), 1863, the policy regarding the promotion of drainage schemes was reversed; for whereas under the Code of 1842 the Board of Works initiated and executed schemes

of drainage, under the Act of 1863 the duties and responsibilities of preparing the plans and estimates, issuing notices, and carrying out the works are imposed on the proprietors themselves. The Board's obligations are confined to appointing inspectors to examine into the merits of projects, to considering objections which might be made from whatever source, to preparing a Provisional Order constituting the District, if satisfied as to the propriety of doing so, to advancing the money required for the execution of the works, and finally to making a Final Award charging on the lands improved the expenditure incurred.

Under this Code sixty-three Drainage Districts have been formed, of which two are in course of completion. Disregarding the Quinagh Drainage District for special reasons, it will be seen from Appendix A that the total cost of the sixty completed districts has been £980,132. The total estimated cost given by the engineers to the promoters of these schemes was £564,794, and that given by the Inspectors appointed by the Board of Works to inquire into the schemes was £614,673. There is therefore an excess of actual over estimated cost of £415,338 in the one case, and of £365,459 in the other, or to express the same results in percentages the actual cost exceeded the estimated cost by 72·7 and 58·9 per cent., respectively. This excess was not necessarily due entirely to the want of provision by the engineers.

Stevenson
Appendix A.

These results can hardly have been satisfactory to the proprietors, who assented to the schemes on the faith of the original estimates. In one instance, at least, we have been told that the infructuous outlay was very considerable. In the case of the River Suck District, where the estimated cost was £106,481, the actual cost in round figures was £200,000, of which £50,000 was a free grant, £13,000 was charged on the county cess, £67,000 represented the increased value of the lands capitalised as an annuity of £4 10s. per cent. per annum for forty years, while over £70,000 was unfruitful expenditure falling on the owners of the land within the district. Upwards of £2,000 was also charged on the county for improvements to bridges. In brief, of an expenditure exceeding £200,000, only one-third was reproductive, the remaining two-thirds yielding no return. These facts bring into relief one difference in the operations under the Codes of 1842 and 1863, viz., that whereas the excess of actual over estimated cost under the former Code, contributed to by exceptional circumstances, was borne by the State, the excess on works under the latter Code has been borne by private proprietors.

8. Turning from the general features of the Code of 1863, it is desirable now to show briefly what is the procedure at present requisite at the initiation of a drainage scheme. Persons interested in the drainage of an area employ an engineer to prepare maps, plans, and sections, showing the drainage works proposed to be executed; schedules, giving the names of the reputed proprietors; an estimate of the expenses of the works, including compensation for the acquisition of lands, mills, &c.; schedules, showing the value of the lands to be drained and the probable increased value by the proposed works, and also the proportion in which the improved lands shall contribute towards the cost of the proposed works. These documents are sent with a Petition to the Commissioners of Public Works in Ireland, who appoint an engineer not connected with their permanent staff as an Inspector to report on the scheme. He hears all objectors, from outside as well as inside the proposed district, considers the engineering and financial merits of the scheme, and reports as to the propriety of constituting the district. This Inspector is prohibited from being afterwards employed in the execution of any of the works in the district. To the scheme approved of by the Inspector the Petitioners are then required to obtain the assents of the proprietors of one-half in value of the lands proposed to be drained and improved, and this being done the Board of Works may make a Provisional Order constituting the district. Up to this point the Petitioners have been required to bear all the expenses, including the cost of the inquiry held by the Inspector. In a small district, where the cost of the works may be under £2,000, the preliminary expenses will amount to from £50 to £100, and in the case of a large

district, like the Lough Erne, costing £180,000; these expenses must be very heavy indeed.

Stevenson, 44-46.

9. In the foregoing paragraph two of the most serious impediments to the successful working of the existing Drainage Acts are indicated. Firstly, there is the difficulty of raising the preliminary expenses, which must be borne by the Petitioners, if for any reason the scheme is not approved and carried out; and secondly, it is almost impossible to obtain the requisite proportion of assents to the formation of a new district. Both difficulties spring from the same cause, the nature of the land legislation during the past twenty-five years. Since the passing of the Land Act of 1881 the owner of an estate has had practically no inducement to promote a new Drainage District, or to assent to the formation of a district by his tenants. An increased rent which may be fixed by the Board of Works under the Act of 1863 is liable to be swept away by a judicial rent fixed subsequently by the Land Commission; and if the estimated cost of the drainage works is exceeded, as it almost always has been, and in some cases very largely exceeded, the whole excess of the expenditure over the estimate falls on the proprietor. Two districts, those for the Scariff and the Upper Silver Rivers, projected before 1881, had actually been sanctioned by Parliament; it only remained to commence the works, but the proprietors declined to proceed because of the altered conditions produced by the Act of 1881. The same reasons probably operated to prevent the execution of works sanctioned in two other districts. Of the districts formed under the Act of 1863, those constituted since 1881 compare unfavourably, both in number and cost, with those constituted prior to that date. In the eighteen years from 1863 to 1881, forty-two districts were formed at a cost of about £800,000; in the twenty-five years from 1881 to 1906, twenty-one districts have been formed at a cost of about £100,000. To the effect of the Land Acts may also be attributed much of the indifference manifested by Drainage Boards to maintain in an efficient state of repair the works committed to their care.

Stevenson, 50.

10. But, while the Land Acts made the formation of new districts unlikely, the Land Purchase Acts, and especially that of 1903, made their formation almost impossible. The Act of 1863 contemplated the existence of a few large landowners, who should agree among themselves whether a Drainage District should be formed or not; if formed, the works were carried out under their supervision; their estates, not merely that portion to be drained and improved, but all that they held in the same townland in which the land to be improved was situated, were taken by the Government as security for repayment of the loan; the instalments of the loan were repaid by a few individuals and were easily collected, and the same may be said as regards the payment of the annual Maintenance Rate. On the landlord's application the Board of Works fixed an increased rent on tenants whose holdings were improved by the drainage, but never exceeding the improved value (or, at the tenant's option, the rent-charge due to the cost of carrying out the works), and the onus of collecting the increased rent was cast on the landlord.

Bailey, 820.

Now, however, owing to the operation of the Land Purchase Acts, the ownership of land is passing from the hands of a few large landlords to those of a very large number of tenant occupiers. Mr. Bailey, Estates Commissioner, estimated the number of agricultural tenants in Ireland at half a million, and that the transfer of the land from landlords to tenants will be completed in about fifteen years time from 1903. It follows, therefore, that in the near future, not only will it be impossible to obtain by the present procedure the assents of one-half of the Proprietors to the formation of new schemes, but also to secure, except at exorbitant cost, the payment of the annual Maintenance Rate, which when divided among small Proprietors runs down to a few pence per head per annum.

11. From the passing of the Act of 1842, the first Act of the obsolete Drainage Code, to the passing of the Act of 1863, the first Act of the existing Drainage Code, there was a period of twenty-one years. From

1863 to the present date, there is a period of forty-three years. We consider that the position of affairs has so completely changed since 1863 that the existing Acts cannot be rehabilitated by means of amendment and that it is essential to repeal all existing Drainage Acts, that is, of both Codes, and to pass a new Drainage Act which shall provide for the initiation, execution and maintenance of new districts, as well as for the maintenance of existing ones.

