

38116

193F

CO 533/467
KENYA

38116

Loan FundsBuilding Programme, etc

Year	Recipient	Amount
1936	Mr Walker	14/9
	Mr Parker	16
	Mr Parker	
	A 269	20/9
1937	A 287	
	Mr Parker	19/11
	Mr Flood	18
	St. C. Bottles	15
	Mr Boyd	20/11
	Secretary of State	1/11
	R. 297	9/11
	R. 309	30/12
	R. 80	3/11
	R. 298	3/11
R. 297		
R. 80		
R. 298		
R. 297		
R. 80		
R. 298		
Mr Flood	20/8	
Mr Flood	28	
R. 297	31/8	
R. 80	1/9	
R. 297	11/9	
Room 309	14/9	

1. Governor No. 187.-----9th. April, 1936.
Transmits Report by the Director of Public Works on the
expenditure from Loan Funds on Buildings, Water Supplies,
&c., during the period 1925 to 1934.

o.i. Loan
Buildings.

Col. Secy. Ip.n.-----9th. April, 1936.
Transmits 12 further copies of the Report in No. 1.

1 copy to Room 309.
" " " Mr. Paskin.
" " " Mr. Flood.
Spares to Liby.

DESTROYED

The Report is highly technical & difficult
to understand. It is to be hoped
that the promised despatch will
contain something more than
"the Leg. Ctl. recommended the
adoption of the Report".

? Put by sending the
Receipts of the despatches
mentioned in No. 1

[Signature]
18/1/36

[Signature]
19/5

It is very involved, especially as regards the
accounting charges & the allocation of 'establishment'.
Govt House Nairobi has nearly £12,000 establishment out
of a total of £75,000, and other things are as high (about
16 per cent). The cost of houses is just as high as in the
United Kingdom - and I have the impression that not so good.

But there is a lot of meat in it and useful
stuff for reference.

J. S. G. Flood
19.5.

Quite an interesting record of the difficulties
of carrying through a large programme, quickly, in
a new country. There was a lot of wastage, a lot of
delay, a tremendous lot of chopping and changing, and
speed was not in fact secured. The policy of differ-

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DETRIC **MAJIE**

The Report is highly technical & difficult
 to understand. It is to be hoped
 that the promised ~~reports~~ ^{will}
 contain something more than
 the ^{legis} ^{lative} ^{recommend} ^{of} ^{the}
 adoption of the Report.

? Put by pending the
 receipt of the ^{reports}
 mentioned in No.1.

Office
 18/5/36

J.P. *James*
 19/5

It is very involved, especially as regards the
 accounting charges, & the allocation of 'establishment'.
 Govt House Works has nearly £12,000 establishment out
 of a total of £75,000, and other things as well (about
 16 per cent). The cost of houses is put as high as in the
 last report - and I hear the committee can not see it.
 But there is a lot of meat in it and useful
 stuff for reference.

18.5

Quite an interesting record of the difficulties
 of carrying through a large programme, quickly, in
 a new country. There was a lot of wastage, a lot of
 delay, a tremendous lot of chopping and changing, and
 speed was not in fact secured. The policy of differ-

entiation in favour of the African had to go--
one wonders why it was ever embarked on.

There is, naturally, material for an immense
amount of criticism--but I am not disposed to
criticise. It is always easy to be wise after
the event, and only those who have been through
it can appreciate the tremendous difficulties
which have to be met and overcome. We need
not say anything at all at this stage. The
further despatch can be awaited. And probably,
I should say, a post-mortem will in fact
be required.

The 20-1-36.

*I should think
not
J*

Wait

submit to

M. Duffin

*You may like to see this even though it
doesn't raise any question. What we really want
to have is a short statement of*

- a) The total amount of work promised for
buildings for here*
- b) The total of that work spent*
- c) The net balance still available*

*without complicating it by "sum not raised" (B they will
know it is not that). This is given in part 79 79.*

U.S.G. 24.5

Thankyou.

Conditions would have puzzled even a fool.

Brown M.P.

*By way of comparison the Reverend Hookfield
School at Hillbrook has just cost about £1,100,000.*

*R. W. ...
20/1/36*

3
5. Byrne-----extract-----3.7.36.
Draws attention to bad condition of European quarters
in Kisumu.

4. To Byrne-----s/o-----3 and-----15.7.36.

5. Byrne-----s/o-----9.7.36.
Transmits photographs mentioned in No.3.

Mr. How

*I think you saw no. 3 in the
arrived. 125 has arrived from a
5 weeks rest on my table
? P. H.
Wed 28.8.36*

yes I had seen

*Why doesn't Mr. Pearson get
busy with a lot of present and some old boxes
instead of waiting for the P.O. D.?*

Pussy

add

28.8.36

R/805

6. Governor No. 151-----3.9.36.
Ref. No. 1; requests sanction for proposal to close the
Loan Establishments Buildings account on 31.12.34
to reallocate Loan Charges, including the opening of a new
subhead "Investigations and Designs for Abandoned and
Deferred Projects, £22,957" under the head "Public Build-
ings".

*Mr. Walker very much
to see this before approval is given
I accordingly submit a
draft for your thorough*

G. P. Evans

14.9.36

No comments. I have tried
to set out Gov's proposal with
a little more precision.

E. W. ...
11/2/36

7
See Memo 7/14/36 (6 annex) 24 SEP 1936

8.

Sir Herbert Baker
(Suggests that he should again be consulted in
regard to the plans for the proposed new Govt. Offices at
Nairobi, and asks for a letter of introduction to
Sir Robert Broogh-Popham).
East African Department.

Please see the attached letter to the
Secretary of State, from Sir Herbert Baker, and the
Secretary of State's pencilled note thereon.

Will you please advise as to the reply to
be sent.

C. G. ...

14.12.1936.

The position as regards the Central
Government Offices is that, although the plans have
been completed and close on £10,000 paid out in
architects' fees, there is no money to provide for
the construction of the building. The £110,000
loan funds allocated for the Central Offices has
had to be used for more pressing works. The
Governor suggested in April last that the only way
of finding funds for the Central Offices, the Police
lines, and the K.A.R. lines would be by raising
another unproductive loan. So the suggestion in
Sir H. Baker's letter that the building of the
Central Offices may now be undertaken is somewhat
optimistic.

See ...
The most ...
Good

C. G. ...
17.12.36

I have expanded M: ...

J. J. ...
18/12

Kempe wants the Central offices badly, but there is no cash.
If things turn out well they may have some but the first thing to

is (a) meet the deferred expenditures
(b) fill up some surplus - the Treasury said at least £1,000,000
this is not a small amount

Secretary of State
W. ...
11/2

9 To the R Moore ^B Captain 1708 8¹⁰ Dec 12 36

10 To the Baker (8¹⁰ Dec)

26 12 36

G. O.

In S.G.P.'s sig. 10

Mr. Grossmith. 17.

Mr. Packer 18.

Mr. Flood 18.12

Sir C. Parkinson.

DOWNING STREET.

Sir G. Tomlinson.

26 December, 1936.

Mr C. Bottomley. 18/12

J. Shuckburgh.

Permd. U.S. of S.

Perly. U.S. of S.

Secretary of State.

10/1/36
F

DRAFT.

Dear Baker,

I have your letter of the 11th of December regarding the Central Government Offices at Nairobi and am glad to learn that the Government Architect has embodied in the plans the principal revisions which you proposed. I will, of course, pass on to Sir Robert Brooks-Popham your suggestion that you should be given an opportunity of re-considering the whole of the plans and details, but I must tell you quite frankly that it is extremely doubtful whether construction of the new building for some considerable time will be possible in the next year or so.

The is that in view of the financial position of the Colony and the more pressing works which it has been necessary to rise

I must say, however, but I must tell you quite

it will be possible to construct upon the

FURTHER ACTION.

Copy to Sir R. Brooks-Popham 18.12.

whether construction of the new building for some considerable time will be possible in the next year or so

The is that in view of the financial position of the Colony and the more pressing works which it has been necessary to rise

will have to be undertaken. I will
write to you again when I have heard
from Sir Robert Brooke-Popham.

Some funds which had been earmarked for
the purpose of financing the construction
of other buildings which were
urgently required and there are still a
number of other buildings which I am
afraid will have to have priority.

The surplus funds of the Colony
are exhausted and no building could
only be undertaken by raising another
"expedient" loan, & I am afraid that
this would not be justified in the present serious
financial position of Kenya.

However I am sending a copy
of your letter and this reply to Sir Robert
Brooke-Popham, and this will be dealt
with as a sufficient indication of
the case to put into touch with him.
His address is Collingwood Hall, N. Brinsley, Wrexham.

BRACKLEY

W. H. ...

3846/36.

St 3.

9

C. O.
Mr. Pagan 15/12
Mr. Flood 18/12
Mr.

In Sgt's Coy.
December, 1936

Sir C. Parkinson.
Sir G. Tomlinson.
Sir C. Bottomley (S. 12)
Sir J. Shackleton
Hon. Secy. of S.
Hon. Secy. of S.
Secretary of State

Dear Brooke-Popham,

DRAFT

Sir Robert Brooke-Popham
St. ...

(No. 8)
11/12
To ...
(S.H.)
is ...
will ...
is almost a ...

I enclose a copy of
... I have
received from Sir Herbert
... who would like
to have an opportunity
of discussing with you
the plans for the new
Print. Office of Nairobi,
the construction of which
has unfortunately had
to be deferred for some
time as the available money was needed for
more urgent work.

I also enclose a copy
of my reply in which
I have explained to
him why it will
probably not be possible
to embark on this
building for some
time to come.

I am glad to say that ...

FURTHER ACTION.

for a long time to come every penny
will have to be watched. The greatest need
is to accumulate a cash reserve of
a substantial amount to form a steady
for future troubles.

Yours sincerely,

W. Brewster Gore

Encls.

FROM SIR HERBERT BAKER, B.A., F.R.I.B.A.

A. F. BOOTH

RECEIVED
36
RECEIVED

ROMNEY HOUSE, MARSHAM STREET,
WESTMINSTER, LONDON, S.W.1
ENTRANCE IN BERRITT'S YARD
FROM TUFTON STREET
TELEPHONE, VICTORIA 3422
TELEGRAMS, "BANKERS" S.W.1 LONDON

11th December, 1936.

As Consulting Architect for the Government Offices at Nairobi, the building of which has been so long delayed but may now be undertaken, I have been especially interested in the provision in the building for the expression of the spiritual side of our colonial achievements in East Africa. I enclose a copy of a letter I wrote to the Governor, Sir Joseph Byrne, in December 1931 and the reply of the Colonial Secretary in February 1932.

I hope you will agree as to the importance of this and that now, on the appointment of a new Governor, it would be a wise opportunity to reopen the subject. Perhaps you will kindly refer the matter to Sir Henry Brooke-Popham, the new Governor, and I should be very glad if you could give me an introduction to him so that I might have an opportunity of meeting him and discussing the plans before he goes out to Kenya.

I have also discussed the question with Lady Delamere, who, I understand, is, or is to become, Mayor of Nairobi. She takes a great interest in it and in everything to do with making Nairobi a worthy and beautiful capital.

The position of the plans of the new Offices is that, after going through a rather stormy career owing to the

difficulty, as Lord Swinton will tell you, of getting the original architect to pay due attention to the revisions that I made as consulting architect, the work has now been taken over by the Government Architect, who has embodied in the plans the principal revisions that I made. But as I have already pointed out to the Governor of Kenya the plans were made so long ago, and have been revised so often, that I think I should be given the opportunity of reconsidering the whole of the plans and details together in order to make certain that all the alterations are harmonious and consistent and hang together as a whole.

I would suggest that the terrace forming the approach to the main front of the building should be widened and straightened, as this will be a very important part of the building itself and the termination of the central axis of the approach from the heart of the town.

I am, Sir,

Yours faithfully,

Herbert Baker

The Rt. Hon. W. Ormsby-Core, M.P.,
Colonial Office,
Downing Street, S.W.1.

9
30th December, 1931.

Brig. Ge. Sir Joseph Byrne, K.C.M.G.,
Government House,
Nairobi.

Dear Sir, Central Government Offices.

In relation to the plans of the Central Government Offices which have been submitted to me and on which I have now reported to the Director of Public Works, I venture to write to Your Excellency on the subject of considering at leisure some scheme for memorials to serve both the past and the present in the central building of what we think may be the most important city in Central Africa. I may say that even from an economical point of view it is of value to have a thought-out scheme, so that when the need and the impulse come, there may be places for memorials; and the delay which often occurs in choosing and the expense in creating suitable sites may be saved.

Consideration should, I suggest, be given to recording the names of the pioneers of discovery and colonization in East Africa, such as the early adventurers or explorers, Speke, Samuel Baker, Livingstone, Stanley, Mackinnon, Lugard and the Leaders of the Portal Mission. Then there is the statesman to whom credit is due for authorising the building of the railway. Cecil Rhodes, I remember, used to talk about the triumph of winning the approval of Sir William Harcourt, but I see in Lord Crewe's "Life of Rosebery" that credit is given to him as the leader of the Imperial section of the

Cabinet. You should certainly find a place for Cecil Rhodes, as Kenya is the stronghold on his imagined highway; especially also for Lord Delamere; and there may be other pioneers and Governors. I do not necessarily mean expensive statues or even busts, but at the least inscribed panels or a wall of honour with just the names of the great men engraved in the fabric of the building.

All this requires considerable architectural as well as historical thought and it is fortunate for that reason that there is no great hurry, I take it, to complete the design.

I am, Sir,

Yours faithfully,

HERBERT BAKER.

P.S. I have seen no layout plan for the gardens and terraces in front of the building and these should contain many appropriate places for sculpture.

The Secretariat,
Nairobi, Kenya.

6th February, 1932.

Sir,

I am directed by His Excellency the Governor to thank you for the suggestion contained in your letter of the 30th December regarding the perpetuation of the names of the pioneers of discovery and colonization and of others particularly associated with imperial enterprise in East Africa by means of memorials to be incorporated in the scheme for the Central Government Offices at Nairobi.

2. The Director of Public Works has been consulted and he agrees with his suggestion that a suitable place for the building would be the entrance hall, in positions to be selected by yourself. Panels of local marble could either be fixed during construction and be inscribed at a later date or they could be made and when required and affixed subsequently.

3. His Excellency agrees that the gardens and terraces in front of the Central Government Offices should contain many appropriate places for sculpture, but financial considerations have so far precluded the acceptance of any definite plan and it is his Excellency's opinion that at present no attempt can be made to give precedence to any such scheme and that for the present attention had better be confined to the possibilities of the building itself. Unfortunately it is not possible at the moment to proceed even with the building.

but as soon as the financial position is easier and funds can be released it is proposed to take the matter up.

4. Consideration of the names to be included opens up an interesting field of study and I am to observe that, in addition to those mentioned in your letter, those of Sir Richard Burton, Joseph Thomson and, particularly, Sir Jean Kirk seem worthy of commemoration.

I have the honor to be,

Sir,

Your obedient servant,

(sd) Dixon Barton

ACTING COLONIAL SECRETARY.

G.O.

38116/36

- Mr. Evans
- Mr. Walker 4/9
- Mr. Paskin 16
- Mr. Flood 16
- Sir C. Parkinson.
- Sir G. Tomlinson.
- Sir C. Bottomley.
- Sir J. Shackburgh.
- Parly. U.S. of S.
- Parly. U.S. of S.
- Secretary of State.