12. The evidence that has been given may be divided under two heads—(a) that of a general character, and (b) that of a more detailed nature relating to particular areas. From what we have heard we are satisfied that an endeavour should be made so to arrange future legislation as to bring into harmonious working a Drainage Department, the County Councils and Rural District Councils interested, and the persons directly benefited by arterial drainage. Many small districts could be drained and improved at small cost without much engineering difficulty; in them the assents of Proprietors could, if sought, be easily obtained, and the increased value of the land would well repay the outlay. There are other large works presenting serious engineering difficulties, and involving heavy expenditure; where such large works are to be undertaken an excess of the actual over the estimated cost must always be contemplated, and the difficulty of securing the assents of Proprietors to the scheme would be correspondingly increased: the security for the repayment of the loan would also have to be considered. Finally, there are large works, such as the improvement of the outfalls of considerable rivers, which are admittedly of an unproductive nature, but which are indispensably necessary if large areas are to be drained. Such works must, if done at all, be assisted by the State by means of free grants. The outfall being improved, the subsidiary drainage could then be undertaken by the Proprietors by means of a charge on the land that could be drained and improved. Various opinions were also expressed as to the future management of existing Drainage Districts. Such were the points dealt with in the general evidence.

13. During the course of our Inquiry we have had occasion to examine the details on which the estimated cost of certain large drainage works were made in the past, and we find that some are based on the supposition that the works should be executed on a scale sufficient to discharge the very heaviest floods on record. Such floods occur perhaps not more frequently than once in twenty years, and the question that arises is, whether it is necessary to provide works capable of dealing with such exceptional floods instead of designing them with a view to meet what may be termed the ordinary annual floods, which apparently are the cause of continual complaint. Smaller sums than those hitherto estimated might, as in the case of the River Barrow, be expended with advantage, provided that they were devoted to the purpose of specific works forming part of a general and comprehensive scheme of improvement. Castletown 8270.

As regards this river we feel bound from our personal inspection, and the evidence we received, to emphatically endorse the observations of the Allport Commission, viz: "The upper portion of the catchment area of the River Barrow, extending down to Athy, contains an area of 408,000 acres, of which 46,000 are flooded or injured by floods." The basin of the Upper Barrow suffers more "from floods than any other part of Ireland." As shown in the figures given above the proportion which the lands "flooded and injured bears to the whole catchment area is exceptionally high, the length of time during which large tracts are covered with water is often considerable, and there are several low-lying towns within the limits of the river basin, which suffer both directly and indirectly from inundations. Altogether the condition of the district may be described "as deplorable."

For fifty years the state of the Barrow has been the subject of acute complaint, but although many proposals for remedy have been put forward, and one legislative attempt made which, unfortunately, proved abortive, Barrow Drainage Bill, 1889.

nothing save the making of surveys, maps, plans and estimates has yet been done either by the State or by any combination of owners towards the curing, or even the mitigation, of the evils complained of, whilst we had abundant testimony that the flooding, and consequent injury, are growing greater year by year.

The case of this River Basin differs from others in Ireland, once similarly circumstanced, in that no expenditure by the State has ever taken place, although the task of clearing the main outfall is manifestly far beyond the reach of private enterprise.

We, therefore, feel that the case of the Barrow calls for exceptional and early treatment, and the existence of the surveys, maps, plans, &c., already referred to, removes any difficulty that might otherwise exist in taking such action.

14. There remains the question of the treatment of areas which present special features of perplexity and difficulty. It was with these that we dealt in our inquiries at Enniskillen, Portarlinton, and Galway in relation to the Lough Erne, the River Barrow, and the Lough Corrib Districts. Other districts similarly situated are the River Bann, the River Shannon, and possibly other watersheds of which we have no special knowledge. In those areas we found that conflicting and antagonistic interests exist side by side. The agricultural interest, concerned with the drainage of the land, desires that the water be passed off to the sea as quickly as possible; the navigation interest desires that as high a level as possible be maintained; those interested in the water-power desire a regular, full, and uniform flow of water; and the fishery interests are opposed to any act which would injure the value of the spawning beds or interfere (apart from the works set up by themselves) with the passage of fish or fry up and down the river. These conditions were found to prevail in the districts of the Lough Erne and the River Bann, in a lesser degree in the River Barrow District, and in a very high degree in the Lough Corrib District.

Doran, 8000.

15. It is appropriate that we should here advert to the special importance of arterial drainage in Ireland. Unlike most countries, in which the land rises from the sea coast to the interior, culminating in a range of mountains of a height proportionate to the extent of the land of which they form the backbone, in Ireland the mountains rise usually in the maritime counties, as in Donegal, Antrim, Down, Wicklow, Kerry and Galway, while great portions of the Midlands are flat and of low elevation. This configuration of the country causes a sluggish flow of the rivers, the fall being slight, and as the streams are often almost on a level with the adjoining land, a comparatively small obstacle will cause flooding over the surrounding flat country out of all proportion to the size of the impediment. Another special feature of the country is the number and size of the lakes—Lough Neagh, the Loughs Erne, traversable for a length of forty miles, the expansions of the River Shannon, the Lakes of Killarney, the chains of Lakes in Connemara, and a network of small lakes in County Cavan. The bogs, too, which cover large districts, act as mighty sponges filled with water, and are always sending up vapour. Consequently, though the annual rainfall in Ireland is not greater than in parts of England or Scotland, the climate is damper. This humidity is, we believe, due not only to the influence of the Gulf Stream, and to the prevailing south-westerly winds, but also, and to a greater extent, to the lodgment of water over the country. The summer evaporation is excessive, the vapour raised forms clouds, and these in turn diminish the amount of sunshine. If the water were drained away more quickly, there would be less evaporation, less cloud, more sunshine, more heat radiated from the earth, and a higher summer temperature. Besides improving the climate, arterial drainage would react on the public health; there would be less pulmonary disease, less rheumatism, and less predisposition to disease generally. But above all, in an agricultural country like Ireland, arterial drainage is a vital necessity, in order that the farmer may be secured against disastrous summer floods, whereby his hay and crops are liable to sudden destruction, and against the saturation of his lands for several months in the year.

Magahern, 3825.
Nixon, 3853-56.
Somerville, 3878,
3954.

owing to the causes mentioned above, and in order that opportunities may be given for field or thorough drainage throughout large tracts where such is now impossible.

16. We desire also, before passing to our proposals, to emphasise the need of early legislation on this subject. For the reasons we have already given in paragraphs 9 and 10 the initiation of new drainage works in Ireland is at a standstill. The testimony of the one hundred and forty-six witnesses examined was on this point practically unanimous, whilst of the difficulty of carrying out the existing law in the districts already formed, many striking examples were given. That with the extension of land purchase these difficulties would become more and more acute, the great majority were agreed.

Fresh legislation is necessary for dealing with rivers like the Barrow, but this is not due primarily to defects in the Drainage Acts, but to the need of financial assistance from the State. However, even assuming the outfalls to be improved with Government assistance, it would still be practically impossible to drain the tributaries without an amendment of the existing Drainage Acts.

17. From the commencement of the Inquiry we have borne in mind the recommendations of the Royal Commission presided over by Sir James Allport in 1887, advocating the division of the country into watersheds, for each of which a Conservancy Board should be appointed to supervise and control all matters pertaining to drainage within that area. One difficulty which then existed in the way of giving effect to that recommendation, namely, utilising the County Authority because of its lack of sufficient continuity of organisation, has since been removed by the creation of County Councils in the place of Grand Juries. The County Councils have both continuity of existence and the approval of a democratic electorate. Many of the witnesses who appeared before us desired that the County Councils should be given powers of control over the rivers in their counties corresponding to those which they exercise over the highways. It was suggested that they should be empowered to prevent encroachments, such as the erection of unauthorised fishery and mill weirs, should carry out works of improvement on the main streams, and assist subsidiary drainage on the tributaries.