24 September 1936

G.O.
 17 SEP
 10 23

DRAFT arson

Sir, I have the honor

to acknowledge the receipt

of your letter No. 463

concerning

the proposed

transfer of the

of the

regarding the allocation of expenditure
 between the two departments under the
 Public Building Act of 1928
 4205 hours,
 28-25

to inform you that I

approve your proposals

to transfer the

Establishment - ~~Building~~ ^{account}

with effect from the 31st of December, 1934, and to re-allocate the hours charge, ^{plus} including the opening of a new sub-head

FURTHER ACTION.

Investigations + Designs
for Abandoned + Deferred Projects,
22,957

~~Public Buildings~~

Plans etc.

Sigs.

as recommended by the
Director of Public Buildings
his latest report
forwarded in your department
on 17 of 7 April 1936.

(M1)

(Signed) W. ORMSBY GORE.

Charles
Gore

AIR MAIL

KENYA
No. 463



2816
GOVERNMENT HOUSE
NAIROBI
KENYA

15
6

RECEIVED
.11 SEP 1936
O. O. REGY

Kgueda 2436.
3 - SEP 1936

Sir,

(11)
With reference to my despatch No. 167 of the 9th April, 1936, on the subject of a Report by the Director of Public Works entitled "Colonial Loans: Expenditure on Buildings, Water Supplies and Roads during the period 1925-1934", I have the honour to inform you that the action envisaged in the 4th paragraph thereof has been taken.

The Report was adopted by the Legislative Council on the 22nd [unclear] and was given to the proposal to close the Loan Establishment Buildings account with effect from the 31st December, 1934, and to re-allocate Loan Merges including the opening of a new sub-head "Investigations and Designs for Abandoned and Deferred Projects, £22,957" under the head "Public Buildings".

Read 7.

2. I should be glad to learn whether you are prepared to accord your sanction to this proposal.

I have the honour to be,

Sir,

Your most obedient, humble servant.

H. J. G. [Signature]
BRIGADIER-GENERAL.
GOVERNOR.

THE RT. HON.

W. ORMSBY GORE, P.C., M.P.,
SECRETARY OF STATE FOR THE COLONIES,
DOWNING STREET, LONDON, S.W.1.

PERSONAL
AIR MAIL

5
lb

RECEIVED
1 SEP 1936
XUC. O. REGY

GOVERNMENT HOUSE,
KENYA,
EAST AFRICA
9th July, 1935.

My dear Bottomley,

herewith the photos which I referred to in my
(3) last letter. In forwarding them to me, Fazan, the
Acting Provincial Commissioner states:

" I send herewith photographs of house No. 205
"Kisumu in which Mr. and Mrs. Perreault are living.
"He is the Senior District Officer at Kisumu
"under the District Commissioner. The house in
"which the Junior District Officer lives is still
"worse. Several of the houses occupied by the
"departmental officers, notably those of the
"Asst. Superintendent of Police, the third Medical
"Officer and the Superintendent of Conservancy
"are no better".....

I have no news for you: everything is very
quiet.

Yours sincerely,

SIR W. C. BOTTOMLEY, K.C.M.G., C.B., O.F.S.,
COLONIAL OFFICE,
DOWNING STREET,
LONDON. S. W.1.



E

EXTRACT FROM A LETTER TO BRIGADIER GENERAL SIR
JOSEPH BYRNE FROM SIR OECIL BOTTOMLEY, DATED
15th JULY, 1936.

x x x x x x

I am sorry to hear about Kisumu. Certainly I did not think much of the Senior Commissioner's house when I was there. It seemed a gloomy place to live in, but I did not notice any signs of approaching dissolution. However, a good deal may happen in nine years.

I do not look forward to another Building Loan for Kenya, but, at all events, you have broken the news to us.

x x x x x x



COLONY AND PROTECTORATE OF KENYA

COLONIAL LOANS

Expenditure on Buildings, Water
Supplies and Roads during the period
1925-1934

NAIROBI

PRINTED BY THE GOVERNMENT PRINTER
1936

CORRIGENDA.

PARA. 65.—In first column of the Schedule opposite "Kwale" for "1,669" read "1,659".

PARA. 111 (15).—In the fourth line from the end of the page for "1,860,000" read "1,850,000".

PARA. 113.—Opposite Kisumu Water Works in the second column for "30,652" read "27,436", and opposite Eldoret Water Works in the second column for "27,436" read "30,652".

PARA. 138.—For "III—Kisumu Water Works—£20,652" read "III—Kisumu Water Works—£27,436".

PARA. 139.—For "IV—Eldoret Water Works—£27,436" read "IV—Eldoret Water Works—£30,652".

PAGE 57.—para. "146" read "156".

PLATE I.—For "two single masters" read "four single masters".

PLATE II.—For "240 pupils" read "900 pupils"; for "Two Boarding Blocks" read "One Boarding Block"; and for "44 senior and 22 junior boarders" read "43 boarders".

PLATE XVII.—For "£30,652" read "£27,436".



COLONY AND PROTECTORATE OF KENYA

EXPENDITURE FROM 1925 TO 1929

COLONIAL LOANS

Expenditure on Railways, Water
Supplies and Roads during the period
1925-29

FOREWORD

The object of this report is to give information regarding the expenditure out of Loan on buildings, waterworks and roads during the last ten years, amounting to £1,768,210, the nature and extent of the Colony's assets which have resulted, and the circumstances which have influenced that expenditure.

While the difficulties which attended the design and construction of waterworks and roads, constituting nearly one-third of the total, were mainly technical, the building programme was varied and amplified and was subjected to the application of policies which often interfered with expeditious progress. The impact of a large building programme on the Colony at a time when the costs of labour, transport and material were high due to the simultaneous construction of branch railways and expansion in other directions; when the natural resources of the Colony in building materials were uncertain, when reliable building contractors were very few; when towns were still unplanned and when various methods and policies had to be tried out, necessarily resulted in greater delays and higher costs than would otherwise have prevailed. Committees and experts advised extensively and sometimes diversely. The original programme was subjected to additions, subtractions, modifications and postponements, as well as numerous variations of detail, so that the schedule of 1925, estimated to require four years for completion, was so altered and amplified from time to time that some buildings were still under construction, design, or consideration at the end of 1934.

As no provision had been made originally for general charges, if a large and varying programme of individual works was to be designed and constructed, percentages had to be deducted from the estimated costs to finance such general charges, to be re-combined with ascertained construction costs on completion of the works.

A large part of this report has therefore to be devoted to buildings, and especially to the Establishment—Buildings Account, comprising these general charges, for the circumstances under which many of the buildings were designed and executed caused projects to be abandoned before attaining fruition and the period of design and construction of those which were carried out to be unduly prolonged. The result of these circumstances was higher general charges, some of which had relation to buildings which were never constructed.

CONTENTS

	PAGE
A. INTRODUCTION	1
B. PUBLIC BUILDINGS	4
I. The Buildings Committee	4
II. The Building Programme	5
III. The Loan Works (Buildings) Committee	4
IV. The Common Expenses Suspense Account	10
V. Method of Construction	11
VI. Establishments—Buildings	21
VII. Details of Buildings Constructed	30
C. WATER SUPPLIES	46
D. ROADS AND BRIDGES	52
APPENDIX	
I. Statement Showing how the Percentage Allocation of Kwana Inkment is Obtained	52
II. Details of Revised Contributions of Establishment with Con- struction Costs	59
III. Details of Revised Posts to 31st December, 1934, on Items (a) (b) (c)	61
IV. Details of Establishment Cost of 222,057 on Surveys, Designs, Estimates, etc., for Projects Subsequently Abandoned	63
V. Distribution of Expenditure over the Period 1925-34	55
VI. Expenditure on Housing for Government Servants	66
VII. at end.	