So far as the initiation and upkeep of minor drainage works is concerned, we believe that the services of the County Council staff, professional and clerical, could with great advantage be utilised. The County Surveyor's Department could report on proposed new schemes, prepare plans if a *prima facie* case was made, supervise the execution of the approved works, and after their completion make an annual report to the Council as to their condition. The rate-collecting staff could be used to collect, with the poor rate, the drainage and maintenance rate, which would be levied as a separate charge on the improved lands. These proposals, so far as they relate to minor drainage works, are, we consider, feasible and commendable. If the Drainage District be wholly within one county a Drainage Committee could be formed composed partly of members of the County Council, preferably those representing the flooded area, and partly of representatives from the improved lands, to manage the affairs of the district. If the Drainage District be in two or more counties, the management of the district could be entrusted to a Joint Committee consisting of members of the County Councils of the several counties in which the district is situated, with representatives from the benefited lands.

18. But, while these recommendations go far to solve the difficulty of forming new districts and maintaining existing ones, they do not meet the greater need of ensuring that whatever work is done hereafter shall be done consistently with a maturely pre-considered system of drainage for the whole watershed. To the absence of such a plan, and of a body to administer it, must be attributed many of the evils described in the Report of the Allport Commission. "There is," says that Report (par. 13), "no

"system in Ireland for the conservancy of rivers, nor any department of Government charged with the subject; and in many cases, where the proper regulation of a river is a matter of public concern, it is under the control of no one, and is often obstructed and neglected. We find drainage districts formed without any regard to the interests of the larger river basins in which they lie, and so arranged as to escape their share of what should be a common responsibility. On the other hand, the boundaries of such districts are often so arranged as to impose on their promoters, responsibilities which ought to be shared by others, and to force these promoters to confer benefits on their neighbours towards the cost of which the latter contribute nothing. Instances occur in which some physical obstruction, which is, in an engineering sense the key to the position, is left outside the boundary of a district, the Board of which has no power to deal with it; and others in which a district has been forced to execute expensive works below its own limits, actually conferring a benefit upon its neighbours without any power of imposing a corresponding charge. Some rivers, with no natural division in their course, are in the charge of two Boards, each of which is naturally disposed to look with suspicion on any action taken by the other; while other rivers have been dealt with in short sections, separated by unimproved reaches. The drainage of a whole district may be stopped by the existence of a mill which cannot be bought out except on prohibitive terms, which perhaps is not doing any appreciable amount of work, and whose vested interest may be based on encroachments which a proper system of conservancy would have prevented; or, again, the lower section of a river may be overwhelmed by the water sent down upon it from the upper areas, which, being exempt from taxation, pay nothing towards the damage so caused. Neglect on the part of a maintenance authority may cause serious mischief to those concerned, as well as to their neighbours, and may result at last in expensive works under the Drainage Maintenance Act; or the practical absence of power to carry out some small additional work may lead to equally injurious results. Some of these evils arise from the changes of policy during the operation of the Act of 1842, but for most of them the present system must be held responsible."

19. We have given considerable attention to this subject, as we find that most of the larger rivers, such as the Bann, the Foyle, the Erne, the Moy, the Corrib, the Boyne, the Liffey, the Slaney, the Barrow, the Nore, the Suir, the Blackwater (in County Cork), the Lee, the Suck and the Shannon, have their drainage or catchment areas situated in more than one county. In contemplating what should be the future policy to be pursued for the most effective and economical solution of existing difficulties, we consider it necessary that, in the first instance, the catchment area of all such rivers should be carefully ascertained and that, with a view to future action, a general scheme should be prepared showing what works may ultimately become necessary for dealing with the entire watershed, at the same time arranging which works should be first undertaken, so that the whole sequence of operations should lead up to a solution of the entire difficulty in the catchment basin in question. As this suggestion may probably take some time to carry out, power should be given to the Drainage Department to sanction schemes of immediate urgency which, in its opinion, would not interfere with any future general plan.

Were such a scheme prepared for any of the catchment areas above spoken of, the question that would present itself is, what body should have control of the works? At this point we are met with the difficulty that usually the catchment area between the source of the river and its discharge into the sea is situated in two, three, four and in some cases five and six counties. Should the works of improvement required in the main artery be left to be dealt with by each County Council in its own area it would most probably result in confusion and possible antagonism between the different authorities concerned, in addition to which difficulties might arise in giving representation on the different County Council Committees to other interests, such as navigation, mill rights, fisheries and the like.

If some Joint Conservancy Board for the entire watershed cannot be established, we fear that in the future there may be a continuance of that unfortunate state of affairs so graphically described in the above-quoted passage from Sir James Allport's Commission.

20. In this connection it may not be altogether out of place to refer to what has been done in England in the cases of the Thames and Lee Conservancy Boards. The Thames Conservancy Act, 1894 (57 & 58 Vic., cap. clxxxvii.) creates a body of Conservators for the River Thames, whose powers touch the interests of various bodies or persons at different points. These interests are represented on the Conservancy Board in proportions laid down by the Act, viz.: the Admiralty appoint two members, the Board of Trade two, Trinity House one, several counties and boroughs one each, the London County Council six, the Corporation of London six, the shipowners elect three members, the owners of barges, lighters, and steam tugs two, the dockowners one, and the wharfingers one. A similar principle of giving representation on the Conservancy Board to the various interests affected by the conservancy of the river is observed by the Lee Conservancy Act, 1900 (63-64 Vic., cap. cxxii.). These Boards have acted most successfully, and although perhaps their duties are not directed so largely as would be the case in Ireland to matters of arterial drainage, they have been the means of harmonising many conflicting interests by giving proper representation to the persons or bodies severally affected.

21. Besides the catchment basins of the large rivers already referred to, there are many other minor catchment areas, principally round the coast, like the Lagan, the Glyde, the Dee, on the East Coast, and the Feale, the Fergus, and the Owenmore on the West. It would not be expedient, and perhaps not equitable, to unite these smaller areas with the adjoining large watersheds for administrative purposes; nor would it be desirable to group them together as conveniently as possible and place each group under a Board. It will be found that these small watersheds are nearly always wholly within the limits of one county, and there can exist no difficulty in placing them in such cases under the immediate control of a Committee of the County Council concerned, together with representatives of the owners of lands capable of improvement by drainage. The minor watersheds would, in fact, be administered practically in the same way as the Drainage Districts in a large catchment area would be. Over all these local bodies there should be an executive branch of the Government, which we refer to as the Drainage Department.

22. Having indicated the general principles on which a drainage organisation should be based, we will now proceed to show in detail how effect could be given to our proposals.

It is of the first importance that there should be a Drainage Department to regulate the proceedings of the subordinate drainage authorities throughout the country. Existing either as a separate Department, or, preferably, as a branch of an existing Department, the Drainage Department should bring into harmonious working the various schemes of drainage and secure, as far as possible, the uniform treatment of drainage problems. It should be available to give expert advice to responsible bodies, should be the approving body where loans are required, and be the guardian of any sums which may from time to time be contributed by the State to the assistance of arterial drainage.

23. Its duty, in the first instance, should be to define accurately the boundaries of the different watersheds and to classify them under the heads "major" and "minor," with a view to determining in each case whether its affairs should hereafter be managed by a Conservancy Board, or by a Committee of a County Council, or a Joint Committee of County Councils. Then in each watershed, it should be ascertained, with the assistance of the County Surveyors, the areas in which subsidiary drainage

could be profitably undertaken provided an outfall were given. An approximation of the extent of these districts would be all that would be necessary at that stage, but it should be done for the twofold purpose of indicating on the plan for the watershed the existence of areas which could be remuneratively drained, and of enabling the Drainage Department to gauge what should be the discharging capacity of the main stream to give its tributaries an outfall. Furnished with this information, the Drainage Department should then report on the main artery, stating what works were necessary to enable a comprehensive scheme of improvement to be undertaken for the entire catchment basin, and at the same time to estimate their cost, the annual increased value of the lands directly improved by the works, the local contribution, if any, towards the cost, and inferentially the deficit that would need to be met by the State. It would also be the function of the Drainage Department to advise Government as to the order of priority in which the outfall works should be taken up at the public expense, as money became available for the purpose.