A.—INTRODUCTION

During the years 1924 and 1925 the picture present in the minds of most public men in Kenya was that of a young Colony of great possibilities which, having gone through a period of difficulties and financial depression, was just entering on a period of commercial prosperity and development. The proposals put before Government from numerous sources for the development of the Colony's potentialities in every conceivable direction were so numerous that it was a matter of no small difficulty to sift proposals so that attention could be concentrated on those for which a strong case could be made.

Among the projects for which the advantages of the Trades Facilities Act might be secured were examined. By February 18th, 1925, some of the proposals had become sufficiently defined to send Legislative Council a suggestion for raising a loan of £480,000, of which £170,000 were for works falling within the scope of the Public Works Department. The proposal was referred to a Select Committee consisting of three official members and all unofficial members, under the chairmanship of the Assistant Colonial Secretary. The report of the Select Committee was adopted by Legislative Council on February 17th, 1925, with amendments. The final schedule, amounting to £562,500, comprised, so far as projects under the Public Works Department were concerned,

Buildings	£170,000
Water Supplies	£187,500
	£327,500

This Committee also recommended

(a) That as far as possible, application for assistance should be made under the Trades Facilities Act, 1924.

(b) That a Select Committee be appointed to consider and recommend upon which expenditure should be made.

In order that the relative merits of the proposals could be compared it was necessary for the Public Works Department to make preliminary figures of estimated cost in cases where the proposals related to public works. Some of the schemes would have required years of investigation before decisions could be reached regarding design. The proposals covered a very wide field, and preliminary figures, even though little more than guesses, were essential for water supplies, the sources of which were ascertainable; buildings, for which the sites and accommodation to be provided were still conjectural; for roads and bridges which had not been the subjects of reconnaissance and for irrigation and other agricultural works, where no direct inquiry.

During those years the need for expert advice on some of the more controversial groups of projects into which the proposals were tending to crystallize had become apparent at the various conferences and committee meetings which were held. Decisions were arrived at in several cases, and experts were selected and engaged. The question of the extended use of local timbers, especially the best means of obtaining and seasoning them, for use in buildings to be constructed out of the proposed loan, was the subject of much public interest. The services of Mr. Eckbo, the Officer in Charge of Timber Investigation, Forest Department of Pretoria, were obtained to advise on this matter. After spending two months in the Colony, that gentleman

reported on 27th August, 1926, advising the installation of a battery of Sturtevant kilns in the Public Works Department yard. Proposals connected with irrigation had been reviewed, and Mr. A. D. Lewis, the Director of Legislation of the Union of South Africa, submitted a valuable report on this and associated subjects in 1925 after spending two months in the Colony.

3. The problem of providing for the housing of Government officials, both in towns and out-stations, had become a matter of primary importance in connection with the Loan Proposals. The relative merits of conflicting policies, such as construction by Government out of loan; assistance to officers to build their own houses, financing contractors, flats for bachelors, and so forth, had become highly controversial, and difficult to compare. Not only were the essential requirements of each town and station difficult to assess, but the extent of the accommodation to which officers on different grades, with fluctuating requirements for families, might reasonably be expected to be entitled, was a matter on which concurrence of opinion was almost unobtainable. Until such issues could be decided, estimating, even on the most preliminary basis, was insecure. Mr. A. E. Hasden, Incorporated Secretary of Building Societies in South Africa, was invited to advise on the whole question of adopting immediate measures to relieve the housing difficulty particularly in Nairobi and Mombasa. Mr. Hasden visited the Colony in September, 1926, and reported in October, 1926. The views expressed by Mr. Hasden were: (a) As a first step the property occupied should be double the amount of the present value. (b) Subject to certain reservations, officers at Mombasa and Nairobi should be required to find their own quarters and be charged a tax rent for furnished quarters if stationer otherwise. (c) That a scheme be adopted to enable and encourage officers to acquire their own residences, based on the principle expressed in (b) of the proposals of 1925 and not, however, based on the principle expressed in (b) of the proposals of 1925 and provision was made in their proposals, which were adopted by Legislative Council, for £506,430 for housing of officials, including Mombasa and Nairobi. The recommendation in (c) was, however, implemented by action of Legislative Council at a later date, but had a limited application, largely because only comparatively few Government officials are permanently stationed at one locality.

4. The importance of securing the best possible advice regarding the structural design of the larger public buildings which were contemplated was recognized early in 1925. The proposal that the distinguished architect, Mr. Herbert Baker (later Sir Eldonri Baker), who had designed many important buildings in South Africa and India as well as in England, should be consulted to have been first proposed by the Central Advisory Committee on European Education on March 11th, 1925, in relation to Kabete School, in a resolution moved by the Director of Agriculture. As a result of negotiations, Mr. Baker visited the Colony on November 29th, 1925, and left on January 15th, 1926. During his visit he was engaged on schemes for the proposed new Government Houses at Nairobi and Mombasa, the former including provision for His Excellency's offices, conference offices, and accommodation for Legislative Council. He was also engaged on preliminary sketch designs for the Central Government Offices, Kabete School, and the Law Courts, and proposals for the town planning of Nairobi in collaboration with Mr. Jameson, a town planning expert from South Africa who was in the Colony at the time.

5. The second Select Committee on the Loan Proposals, 1925, consisting of four official and five unofficial members of Legislative Council under the chairmanship of the Colonial Secretary, was appointed on August 24th, 1925. It held three meetings, and its report was adopted by Legislative Council by resolution on December 15th, 1925. Although greatly modified in detail during succeeding years, this report was the foundation on which the loan expenditure on public works was based. The Committee had before it for consideration a document entitled the "Colonial Loan Proposals, 1925" which summarized the projects proposed by departmental and provincial

authorities amounting to over £3,000,000 in aggregate cost. Inclusive of the sums already approved by the Legislature by resolution after the report of the first Select Committee on Loan Proposals, 1925, amounting to £562,500, the Committee's immediate recommendations amounted to £1,712,410 out of a long term loan and various items from a short term loan. The Loan Schedule of 1926, as approved by Legislative Council and the Secretary of State, comprised the following allocations for works of a nature which came within the sphere of the Public Works Department:

SUB-HEAD A. PUBLIC BUILDINGS		£	£
Item (1) Housing of Government Servants, including Government Houses and Quarters for African Employees of Government		626,430	
.. (2) Medical Buildings		70,000	
.. (3) Education Buildings		310,000	
.. (4) Other Buildings, including Cold Storage and Customs House		98,813	
.. (5) K.A.R. Lines		80,000	1,164,210
SUB-HEAD B. WATER SUPPLIES			
Item (1) Mombasa Water Supply		100,000	
.. (2) Kisumu Water Supply		27,500	
.. (3) Eldoret Water Supply		30,000	
.. (4) Nakuru Water Supply		11,000	168,500
SUB-HEAD C. ROADS AND BRIDGES—			
Item (1) Road Survey of the Colony		25,000	
.. (2) Main Roads and Bridges		80,000	
.. (3) Makupa Gateway		50,000	
.. (4) Road Plant		50,000	175,000
		£	1,508,410

It may be as well to note here that a number of the items composing these sub-heads were altered and new ones added by the adoption of various motions by the Legislature in succeeding years. The revisions and additions were embodied in the 1926 and 1930 loans, so that authority of the Legislature as eventually granted for works coming under the Director of Public Works for control consisted of—

	£
A. Public Buildings	1,547,465
B. Water Supplies	225,800
C. Communications	275,000
	£2,048,265
Expenditure to December 31st, 1934	1,768,210
Balance on December 31st, 1934	£280,045

It is with the expenditure of the sum of £1,768,210 and the closing of the "Establishment" that this report will deal. The summarized distribution of this expenditure is given in Appendix V.

6. The second Select Committee had, in fact, in addition to the works which it recommended for immediate approval, put forward proposals for works for which it considered that provision would be necessary in the near

future. These proposals, in so far as works which would normally come under the Public Works Department for control, comprised—

	£	£
Public Buildings—		
The Central Block of Offices, Nairobi	250,000	
Supreme Court, Nairobi	80,000	
Central Police Station and European N.C.O.s' Quarters	40,000	
Central Prison	70,000	
Lunatic Asylum	50,000	
Bacteriological Laboratory	25,000	
Infectious Diseases Hospital	2,800	
Hospital Administration Block	1,000	
Medical Store	8,000	
Native Civil Hospital	5,000	
Additions to Government House	20,000	
Native Police Lines, Nairobi	20,000	
		571,800
Roads and Bridges		425,000
and from a short term loan—		
Water Boring Apparatus	6,500	
Road Plant	50,000	
		56,500
		£1,053,300

Some of these became urgent during succeeding years, while others which had already been approved seemed on detailed scrutiny to be less important; in other cases again the sanctioned provision was found to be inadequate to cover essential requirements.

B. PUBLIC BUILDINGS

I. THE BUILDINGS COMMITTEE

7. During 1925, the proposal to embark on an extensive building programme was attended in certain quarters with doubt as to the best means for carrying the work out, the sources from which artisan labour could be obtained, the question of interesting contractors from overseas, the possibilities of reducing building costs, and the best types of construction to employ. It was felt that building costs were already very high, that the average Indian artisan labour was inadequate in quantity and highly paid in comparison with output, and that, unless special measures were adopted for enhancing the numbers of artisans, wages would rise.

8. A Buildings Committee, consisting of 15 members, of which 7 were official and 8 non official, under the chairmanship of the Director of Public Works, was appointed with the following terms of reference:—

- (1) To inquire into the cost of building in the Colony and to make recommendations as to the means whereby such cost may, if possible, be reduced.
- (2) To make recommendations as to the types best suited for native habitations in towns, on estates and in native reserves.

A sub-committee, under the chairmanship of the Postmaster General, was appointed to explore the position and to collect data, facts and figures for the consideration of the Committee. The sub-committee sat daily from the 9th to the 19th December, 1925, and received evidence from 32 persons comprising contractors, architects, engineers, quantity surveyors, sawmillers,

brickmakers and others. The sub-committee reported on January 2nd, 1926, and the Committee reported on January 22nd, 1926. The principal recommendation of the Committee, as far as the first term of reference was concerned, was that one of the most effective ways of reducing building costs would be by means of African artisan labour and that the African artisans could best be trained by working alongside European tradesmen on actual works. This recommendation was largely given effect to subsequently by the utilization of Native Industrial Training Depot apprentices under European leading artisans on a number of the main buildings. Other proposals advocated by the Committee had relation to the use of labour-saving plant as far as possible, the extension of the principle of task work, the stimulation of the brick-making industry and reductions of the import duty on timber and railway rates on certain materials.

9. The question of the availability of suitable local materials, the importance of stimulating local industries such as brick and tile manufacture, the relative merits of concrete blocks and bricks for the construction of buildings, the possibility of local cement manufacture, and the most economical methods of rendering available for use suitable species of local timber and seasoning it for joinery, were matters which received prolonged and careful consideration. The absence of a main line, which rendered necessary the employment of cement for porting, had always been recognized as an important factor in the high building costs which prevailed, and the occurrence of natural pozzolanas had not been explored. The Buildings Committee recommended also that investigation should be made into the resources of native reserves in respect of building material. Although this recommendation was not implemented, and in fact has never been implemented on an organized scale, the services of Mr. E. J. Wayland, the Director of the Geological Survey of Uganda, were secured by arrangement with the Uganda Government to carry out an investigation along the main railway line, chiefly in connection with the availability of suitable brick earths and hydraulic lime. Mr. Wayland was only able to spend about one month in the Colony, namely from March 3rd, 1926 to April 2nd, 1926. He submitted a report on July 19th, 1926.

II. THE BUILDING PROGRAMME

10. The building programme, as approved at the end of 1925, comprised—

	£
(1) Housing of Government Servants, including Government Houses and Quarters for African Employees of Government	626,400
(2) Medical Buildings	79,667
(3) Education Buildings	310,000
(4) Other Buildings, including Cold Storage, Kilindini, and Customs House, Mombasa	68,113
(5) N. A. R. Lines	80,000
	£1,164,910

It is desirable at this stage to review the proposals for utilizing these sums. The Select Committee on the Loan Proposals, 1925, had quoted estimates of cost of all the individual works which it recommended, and indeed such preliminary estimates, however uncertain they might be, were essential. Estimating for structures when, as in most cases, the sites were unknown, the materials of construction uncertain, the accommodation to be provided and its distribution the subject of conjecture, and the organizations for design and construction still undecided, could only result in rough approximations, even though founded on all available data and such surveys and sketch designs as seemed the most likely for eventual adoption. The report of the Buildings

Committee and its sub-committee had shown how complex the problems were in respect of skilled labour, materials, general types of design, and the availability of contractors for construction. Impressed by the shortage of artisans and their high cost at that time, the sub-committee visualized the probable and necessity for importing artisans from abroad if high quality work was to be secured and a rise in wages, owing to the impact of a large building programme at that time, avoided. The various committees and some of the experts could do little more than indicate lines of investigation and policies which in fact not infrequently clashed with one another. Amongst the advice tendered in 1925 and 1926 by various committees the following may be quoted: Investigation of local resources, in connection with building material; Adoption of economical types of design; "Production of bricks at a reasonable cost and their use as a standard building material"; Steps should be taken to secure contractors and skilled labour from other territories; All work should be done by contract; The construction of the loan buildings should be carried out by native apprentices working with Europeans; All work at any one place should be executed so far as to reduce overheads; Buildings should be constructed in order of priority.

11. The programme of work included in the programme of 1926 included Government Houses at Nairobi and Kisumu; the Central Office (Central Secondary School) at Nairobi, £80,000; the Central Office (Central Secondary School) at Nairobi, £35,000; European Schools at Nakuru, £10,000, Eldoret, £10,000, and Kisumu, £20,000; 11 Native Hospitals, £52,750; a General Hospital at Mombasa, £14,000; a European Hospital and Medical Officer of Health's Office and Laboratory at Kisumu, £8,000; 14 Class I houses at six centres, £29,380; 38 Class II houses at 14 centres, £70,340; 128 Class III houses at 17 centres, £161,760; 8 Class IV houses at seven centres, £9,600; 412 Class V houses at 14 centres, £220,670; Public Works Department buildings and yards at Eldoret and Nakuru, £10,500; accommodation for African employees of Government in various towns, £40,000; cold storage installation, Kilindi, £15,000. In addition, the Central Government Offices, Law Courts, Central Prison and other projects were under consideration from time to time in conjunction with town planning projects.

III.—THE LOAN WORKS (BUILDINGS) COMMITTEE.

12. An important step was taken on December 23rd, 1925, by the appointment by the Governor of a Works Committee, subsequently known as the Loan Works (Buildings) Committee. The time was opportune for doing so. The proposals of the Select Committee on the Loan Proposals had been passed by the Legislature on December 15th. Mr. Herbert Baker and Mr. Jameson were in the Colony and were due to leave in about a month's time. The Buildings Committee was sitting and would shortly report. Many of the buildings were regarded as extremely urgent, and no consideration had as yet been given by any constituted authority to the methods and organization for preparing surveys, designs, quantity surveying, and the control of construction. The Works Committee, as appointed on December 23rd, 1925, consisted of the Postmaster General (Chairman), the Director of Public Works, the General Manager Uganda Railways and the Right Hon. Lord Delamere.

13. Its terms of reference were to report on the following subjects:

- Organization required for architectural and structural work in new building programme and for supply of materials.
- Proposed lay-out of new buildings in Nairobi, with consequential arrangements in regard to railways and roads.

At meetings of the Works Committee held between January 4th and January 14th, 1926, some of which Mr. Herbert Baker attended, an outline of the methods of organization for design and construction was laid down, and so far as Mr. Baker's past and subsequent services were concerned, the position was put on a definite basis which was approved by Government. The Committee reported on January 22nd, 1926.