24. The next step would be for the Drainage Department to make an Order constituting a "major" catchment basin a Conservancy Board area, and assigning to the various interests within the watershed their proportionate representation on the Board.

The bodies to be represented are the County Councils, the benefited lands, and the other interests, such as navigation, waterpower, and fisheries. The number of representatives nominated by each County Council should depend on the extent of the improvable land in each county, but we recommend that the total number of County Council representatives be not less than two-thirds of the total membership of the Board, for the following reasons. They are bodies which represent the numerous small tenant purchasers who will more and more as time passes be the persons interested in arterial drainage; they have a trained staff of professional and clerical assistants, whose services may frequently be useful to the Conservancy Board; they have experience of county works, and they will be important contributors to the funds of the Board. It does not seem necessary that their choice of delegates should be restricted to members of their own body, and we think they should be at liberty, as is at present the case in the election of navigation trustees for the River Bann and the Lough Corrib, to appoint whoever they consider best qualified for the position.

The benefited lands to which representation is to be given should, for purposes of definition, in the case of an existing Drainage District, be those so described in the Final Award, and in the case of a district for which no Final Award has been made shall be such as the Drainage Department shall determine; but as in a large catchment area, the Drainage Districts would be numerous, and it would be impracticable to allow a nominee for each district without overweighting the Conservancy Board, the Drainage Department should consider the necessities of the case and state in their Order what minimum number of acres of improved land a Drainage District should contain to entitle it to a representative.

We think that the representation of other interests affected by drainage, such as navigation, fisheries, water power, and towns, should be nominal; and we recommend that representation be given not in order that those interests may by their votes be in a position to dominate the decisions of the Conservancy Board, but that they may have an opportunity of stating their views on matters of policy, and of making their wishes and objections known at an early stage of the proceedings. By these means we hope that a generally acceptable line of action will be followed by the Conservancy Board in dealing with conflicting and possibly antagonistic interests.

To meet contingencies the Drainage Department should have power to vary from time to time the proportionate representation on the Conservancy Board.

25. As regards the body which should execute the improvement works on the main outfall, we would lay down the principle that if the funds were wholly or largely met by a charge on the locality the execution of the works should be entrusted to the Conservancy Board, but if the funds were chiefly provided by the State the Drainage Department should carry out the works. But in any case the works should be carried out according to plans approved of by the Drainage Department and subject to its supervision. The drainage scheme for the watershed should be drawn up by the Drainage Department in consultation with the Conservancy Board.

26. For the sake of clearness it will be desirable to distinguish between outfall works or works on the main artery, which should be directly under the charge of the Conservancy Board, and minor or subsidiary works, that is, works on the tributaries of the main artery and under the care of a Committee of the County Council or a Joint Committee of County Councils, constituted as hereinafter mentioned, which we will call a Drainage Committee. It will therefore be necessary for the Drainage Department to define at the outset what are outfall works, *i.e.*, to determine the two points between the source and the mouth of the main artery which shall form the main river for the purposes of a new Drainage Act.

The outfall works having been agreed on by the Drainage Department and the Conservancy Board, they should be commenced without regard to the assents or dissents of proprietors whose lands would be benefited by the works and who, in consequence, would be liable to a drainage charge, and though this action may appear arbitrary it must be remembered that on the treatment of the main river depends very largely the successful treatment of other areas. However, in order to prevent the possibility of hardship on proprietors who might otherwise, in spite of their objections, be saddled with an excessive liability, we recommend that on the completion of the outfall works a valuation of the actual increased yearly value of the lands arising from the works be made by a competent valuer; that this sum be capitalised at a reasonable number of years purchase; that the amount be advanced by the Drainage Department on loan, and that it be repaid in proper proportion by the proprietors at a rate of interest and within a term of years which shall be fixed by the Drainage Act.

Beyond the charge on the lands directly improved, we do not think that any contribution from local sources should be required for outfall works when first executed; the deficit, representing unremunerative outlay, should be met by a grant from public funds. Glover, 185,
262-268.
Everard, 1147.

27. The works when completed should be handed over to the Conservancy Board for maintenance. To provide for the cost of maintenance and the general administrative expenses of the Board, an annual maintenance rate should be levied on the lands immediately benefited by the outfall works. In some cases the cost of efficiently maintaining the outfalls and providing for the administrative expenses may exceed any rate which the benefited lands could fairly be asked to bear. The deficiency, if any, should be borne in equal shares by a grant from public funds, and by a sum contributed by the County Councils in proportion to their representation on the Conservancy Board. We think also that where navigation, water power, and fishery interests are specially safeguarded by works on the main river, they should contribute to the funds of the Board for maintenance purposes. Somerville, 3949
Leebody, 7444-
46.

28. The chief duties of the Conservancy Board should be to keep the main river in an efficient state of repair, and to investigate the plans sent to it by County Councils for schemes of minor drainage. Another of its functions should be to prevent encroachments on the main river, *e.g.*, the erection of unauthorised fishery weirs, mill dams, or the acquisition of water-power, and the Board should be vested with powers of compulsory purchase regarding weirs, &c., subject to the approval of the Drainage Department. J Kilbride, 5179.

Corresponding powers should be given to County Councils as regards minor catchment areas placed under their control, as suggested in paragraph 21.

29. An application for subsidiary drainage works should originate in the locality proposed to be benefited by them, the machinery of the Local Government Act applicable to public works being adopted as far as possible. Individuals locally affected, or the Rural District Council, might petition the County Council, stating the nature of the evil complained of and the area which it is believed could be relieved of flooding. The County Surveyor would be sent to examine the district, and would report briefly to his County Council whether the works could properly be carried out, having regard to other interests, and, if so, whether the cost would be commensurate with the benefits to be derived. If the report were unfavourable the scheme should be dropped, unless the petitioners lodged a sum of money with the County Council sufficient to enable a more detailed report, with plans, to be prepared by the County Surveyor, or whoever else might be appointed for the purpose.

If, however, the County Surveyor's report were favourable, he should be directed to make a full report, with plans and estimates, and these should be sent to the Rural District Council to report for or against. The members of this Council would have local knowledge of the circumstances of the case and would undoubtedly have regard to the views of the representatives from the flooded areas. The next step, if the proposed Drainage District was in the area of a Conservancy Board, would be for the County Council to submit the scheme to the Conservancy Board for approval. The Conservancy Board would not be required to investigate the financial part of the scheme, nor the accuracy of the estimates, but would confine its attention solely to the question whether the proposed works were consistent with the requirements of the whole watershed, and whether they were imperfect in design, *e.g.*, by not being sufficiently comprehensive or were likely to injure lands outside the district. In case of a conflict of opinion between a County Council and a Conservancy Board the decision of the Drainage Department should be final. No minor scheme of drainage in the area governed by a Conservancy Board should be undertaken until approved of by that Board.

30. Assuming that the scheme has been sanctioned by the Conservancy Board it would, under ordinary circumstances, be necessary at this stage to obtain the assents of the owners or occupiers of the improvable lands to the execution of the works. As the law stands at present, if the proprietors of a moiety in value of the lands to be drained assent to the formation of a drainage district, they carry with them the remaining proprietors who may be neutral or hostile, unless the owners of one-third in value of the lands to be taxed object in writing. In theory this is, perhaps, the maximum of concession that could be given to the promoters of a scheme, but in practice, if continued, it would impose an intolerable burden on the County Council by requiring that body to obtain the necessary proportion of assents from tenant purchasers, a large number of whose holdings may contain from a few roods to a few acres of improvable land. Reluctant as we are to deprive a prospective ratepayer of the right of himself assenting or dissenting, we think that substantial justice would be done if the assent or dissent of the Rural District Council be given to the proposed scheme. When we refer to the case of the Oranhill Drainage District, where the original four proprietors have increased to sixty-seven, and may in a few years become nearly one hundred; or to the case of the Lough Neagh Drainage District, where in place of the original 300 proprietors, there are now 2,000, and will, it is expected, shortly be 3,000, the practical impossibility of obtaining the assents and dissents of each proprietor is obvious. The Rural District Council will have the full plans and estimates before them, they will be intimately acquainted with the needs of the district and the views of the people, and they will, no doubt, pay special attention to the representatives from the flooded area. If, however, a considerable number of occupiers of the lands to be improved, say two-thirds in value and in number, objected to the decision of the Rural District Council, they could proceed by petition to the Drainage Department, and a stay could be put on the proceedings pending further inquiries.

Montgomery,
6550-56.

Magahan, 6854.

31. For the purpose of assenting or dissenting, and for other purposes, we recommend that in future the occupier be substituted for the proprietor. The occupier should be made liable for payment of the drainage rent charges and of the annual maintenance rate. Powers could then be given to the poor rate collector to levy the drainage charge on the occupier with the poor rate, with similar powers of recovery.

Fitzherbert, 4609,
4613-15.

Glynn, 5766-73.

Johnstone, 4355.

32. Minor drainage works should be carried out by the County Council, which should have power to acquire compulsorily land and water rights, subject to the approval of the Drainage Department. The district should be managed by a Drainage Committee composed partly of members of the County Council, and partly of representatives of the benefited lands. No person should be eligible for appointment by the Council who was not liable for payment of a minimum proportion of the annual maintenance rate, and provision should be made for the representation of large contributors. The Committee should be appointed for three years, and should have a separate Statutory existence.

Barrington,
8336-40.

If the drainage area were situated in two or more counties, the County Councils concerned should be represented on the Joint Drainage Committee in proportion to the amount of maintenance rate payable out of the county.

Glover, 227.

33. The functions of the Drainage Committee should be to maintain the drainage works originally executed and any additional works which might afterwards be sanctioned by the County Council and the Conservancy Board. The Committee should have power to appoint officers, to call for tenders, nominate contractors, to execute works by direct labour, and to estimate the amount of the maintenance rate required to be levied for the ensuing year. In this way we anticipate that in the majority of Drainage Districts the staff required would be limited to a Superintendent, who would act as Secretary; he should be capable of drawing out specifications of works to be tendered for, and of acting as overseer during the execution of the works. If the total cost of the maintenance were (say) £50 or under, the Drainage Committee should be authorised to order payment to the contractor on the certificate of the Superintendent that the works had been carried out in an efficient and satisfactory manner, but if the amount exceeded (say) £50, the certificate of the County Surveyor or a member of his staff should be required.

34. We do not recommend that members of a Drainage Committee be paid any expenses, travelling or otherwise, the members of which would, or, we think, should be local residents personally interested in the flooded lands. On the other hand, the members of a Conservancy Board, who may have to travel long distances to attend Committee Meetings, and whose direct interest in the business to be transacted may be small, might reasonably have provision made for their travelling expenses. The cost of maintaining the district drainage works should be met by an annual rate levied on the improved lands. The Drainage Committee having estimated the levy to be made, would notify the County Council, and the rate would be assessed by the County Council and collected by their rate collectors from the persons liable in the proportions mentioned in the Final Award. If, as we have already recommended, the maintenance rate be recoverable in the same way as the poor rate, the likelihood of arrears would be remote.

35. From an early stage in our Inquiry, we were confronted with the difficulty of dealing with existing Drainage Districts, numbering in all about 180. Of these, two-thirds were formed under the Drainage Act of 1842, and amending Acts, and their proceedings are governed by the provisions of that Code. The remaining one-third was formed under the Drainage Act of 1863 and amending Acts. The haphazard way in which these districts have been formed has already been referred to in the passage quoted from the Allport Commission Report. But, granting original imperfections, it is obvious that the full benefit of a Drainage District can

only be secured by the regular and efficient maintenance of the works, yet we have received evidence that in many districts the works have been totally neglected for years. Indeed, in the case of the Kildare River Drainage District, formed as recently as 1877, the Drainage Board completely died out, leaving nobody capable of levying a maintenance rate or of directing repairs, or even of convening a meeting of electors to appoint a new Drainage Board. Nor is this a unique instance of a Drainage Board completely failing to discharge its functions.

Doran, 8004.
Moore, 472.

Several representatives of existing drainage bodies have asked that no change be made in the law applicable to them. When the difficulties of the present situation have been pointed out to them, and they have been asked to suggest a remedy, their reply in effect has been "Let us alone." But if for no other reason than to simplify the law relating to the appointment of these drainage authorities a change would be necessary. The law at present on this point is as conflicting as it could well be. For example, districts constituted under the Code of 1842 are managed by Trustees, not to exceed fifteen in number, elected every three years by the drainage ratepayers in the district, the value of each elector's vote being exactly in proportion to his liability for payment of the maintenance rate. The meeting to appoint Trustees must be convened by an Order sealed by the Board of Works, and may be held at any time of the year. The electors are not restricted in their choice of Trustees, any person elected being capable of acting; casual vacancies are filled by election in like manner to that laid down for the triennial elections. On the other hand, districts formed under the Code of 1863 are managed by Drainage Boards consisting of a number of members, not more or less, than that mentioned in the Provisional Order constituting the district; this number usually ranges from three to fourteen, and in the River Suck District the number is twenty-eight. The Drainage Board is elected annually by drainage ratepayers, who vote according to a scale laid down in the Act, viz., the owner of property within the district of a yearly value of less than £50 has one vote, under £100 two votes, with an additional vote for each £50 up to £250; after that the scale is six votes for an annual value of between £250 and £500, eight votes if the value is under, and ten votes if over, £1,000 a year. The annual election meeting must be convened by the Chairman of the Drainage Board of the previous year, or some person appointed by him, and if by any chance the Board has died out, there is no power short of an Act of Parliament of resuscitating it. The election must be held in September after the first Thursday in that month. Members of the Drainage Board must have a property qualification, and vacancies are filled by co-option. These are only some of the differences which exist in the provisions of the two Codes relating to the particular subject of the election of the local drainage body.

Garstin, 1500,
1515, 1526.

36. On a consideration of all these facts we have been much impressed with the necessity of securing uniformity of treatment in the administration of minor Drainage Districts, and of the establishment of rules which should be applicable alike to existing districts and to those to be formed hereafter. A fear was entertained by some of the large proprietors that the Drainage Committees appointed by the County Council would have no personal interest in the economical management of the district, and that where the bulk of the maintenance rates would be payable by the large landowners there would be a possible disposition to undertake works not absolutely necessary as a means of providing employment. Some of the fears were based, we believe, on a misapprehension that it was proposed to hand over the management of the district entirely to the County Council. Several witnesses also defended a continuance of the existing arrangements, whereby the Drainage Board is elected by the drainage ratepayers. Whatever may be said in favour of the principle of direct election, difficulties, which in our opinion are practically insurmountable, exist in the present case to prevent literal effect being given to that doctrine. We have already referred in paragraph 30 to the enormous multiplication of drainage ratepayers in Drainage Districts. To secure a direct election,

Sweeny, 8295,
8309-8313.