14. It was clear that Mr. Herbert Baker would only be prepared to undertake the architectural design of major buildings in accordance with his practice at Delhi and elsewhere; arrangements for surveys, structural design, designs for the engineering services, specification writing, quantity surveying, the letting and administration of contracts, and the business side of the activities being undertaken in some other way. He or his representative would, however, undertake the supply of notes for specifications and supervision from the architectural standpoint of the buildings while under construction.

15. The Works Committee's Report, Building Loan Proposals, dated January 22nd, 1926, submitted Notes of Agreement between the Committee and Mr. Baker, and these were adopted by Government as the basis of a formal agreement in respect of architectural work which Government might decide to entrust to Mr. Baker and which he might be willing to accept. It was intimated that Mr. Baker was prepared at the time to undertake the following, on which he had already done some preliminary work: Government House, Nairobi; Government House, Mombasa; Rabeta School; Elementary School, Nairobi.

The Committee recommended that the architectural design of these works should be definitely entrusted to him. It was further advised that Mr. Baker had done some preliminary work on the design for the Central Office and the Courts and the architectural design of those buildings should be given him if financial proposals were eventually made for them. The Notes of Agreement provided for fees to be 4½ per cent on construction costs on the basis of the Pretoria agreements. Mr. J. A. Hoogterp, who had been appointed to represent the Government on Mr. Baker's nomination, would be the Government's representative. Mr. Baker decided that the designs for European Schools at Nairobi and the Indian School at Nairobi should be dealt with separately. He therefore settled arrangements for the architectural design of these buildings out of the 1926 financial provision for buildings, as well as for certain buildings which had not yet been decided upon, and the organization for the design and control of construction of buildings of low cost, which was to be decided and carried out by the Colony, of 1926-27 as recommended, was to be decided and carried out by the Colony, except architectural design, and construction during construction, in conjunction with the remaining work of building work to be undertaken.

16. After deciding upon the employment of local staff, it was decided at the meeting held on January 12th, 1926, that the design of loan buildings should be engaged on agreement with the Public Works Department. Public Works should have power to make and to terminate appointments, reporting them to the Committee, and to be subject to the approval of the Committee. Overseas staff should be engaged through the usual channels upon the Committee's recommendations that staff was required. It was agreed that local and overseas staff must be of satisfactory service. It was decided that an agent be arranged in South Africa for engagement of staff, and that the Committee authorize the Director of Public Works to make arrangements direct.

17. At the meeting on January 6th, 1926, the immediate arrangements in respect of loan staff were discussed. Mr. Baker had already recommended the employment of Mr. Allison, F.S.I., as Chief Quantity Surveyor from New Delhi, and he had also been asked to recommend a Construction Engineer to take charge of the new Buildings Branch of the Department. Mr. J. C. Stronach, B.A., B.A.M., was subsequently appointed as Superintending Engineer, Loan Buildings, on secondment from the Public Works Department of India in the first instance. Mr. Stronach had been in charge of much of Mr. Baker's work at New Delhi. Mr. Stronach's wide experience in the design and construction of buildings was of inestimable value throughout the

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period under review in this report. It was pointed out that assistant architects, architectural draughtsmen, assistant quantity surveyors, clerks of works, building foremen would be required, as well as storekeeping and clerical staff.

18. At the meeting on January 12th, it was agreed that each job must pass through the following stages —

1. Provisional estimate, made from sketch plans, etc.
2. Estimate.
3. Revised estimate when working drawings and quantities are prepared.

It was also agreed that sketch plans must bear the—

- Signature of the Head of the Department or person concerned.
- Signature of the Director of Public Works.
- Signature of the Chairman, Works Committee.
- Signature of the Colonial Secretary on important drawings.

and that materials could be ordered on Provisional Estimates, the stores being ordered against Loans.

19. It was decided at the meeting held on January 14th that the Loan Works Committee, subsequently designated the Loan Works (Buildings) Committee, should have wide powers. Its powers and duties were delineated as follows:

It shall have the necessary financial authority to order material will forthwith proceed with the works for the relative work in hand. This includes authority to order material either from the Crown Agents or direct from local firms or from overseas.

It shall be responsible for examining and passing tenders for the (allocated) Loans Store.

The Committee will examine at their various stages plans for buildings and authority plans being advanced from one stage to another. It will consult the Heads of Departments in regard to buildings to which they are concerned and may also consult other persons as its discretion. Plans of the more important buildings will be submitted to Government for final approval. The same course will be adopted in the case of what may be considered type plans.

The Works Committee shall possess the same authority as the General Manager of the Railways possesses in connection with railway construction work, in regard to the engagement of staff locally up to a limit of 150 per mensem. The Works Committee will, however, engage overseas staff through Government, and in regard to dispensing with such staff, prior to expiration of agreement, will seek the authority of the Governor.

In all matters relating to the design and execution of loan building works the Works Committee will operate through the Director of Public Works, to whom it may delegate such of its authority as it may deem fit.

20. Early in 1927 some difficulty arose as to the powers and duties of the Loan Works (Buildings) Committee. Its advisory functions were then formulated as follows by Government and embodied in the minutes of the meeting on March 14th, 1927 —

- (a) Relative urgency of major works.
- (b) Means by which these works should be carried out, e.g. labour.
- (c) Methods to be used.
- (d) The execution of works which have not been expressly included in the Loan Statements but which fall under Heads of Loans, though the express approval of Council to the carrying out the

specific work may not have been obtained. (The proposed expenditure of £8,000 on the Jeanes School would appear to come under this head.)

- (e) Supplementary provision on account of works already approved. The Works Committee should be consulted if it is proposed to exceed the provision made.
- (f) Any important allocations in works already sanctioned.

It was also laid down by Government that, once a work had been provided for its execution is entrusted to the Director of Public Works and his special Loan staff, and that the Committee could be of the greatest assistance to Government as to action to be taken on the Loan programme already approved and in giving Government its support in undertaking urgent work without the necessity of calling Legislative Council together to approve it, it being understood that such expenditure shall not go beyond the total expenditure approved.

Although the power of reallocation between specific sums of the sub-divisions of the Buildings sub-head had been exercised by the Loan Works (Buildings) Committee with the knowledge of Government and Legislative Council, the powers of the Committee in this respect were not categorically laid down by Government until July 9th, 1929. Their powers of reallocation were then expressed as follows:

Advances which have been made pending the issue of a loan are conveniently classified as —

- Head A — Colonial Development
 - Sub-head 1 — Public Buildings
 - Sub-head 2 — Loans to Local Authorities
 - Sub-head 3 — Water Supplies
 - Sub-head 4 — Communications
 - Sub-head 5 — Miscellaneous

- Head B — Railway and Harbour Development
 - Sub-head 1 — Railway Development and Improvement
 - Sub-head 2 — Port Development and Improvement

and it is proposed to follow this outline in future Seasonal Loan Statements.

- (a) The Loan Works (Buildings) Committee is only concerned with Head A, Sub-head 1.
- (b) Any agreement between the two Heads or the seven Sub-heads is exercised by the Governor after reference first to the Secretary of State and then to Legislative Council.
- (c) Any agreement between items, e.g. between Housing and Educational Buildings, is exercised by the Governor after reference to Legislative Council.
- (d) Any agreement between specific sums within an item, e.g. between Housing provision at Kisumu and Mombasa, is exercised by the Loan Works (Buildings) Committee; but where there are matters of racial importance, e.g. between the provision for an European and an Indian school, prior reference should be made to the Governor and to Legislative Council.