Barrington, 8361.

a meeting of the ratepayers would have to be convened, and in many districts even the most central place of meeting would be inconvenient to a great number of the electors. To each ratepayer would have to be assigned a relative voting power, and the scrutiny of the votes would entail endless trouble and delay. In suggesting that the smaller districts be managed by Drainage Committees consisting of (a) members appointed by the County Council, representing the valuable services to be rendered by that body to the district on the one hand, and to the watershed on the other; and (b) representatives of the benefited lands, with especial provision for the representation of large ratepayers, we have, as far as possible, safeguarded local and private interests consistent with drawing up a workable scheme. To ensure uniformity of treatment and efficiency of maintenance, we now recommend that our suggestions for the management of new districts should in future apply to all existing Drainage Districts.

It does not appear to be generally known that the management of several existing districts has actually been transferred to County Councils. Under Section 20 of the Local Government (Ireland) Act, 1898, the Local Government Board may, with the consent of the Board or body affected, transfer to the County Council the business of any Drainage Board, or in the case of a Drainage District in two or more counties to a Joint Committee of the several County Councils. Some five Drainage Districts have thus been handed over to the County Council of County Kildare, singly or jointly with other counties, with, so far as our evidence goes, the best results to the districts. The works are regularly maintained, and at a small cost. The Drainage Board for the Kildare Drainage District having completely died out, and there being no power to resuscitate it, the works had become derelict; the Local Government Board accordingly transferred the business of the district to the Kildare County Council, and the benefits accruing to the proprietors in the district as the result of the transfer influenced the Drainage Boards of neighbouring districts to transfer voluntarily the management of their districts to the County Council. Under the Local Government Act of 1898, however, the County Council has no power to appoint as a member of the Committee anyone who is not a member of the Council; to remedy that defect we recommend that all Drainage Districts shall in future be managed by a Committee consisting partly of members of the County Council, and partly of representatives of the benefited lands. 8099.

Also, to secure uniformity of treatment in all Drainage Districts, and to make possible the collection of all maintenance rates from the occupier, we recommend that a tenant who is merely an occupier not primarily liable for maintenance rate should have power to deduct from his rent the amount paid for drainage charges.

37. There remains another class of works not hitherto referred to, viz., small works of drainage which are rather of a private than of a public character. These are works such as those which have been executed by the proprietors of large estates under the Land Improvement Acts; they consist of a main cutting into which the drains from the fields of a few or more occupiers empty. The effectiveness of the field drains depends entirely on the condition of the principal drain. So long as the landlord remains he can require this drain to be kept clean, but on the sale of the estate there is no power to enforce co-operative maintenance among the various tenant purchasers. We think that the County Council should be given power to keep such main drains open at the expense of the several benefitees, and that they should also have power to make and maintain, or to compel the maintenance of other similar drains by some simple and summary means. The works are too petty to be undertaken as a Drainage District Scheme, and the Land Improvement Acts are not applicable for the purpose. M'Donald, 7030. West, 3646-47, 3654. Burkitt, 3985.

38. Our attention has been called to the state of the law as regards loans. We find that while provision is made to enable a Drainage Board to raise capital on the security of debentures, the money is, as a matter of practice, always borrowed from the State. During the construction of the works the loan is advanced by instalments, on which interest at the rate of 4 per cent. per annum is charged. When the works are completed, a Final Fitzgerald, 113.

Award is made, charging the consolidated sum due, viz., the total amount advanced plus interest, on the benefited lands, and repayment is made by an annuity which includes a charge for interest at the rate of $3\frac{1}{2}$ per cent. per annum. The period of repayment is fixed ordinarily at twenty-two years, or exceptionally at thirty-five years. These rates were fixed under the Act of 1863, and, considering the fall that has since taken place in the rate of interest, we think that both as regards the rate of interest, and the period of repayment, more favourable terms might now be given. We would point out that as far back as 1889 the rate was reduced to $3\frac{1}{8}$ per cent. in the case of drainage loans sanctioned prior to the 31st December, 1881, in order to mitigate the effects of the Land Act of 1881 on landowners (*vide* the Public Works Loans Act, 1889—52 & 53 Vic., cap. 71, sec. 3)—and that the proprietors in the River Suck Drainage District were exceptionally treated in 1890 by the period of repayment being extended to forty years, and the rate of interest charged being reduced to $3\frac{1}{4}$ per cent. (53 & 54 Vic., cap. 12). With these two exceptions, however, the terms have continued as above stated.

39. The question of making Government loans for arterial drainage works in future has received our careful attention. In the past the Board of Works has been assured, through the report of its Inspector, of the financial merits of a scheme, and in addition it has taken not only the improvable land in the district as direct security for a loan, but has also taken all the lands of a proprietor in the same townland as collateral security. If the system were to be continued of making the repayment of the loan a charge upon the property of the owners of improved lands, the only security which a tenant purchaser or a tenant occupier could offer would be his interest in his small holding. Hitherto the Board of Works' rent-charge has had priority over all other charges except quit rents and rent-charges in lieu of tithes, and a serious question would have to be determined as to whether this priority would give way in a new Drainage Act in favour of the rent-charge created by the Land Purchase Acts. Moreover, the question would have to be considered of giving to the Land Commission in the case of a tenant purchaser, and to the landlord in the case of a tenant occupier, a right of veto against the creation of a charge which might endanger the security for the annuity in the one case, and the rent in the other. Any such right would most seriously hamper the execution of schemes of arterial drainage. Further, it would render necessary a most minute investigation by the Drainage Department into the financial merits of every proposed scheme of arterial drainage and as to the security offered by each individual for repayment of the loan.

All these difficulties would be avoided if the loan for arterial drainage were made direct to the County Councils on the security of the rates, the Councils recovering the due proportion of the annual instalment from each occupier by means of the poor rate, just as loans for sewerage, waterworks, &c., for particular localities are made to the District Councils, and the due proportion recovered from each occupier by separate charges collected as part of the poor rate. We have received from Councils evidence for and against this suggestion, but its advantages are so great, and the risk of loss to the rates so small, that we have no hesitation in recommending it as the best solution of the question presented to us.

40. It is conceivable that many of the land improvement works referred to in paragraph 37, and some of the smaller schemes of minor drainage, would be carried out by the County Council without reference to the Drainage Department. In those cases the intervention of the Drainage Department would be unnecessary. But in all cases the Drainage Department should be required to fix the proportionate liability of each occupier in a new district for repayment of the principal charge, and they should also re-apportion the incidence of the drainage charge for annual maintenance on large estates if occupiers are to be made liable instead of proprietors.

41. Complaint has been made to us that at present when a large estate is sold to a number of tenant purchasers, before the incidence of drainage

Bailey, 868-873,
913-916.

Stevenson, 7552.

Montgomery,
6514-17.
Barbour, 6505.
Houghton, 3347.

Bury, 1456,
Maude, 4321-22

charge is re-apportioned, the Board of Works require the Drainage Board to furnish maps showing the boundaries of the new proprietors' holdings, and that this entails in the aggregate a heavy expense on the district. We have ascertained that when an estate is sold a copy of the title map is lodged in the Registration of Titles Office in Dublin. It appears to us, therefore, that if the Drainage Department furnished the Titles Office with a tracing showing by an appropriate colour the lands in any particular estate which are improved by drainage works, the latter Department should mark on that tracing the boundaries of the various new holdings until every part of the coloured area were accounted for. If, then, a schedule giving the names of the respective purchasers were appended, it could be returned to the Drainage Department to enable that Department to prepare an apportionment certificate without cost to the District Committee. This would not meet a case where the charge was to be divided among occupiers who were not purchasers, but it would at least be an amelioration of the present state of affairs.

42. A matter of great importance is the acquisition of land, mills, water-power, fisheries, and the like, by means which shall be as expeditious and economical as possible, while affording due safeguards to the owners of the property. The law providing for give-and-take cuts when a river is to be straightened is now hardly applicable (see sec. 76 of the Act of 1863). It was a rough-and-ready mode of adjusting compensation claims when a few large estates were to be dealt with, and when what was taken from a proprietor in one place was restored to him in another; but now when a straightened river runs through numerous small holdings, other means will have to be devised. Derelict and idle mills will also have to be dealt with; often they prevent the effectual drainage of a river, and yet the cost of acquiring them is prohibitive.

A radical alteration of the existing method of acquiring land and water rights is required—it is slow, costly and vexatious. When the engineer to the promoters of a scheme is making an estimate of cost, he prepares a schedule showing what will be payable as compensation for land and water rights. He may omit or under-estimate the value of the rights to be acquired, and after the assents of the proprietors have been given on the faith of that estimate, the owner of the rights to be acquired may obtain heavy compensation. In one case the amount provided for in the estimate was £1,900, and the amount actually paid on the arbitrators' awards was over £12,000. It is an unfortunate circumstance that the value of the rights to be taken cannot become the subject of litigation until the Drainage District has been formed, and that in case of dispute the Drainage Board cannot enter on the lands and commence the works until an arbitrator has given his decision. These proceedings sometimes drag on, delaying the completion of the works, and thereby causing extra expense. There is also the arbitrator's fees and expenses to be paid. Finally, the arbitrator's award is subject to traverse, and further delay and expense may be involved by litigation in the courts of law. Various suggestions have been made to meet what has undoubtedly acted as a deterrent to the formation of new schemes. One is that the Commissioner of Valuation should make an award on the report of two valuers appointed by him, with a right of appeal to the County Court Judge sitting alone. Another witness suggested that a Jury of twelve local residents, appointed half and half by the claimant and the Drainage Authority, should fix the compensation, and that, failing an agreement, they should appoint an arbitrator. A third witness recommended that all lands be acquired compulsorily under the Lands Clauses Acts to give clear title, and that disputed cases should be disposed of by the Judge of Assize. Others suggested arbitration under the Housing of the Working Classes Act, as in the case of sites for labourers' cottages. But the course that commends itself to our judgment as the best is that, before the drainage works are commenced, the lands to be acquired shall be the subject of an award by the Judicial Commissioner of the Irish Land Commission on the report of two valuers appointed by him. The compensation should be paid, and the land taken up before the works are commenced, so that there would

Somerville 3950-3966.

FitzGerald, 112, p. 12.

FitzGerald, 113.

Gosselin, 2503-09

Falls, 4070-80, 4092-4111.

Doran, 8081-82.

FitzGerald, 113.

be no delay afterwards. This would obviate one of the serious causes of excess over estimated cost of works. The Judicial Commissioner should have power, if he thought it necessary, to call in an assessor in the case of the acquisition of a valuable fishery, mill, or water-power rights. The arbitrations should be carried out without cost to the district.

43. Another matter of great importance is the accurate valuation of the improvable land before and after the execution of drainage works. We have been told that "under the Act of 1863 the schedules of existing and improved value are prepared by the engineer of the promoters, and for the purpose of getting his scheme through, it was to his interest to make the improved value appear as large as possible. This might be done either by a low statement of the existing value, or by a high statement of the improved value, or by both combined. The net improved value thus arrived at, if not corrected by the inspector, was liable to mislead, first of all the proprietors as to the annual return on the expenditure to be incurred, and secondly, the Board of Works, as to the security for the public money to be advanced by way of loan." This evidence was confirmed by other witnesses. We agree with the witness above quoted that "the preparation of an estimate of improved value, made as exact as it can be by the employment of skilled valuers, is one of the essential preliminaries in any arterial drainage legislation." It seems to us that the body having the most experience in such matters would be the officers of the Land Commission: they would have access to the papers showing the present value of the land, and having fixed the increased value, their decision would not be subject to revision, perhaps a few years after, by the fixing of a new judicial rent.

44. We have already referred to the valuable return handed in on behalf of the Commissioners of Public Works showing the excess of actual over estimated cost for Drainage Districts formed under the Code of 1863 (see Appendix A). The reasons given for the discrepancy were—(a) delay in completing the works, due to various causes, *e.g.*, unfavourable weather, inability to enter on lands till acquired by arbitration, and errors in the preliminary estimate; (b) failure to secure a contractor at the estimated cost; (c) failure of the contractor to fulfil his contract; (d) litigation respecting injury to mills or lands outside the district; and (e) failure of the promoters' engineer to allow for compensation for land and water rights to be acquired. We have, as far as possible, provided against an underestimate under the first and last heads. But part of the excess has in some instances been due to want of judgment on the part of the engineer; and when it is borne in mind that drainage works once commenced must be carried to completion, whatever the ultimate cost may be, and that if there is any miscalculation in framing the scheme the extra cost falls on the proprietors, the necessity of employing a qualified person is apparent. To guard against this danger the Committee appointed in 1877 to inquire into the administration of the Irish Board of Works, with Lord Crichton as Chairman, recommended that a Drainage Board should only employ engineers approved of by the Board of Works. While concurring with this conclusion generally, we suggest that the restriction be framed in this way, that no person should be employed by a Conservancy Board or County Council to design or superintend the execution of arterial drainage works who is not a fully qualified member of the Institution of Civil Engineers in England or of Ireland.

Among the matters which we consider should engage the attention of the Drainage Department should be the framing of a scale of fees applicable to engineers in private practice and County Surveyors, valuers, and others employed in connection with drainage works.

45. The efficiency of drainage works depends principally on their regular maintenance. We suggest, therefore, that the following provisions be made for the inspection of drained areas. In the case of the large or "major" catchment basins, the engineer to the Conservancy Board should

report annually to his Board as to the condition of the outfall works. In the case of the small catchment areas managed by a Committee or Joint Committee of the County Council each County Surveyor should perform the duty so far as relates to districts or portions of districts within his county. The Drainage Department should in all cases be furnished with copies of the reports, and should cause its own officers to make an annual inspection of all outfall works.

An inspection of each of the minor Drainage Districts should be made once a year by the County Surveyor or a member of his staff, and a copy of his report to the County Council should be sent to the Drainage Department. As a general rule the Drainage Department should only inspect minor drainage areas when a complaint alleging defective maintenance was lodged, or at the request of a County Council jointly interested with another county in a district, and as to the maintenance of which a dispute had arisen. The right of inspecting minor districts should, however, as at present, reside in the Drainage Department, and it should be exercised more freely than it appears to have been in the past. Without waiting for a complaint to be made, the Drainage Department should from time to time make promiscuous inspections, more especially of the larger districts jointly managed by two, or three, or more counties.

Furthermore, we recommend that the Drainage Department should make and publish each year a Report on the whole scheme of drainage in Ireland.

46. Of outstanding matters of a general nature we make the following recommendations :—

(a.) Each Conservancy Board and District Committee should be required to keep and publish annually duly audited accounts, and for the better enforcement of this provision a copy should be forwarded to the Drainage Department. Moore, 545-547.
Garstin, 1557-58.

(b.) Power should be given to the County Council and the Conservancy Board, subject to proper restrictions, to execute additional works in existing Drainage Districts necessary for the perfecting of the local drainage system, such as widening and deepening a stream, to execute new works outside the district, and to acquire mills, fishery weirs, &c. Many districts in the past stopped short of obtaining an effective outfall because a mill, costing a prohibitive price, blocked the way. The value of mills on inland rivers has considerably decreased in recent years, and it would probably be found possible, by the means of arbitration we have suggested, to acquire obstructive mills at a reasonable figure, and so enable much-needed relief to be given to flooded lands, besides reducing the annual cost of maintenance in the district. Moore, 482-490.