21. The Loan Works (Buildings) Committee remained under the chairmanship of Mr. T. Fitzgerald, Postmaster General, until the meeting of June 1st, 1926. In November, 1926, the Colonial Secretary became chairman, and this was continued throughout the subsequent history of the Committee. Throughout almost the whole period to the end of 1934, the Committee was composed of the Colonial Secretary, the General Manager, Kenya and Uganda Railways and Harbours, the Treasurer, the Director of Public Works, and four

unofficial members. The Committee held 79 meetings, and recorded 669 minutes. The unofficial members and the number of meetings which they attended were: Lord Delamere, 7; Lord Francis Scott, 4; Capt. H. E. Schwartz, 11; Capt. H. F. Ward, 18; Mr. A. C. Tannahill, 4; Mr. W. C. Mitchell, 6; Lt.-Col. C. J. Durham, 42; Mr. T. A. Wood, 5; Major E. S. Gosan, 1; Lt.-Col. W. K. Tucker, 10, and Mr. J. C. Coverdale, 18.

The Loan Works (Buildings) Committee did valuable work in advising Government on the various issues which came before it.

V. THE COMMON EXPENSES SUSPENSE ACCOUNT.

22. At an early date the Loan Works (Buildings) Committee was faced with the difficulty of financial provision for staff charges and other expenses which were common to the building programme as a whole. The individual items of the Loan Proposals of 1925 had usually been put up to Government as isolated projects, consideration being given to construction costs in each case without examination of the method of administration and overhead charges of a large number of them were sanctioned and the surveys, designs, quantity surveying and control of construction of a large number of the proposals were sanctioned and executed under any particular organization. It was not, in fact, possible to do so until some idea of the scope of the programme was known as a result of legislative decision and the Secretary of State's sanction of those items which had been suggested. It was only in respect of supervision of construction of houses, hospitals and offices at various stations, amounting to aggregate estimated construction cost of £582,810, that an addition was made in the Report of the Select Committee on the Loan Proposals. This amounted to £17,100, or 2.935 per cent of construction cost.

23. Until decision had been reached it was impossible to say whether the programme would be confined to the few large buildings which Mr. Baker was concerned with in the extensive programme which materialized. The question whether the Public Works Department or some organization from overseas would undertake control was still a matter of conjecture. When the programme had more or less crystallized at the end of December, it was decided as a result of the meetings of the Works Committee in January, 1926, that the Public Works Department would control its execution, subject to the direction of the Loan Works (Buildings) Committee, and the question of administration and sanction charges had to be provided for.

24. At the discussions between the Works Committee and Mr. Baker during January, 1926, Mr. Baker had expressed the view that four years would be adequate for the design and construction of the major buildings, and in the Sessional Loan Statement laid on the table of Legislative Council in 1926 the anticipated dates for the completion of items of the sanctioned building programme varied from December, 1927, to December, 1930.

25. At the meeting of the Works Committee on March 22nd, 1926, it was resolved that 10 per cent should be the amount to be charged on the cost of all Loan Works to cover overhead charges, and that this should be called "Common Expenses". The way in which this Common Expenses Suspense Account was to be administered is set forth in a Treasury memorandum dated 25th March, 1926, constituting notes of a meeting held on March 2nd, 1926.

It was noted that there would be certain items of expenditure which it would be impossible to allocate to particular sub-headings of the loan at the time they were incurred and that these should in the first instance be charged to a suspense account entitled "Common Expenses". It was agreed that the amounts appearing under this suspense account should be charged out monthly, as far as possible, to Heads and Sub-heads on a monthly ratio to be settled by the Works Committee and communicated by their Chairman to the Treasurer. The amount charged to the Common Expenses Account which

cannot be allocated monthly to be allocated by the Works Committee at the earliest possible date. It was further agreed that in order to avoid the possibility of excesses accruing in regard to the amounts authorized by Loan Warrants a percentage of such amounts should be earmarked to meet shares of Common Expenses which cannot be included in the monthly allocation of the account, the percentages to be so reserved to be notified to the Treasurer by the Chairman of the Works Committee. The Treasury will show in their Abstracts the amounts authorized by Warrant less the amounts reserved to cover share of Common Expenses, and will not accept charges in excess of the net sums unless definitely informed by the Chairman of the Works Committee that the amounts reserved can safely be reduced.

All appointments made by the Works Committee will be notified to the Treasurer by the Chairman of that Committee. Notification to the Treasurer of appointments made abroad of the salaries of which exceed £720 a year will be made by the Colonial Secretary.

26. Apart from the question whether the tentative "estimates" of construction costs of items could bear a 10 per cent addition to cover overheads, this method might have worked satisfactorily if a characteristic programme of work to be completed in four years, as had been assumed, had proved possible in practice, and if all works could have been economically and expeditiously constructed in all respects by contract, no matter where they were situated. In actual fact, the situation which gradually developed during building years was widely different from anticipation. The programme was greatly altered at intervals. A series of buildings, known as "Priority A", were deemed to be so urgent that they were to be erected by whatever means would ensure the most expeditious completion. Much of the new Loan staff, which was authorized from time to time by the Loan Works (Buildings) Committee, arrived during 1926. Not only was the staff new to the Colony, but time was frequently taken up with surveys, investigations, designs and estimates for works, which although considered urgent at the time, whether already financially provided for or expected to be provided for shortly, failed to materialize or were postponed indefinitely. A schedule of such works is included in Appendix IV. Salaries on voyages, passages, housing, and numerous incidental expenses as well as liabilities for leave pay, return passages, etc., could not in any case be liquidated until after the work carried out during their complete tours of service was known, and in many cases no financial provision had been made or has yet been made for some of the works for which designing and estimating were carried out. At the meeting of April 28th, 1927, the Chairman intimated to the Loan Works (Buildings) Committee that a revised Loan programme had been drafted. Moreover, machinery, plant for construction and transport, tools and equipment of various kinds of a general character, which were not appurtenant to any individual work or series of works, were necessarily charged to the Common Expenses Suspense Account and could not be liquidated against construction on the approved basis. The new railway sidings in the Public Works Department yard, the extension of offices, print workshops, research work on building materials, etc., as recommended by the Buildings Committee, were also charged to this Suspense Account.

27. By September 30th, 1927, the unliquidated balance of the Common Expenses Suspense Account stood at £60,261, and the Loan Works (Buildings) Committee, at its meeting on December 1st, 1927, approved the closing down of this account and the substitution for it of the "Establishment—Buildings."

V. METHOD OF CONSTRUCTION.

28. The Select Committee on the Loan Proposals, 1927, had visualized the construction of works by contract, and at the meetings of the Works Committee during January, 1926, this was assumed to be the method which

would be adopted for all works. It was recognized that the number of competent building contractors in the Colony was very small and that they would only be likely to carry out work in the principal towns. The sub-committee which had been responsible for collecting evidence for the Buildings Committee had reported on January 2nd, 1926, as follows:—

There is a shortage of experienced European contractors in the country, so much so that in some of the principal towns it is at times impossible to obtain a list of a European contractor.

There are however, a large number of small Indian contractors, but these labour under a decided disadvantage in this form of work as they do not understand the English language, and cannot therefore read notes on drawings, specifications and bills of quantities. Their estimating is consequently largely a matter of guesswork.

The practice of sub-letting appears to be almost universal among European contractors. The sub-letting is done to the work to Indians. The latter, apparently, in the general absence of wages and carrying out the work under the general direction and supervision of the European contractor who is supposed to obtain profit previously arranged.

European contractors frankly admitted the practice, and stated that it was the only possible way of carrying on. The practice of sub-letting by Europeans appears to have resolved itself in effect into a system of receiving a commission from small Indian contractors for estimating and supervision services and generally accepting responsibility for the satisfactory character of the work and carrying out the business side of the contract.

The sub-committee have inquired very fully into this practice which at first sight would appear to add to costs. The percentage taken by the European does not, however, appear to be large (5 per cent being stated by one witness). Moreover, he carries final responsibility for the contract, which involves, in his own interests, supervision of the work.