(c.) The Drainage Department should have power to make loans under exceptional circumstances to Drainage Bodies for maintenance works. At present the power of the Board of Works to lend for such a purpose is limited to districts formed under the Act of 1842. It has been pointed out to us that even in a district which is regularly maintained, an extraordinary expenditure is sometimes necessary, as for example, the simultaneous renewal of wooden sluices of equal age. In such a contingency it would be impossible to raise the amount in one or two years by a special maintenance rate, because of the financial burden it would impose on proprietors, and yet the failure to make the necessary renewals would impair the efficiency of the works. Barrington, 8367

(d.) If, subsequent to the completion of drainage works and the making of a Final Award, other persons not charged under the Award took advantage of the improved outfall furnished by the works, the County Council should have power to call on the Drainage Department to make an Order fixing the proportionate liability of the new beneficiaries to contribute to the capital charge and to the maintenance rate. Houghton, 3317.
Acton, 1910.

Kelly, 759-760.

(e.) The Drainage Department should also have power, on receipt of a Memorial from the Conservancy Board, to divide, re-form, and amalgamate Drainage Districts, as they shall consider desirable, with the consent of the parties interested; and we recommend that, as far as possible, provision be made to give the Drainage Department wide discretionary powers to enable it to sanction measures that will be for the advantage of Drainage Districts by effecting improvements and reducing the working expenses. For instance, at present when a new district is formed, a time limit is fixed for the completion of the works; this limit may be extended by the Board of Works for a period not exceeding three years, when the district must either be brought to award in an uncompleted state, thus stereotyping its imperfect condition for all time, or a special Act of Parliament extending the period must be obtained by the Drainage Board, entailing great expense on the district and delay of the works. We think the Drainage Department might reasonably be given power to deal with such a contingency.

(f.) Power should be given to the Conservancy Board to prosecute any person erecting unauthorised dams, weirs, or obstructions on outfall works, or for doing any wilful damage to the works; while for similar offences as regards works which are under the care of a Drainage Committee, the power to prosecute should rest with the County Council; and we recommend that the Drainage Act should specify minimum penalties on conviction for such offences.

(g.) Provision should be made that persons dispossessed of their existing offices should be compensated on the lines laid down in the Local Government (Ireland) Act, 1898.

(h.) We do not anticipate any unwillingness on the part of a Conservancy Board or County Council to discharge the functions imposed on them by a new Drainage Act, but in view of contingencies we recommend that in the event of a Drainage Authority failing to perform its duty, owing to apathy or negligence, the aggrieved parties should have power to petition the Drainage Department for redress, and that the Drainage Department should be given necessary disciplinary powers. It is one of the flaws of the existing Acts that when proprietors neglect or refuse to elect Trustees or a Drainage Board, the Board of Works has no means of appointing ex-officio members.

(i.) Towns which derive benefit from arterial drainage works, either by relief from flooding, or by obtaining an improved outfall for sewerage works, should contribute to the cost and maintenance of drainage works.

47. We have not referred to the effect on arterial drainage of maintaining a navigation level on rivers. The policy of utilizing canals and inland waterways as a means of transit is at present the subject of inquiry by a Royal Commission, appointed specially to consider the subject. There is, however, one remark we desire to make respecting the River Shannon. The Allport Commission recommended that the Drainage Department should look after the drainage and navigation of that river as a national work, and one too large for the usual operations of a Conservancy Board. By the terms of our Commission we have felt precluded from making special inquiry into the circumstances of the Shannon, but we have no reason to differ from the conclusions arrived at, after taking exhaustive evidence, by the Allport Commission. With regard to the Lower Bann navigation we received evidence that in the interests of arterial drainage, navigation might, with advantage, be abandoned.

48. There is one other matter calling for an expression of opinion to which we attach the utmost importance, namely, whether the entire catchment area shall or shall not be taxed for arterial drainage works. The views of witnesses on this question were very conflicting. Many representa-

Westropp, 7638,
Barrington, 8367.
Campbell, 7989.

Montgomery,
6497.
Finlay, 6662.
Fforde, 6930.
Collen, 7000.
Shillington, 7207.
Clark, 7242-43.
Turtle, 7299.

tives of flooded areas contended that as the floods in the lowlands were augmented by the water discharged from the uplands, that as the climate of the whole district was improved by drainage, that as by bringing a larger area into cultivation the general prosperity was increased, and that by an abatement of floods a saving on the maintenance of roads was often effected, these were all reasons for the imposition of a small charge on the whole catchment basin. We are of opinion that where drainage works provide an improved outfall which may be taken advantage of, a charge may legitimately be imposed, but not where the water merely continues to flow off in the course of nature or in the exercise of a prescriptive right. There are many objections to the arguments advanced for levying a poundage rate on the catchment area, *e.g.*, the benefits to health, climate and prosperity are not confined to the catchment area, and there is great difficulty of saying where they begin and end; but the most potent one to our mind is the opposition that the proposal would excite. The occupiers of flooded and improvable lands must always be in the great minority of the inhabitants of a watershed. Unless, then, the occupiers of the high lands within the catchment area, which do not directly benefit by the proposed works, were willing to be taxed no drainage scheme could be carried. It has been stated, and we believe with truth, that one of the chief causes of the withdrawal of the Barrow and Bann Drainage Bills of 1888 and 1889, in which the Government offered a free grant of £215,000 in the former case, and £20,000 in the latter, was due to the hostility of the upland occupiers to the imposition of a tax of 1*d.* in the £. The evidence we have received has satisfied us that that opposition remains if not as strong, at least almost as strong, to-day as then. We have, however, suggested a compromise which we hope will go far to meet the views of those who advocate a catchment area charge without exciting the hostility of those who are opposed to it. That is to say, the adoption of our proposals involves a contribution by the County Councils to the expenses of the Conservancy Board, and also the free use of the services of members of the County Council staff, and to that extent relieves the drained district of expense.

Sweeney, 8293.

Castletown, 8266
-69.D. Kilbride, 3483
-86.Montgomery,
6485,

Everard, 1146.

Houghton, 3322.

Johnston, 7157.

It is perhaps well to add that when it was pointed out to witnesses that the danger of placing a charge on the entire watershed would be the wrecking of the scheme, they invariably replied that rather than produce such a result they would prefer to bear the whole cost themselves. For all reasons we are strongly of opinion that it would be injudicious, as well as unjust, to levy a poundage rate on the entire catchment basin for the purposes of arterial drainage.

M'Donald, 7049.

49. From the foregoing it will be seen that we recommend (i) the formation of a Government Drainage Department, whose functions should be to define the boundaries of the several catchment basins in Ireland, ascertain the nature, extent and cost of the drainage works required therein, determine the constitution of the body which shall be responsible for the maintenance of works when executed, and be the guardian for the expenditure of public money; (ii) the creation of Conservancy Boards for the large or "major" catchment areas, which should have charge of the main outfall works, and exercise control over the subordinate Drainage Committees in their area with a view to securing harmony of action and unity of purpose; and (iii) Drainage Committees for small or "minor" catchment basins, and for Drainage Districts in the large watersheds. These latter would be largely under the control of the County Councils. In dealing with this complex and difficult problem we have framed our proposals to meet the following tests: will they enable new Drainage Districts to be formed in a simple and economical manner; will they meet the after-needs of all districts, existing and to be formed, large and small; will they provide for the security and repayment of the Government loan, for the accurate determination of the increased value of the improved lands, and for the expeditious acquisition of land and water rights? And the answer to each of these questions will, we venture to hope, be found to be in the affirmative.

50. We cannot close our Report without recording our feeling of indebtedness for the great assistance we have received from our Secretary, S. W. Strange, Esq., whose merits we hope will receive in the future that acknowledgment which they undoubtedly deserve.

ALEX^R. R. BINNIE.

THOMAS ANDREWS.

STEPHEN J. BROWN.

JAMES DILLON.

J. H. RYAN.

SIDNEY W. STRANGE,

Secretary.

23rd February, 1907.