In view of the large programme of building work contemplated by Government, the sub-committee considers that it is desirable to endeavour to attract contractors of repute from other countries, and suggest that preliminary notices should be published in England and South Africa, possibly through the offices of the respective Trade Commissioners, to the effect that a large building programme is contemplated by Government.

The recommendation of the sub-committee was implemented by the Works Committee, but failed to elicit any useful response. During those early years of the Loan programme, other countries were also emerging from the depression; contracting firms were busy; labour was difficult to obtain; and the cost both of labour and material was tending to rise. As regards skilled labour, the sub-committee had, in fact, after reviewing the position in this Colony at the time, making inquiries in adjoining territories, and taking evidence regarding sources of supply in other countries, felt that labour might have to be recruited in Italy or India.

29. Tenders for the first contract to be let, namely, the Elementary School, Nairobi, were disappointing. In spite of efforts being made to obtain tenders from South Africa also, only three tenders were received. One of these, the highest, was from a South African firm, and the other two were local. All were high.

30. The Buildings Committee had, on January 22nd, 1926, advised that one of the best ways of reducing building costs was by means of African artisans and had expressed its views regarding their training. The importance of getting the proposed Native Industrial Training Depot at Kabete constructed and started came to be recognized by the Works Committee if this

policy were to be given expression to. The Committee held a meeting at Kabete on March 27th, 1926, and it was resolved:—

In order that a better supply of native artisan labour might be available at an early date, it was agreed that the building programme of the Depot should be carried out as expeditiously as possible, and that, as accommodation became available, new apprentices and the necessary training staff should be brought in.

That the control of the Loan Expenditure on the Depot buildings should be transferred to the Works Committee.

And that—

As soon as the drawing office staff in the Public Works Department had been brought up to strength, the preparation of all plans and drawings should be undertaken by the Public Works Department.

31. The question of the employment of long-term convicts as artisans, the provision of portable prisons, etc., was also the subject of much attention, and discussion in 1926, the proposal being to engage European artisans to train the convicts who, when sufficiently advanced, would be organized into a building unit and employed in Government buildings mainly

Thus the question of the nature of the Loan Works (Buildings) Committee in 1926, under the consideration of the Committee in 1926, was also the subject of much attention, and discussion in 1926, the proposal being to engage European artisans to train the convicts who, when sufficiently advanced, would be organized into a building unit and employed in Government buildings mainly

The four items shown in the Priority List, which should be undertaken by the best means available at the time. The meeting discussed the necessity for buildings for the employees of Government and for sub-stations, and agreed that works which should be undertaken on the basis of the Priority List and should be given priority in the 1926.

The meeting further agreed that the priority list should be divided into two parts, as follows:—

- A—Buildings which are to be carried out in the quickest and best manner possible by any means available;
 - B—Other buildings urgently required but which should only be built on the basis of the employment of African labour as far as possible.
32. The buildings in Schedule A to be as follows:—
- (a) European School, Nakuru.
 - (b) European School, Eldoret.
 - (c) Indian School, Nairobi.
 - (d) Government House, Nairobi.
33. The buildings in Schedule B to be:—
- (a) Housing for African employees of Government.
 - (b) Other buildings, a list of which was to be prepared by the Director of Public Works.

Many subsequent additions were made to the Priority Lists. The Cold Storage, Mombasa; Government House, Mombasa; Customs Offices, Mombasa, and the Native Industrial Training Depot, Kabete, were already under construction. The opinions of the Loan Works (Buildings) Committee regarding priority were in fact very different from the recommendations in the report of the sub-committee of the Select Committee on the Loan Proposals, which was adopted by the Select Committee and Legislative Council, for those recommendations were "that building operations should be concentrated as far as possible, and that as a commencement the needs of certain stations in which there are admittedly insufficient or unsuitable buildings should first be met." The stations to which the sub-committee recommends that priority should be given are shown in Appendix A to the report. The total sum is £448,720.

33. During 1926 the departmental method for construction of at least the majority of the priority buildings had already been decided. Stores staff, building foremen and other employees required only for departmental execution had been sanctioned, and considerable orders for building workshop and transport had been put through to cope with the requirements for departmental construction. The construction of the Public Works Office yards at Nakuru and Eldoret was in hand.

34. Until several years later, when the earlier appointments to the Native Industrial Training Depot had acquired some degree of proficiency, the application of the principle of the employment of native artisans was attended with the greatest difficulty. A measure of training in craftsmanship had been already accorded at some of the Mission schools and at the Muechen Government School, and a number could perform simple joinery and carpentry work as well as some bricklayer, masonry and smith's work under direction. The industrial school at Waa had also been started. Many mission buildings and some farm houses had been constructed by such labour under careful example and supervision. Long term convicts, working under prison instructions, were made available for construction at some stations, and did good work. Few of the artisans had, however, competed in the labour market with experienced craftsmen, whose efficient output with rapidity is the determining factor. Things from the Native Industrial Training Depot of earlier years were naturally no better. The Loan Works at a number of Priority B stations were constructed by this method, especially Ngini, Kakajoga, Kwale and Bonarua, but it was obviously the case that the work was extended for twice or three the period which would be required if the work had been executed by Indian artisans in the usual way, and supervision and administration charges were much higher than they would otherwise have been. The eventual completion of the buildings was in a large measure due to the conscientious work of the European foremen, who preferred to do work of intricacy themselves rather than to have it spoilt.

35. The instructions of the Loan Works (Buildings) Committee regarding the employment of Africans solely were modified at intervals; for instance, on October 5th, 1927 referring to the buildings to be constructed at Nakuru, other than the school which was on the Priority A list, consisting of the Native Hospital and houses of an estimated cost of £16,560, the Committee resolved—

"That the construction of those remaining Loan buildings be started as early as possible, using African artisan labour if obtainable, but if not, any other labour available to ensure the early completion of the works."

And again on the same date referring to the Native Hospitals at Muriranjaa, Kerugya and East Mall, for which £9,383 was available from Loan funds and £4,000 from Local Native Council funds, that they—

"Shall come under the Priority Schedule and should be undertaken at once with whatever labour is available, preference being given to African labour if available."

On December 7th, 1927, it was resolved that—

"Any schools to be built under present sanctioned Loan proposals, which have not up to date been put on Priority A, should forthwith be put on said Priority A."

so avoiding the delay and extra cost of using African labour for skilled craftsmanship.

And again in Minutes 8 and 9 it was resolved—

"That in the Extra-provincial Districts of Nakuru and Eldoret all housing to be built under the sanctioned Loan in these said Districts be placed on Priority A (but nevertheless using any African artisan labour available as far as possible), and be carried out by the Loan building organizations in being in these Districts."

and

"That in the Extra-provincial District of the Trans-Nzoia all housing to be built under the sanctioned Loan in this said District to be placed on Priority A, and built in whatever way other Priority A buildings (Kitale Schools) in this District are decided to be built."

36. Prolonged consideration was given at intervals to ways and means of getting minor buildings done by contract with the stipulation that native artisans be employed. Early in 1927 the housing difficulties at Nairobi and Mombasa had become serious, and it was necessary to take immediate steps to relieve the situation. On May 13th, 1927, the Loan Works (Buildings) Committee considered the matter. The question of inviting tenders for the erection of housing both European and Asian, in Nairobi and Mombasa was discussed on the basis that it be a condition of contract that the artisan labour employed for the work be African only, with capable supervision. A Mr. Keeping, of Mombasa, had put forward proposals under which he would build houses and let them to Government on lease. The Committee resolved—

"H. That steps be taken forthwith to obtain the erection of 20 Asiatic quarters in Mombasa and 12 European houses of accommodation Class IV Lowland type, either by negotiation with Mr. Keeping to build and Government to take on a long lease (it being a stipulation to Mr. Keeping that he be required to use African labour in building to the same extent as hereafter laid down if tenders are to be invited for these buildings), or, in the event of the negotiations with Mr. Keeping failing to result in terms satisfactory to Government, then tenders be invited on the basis that it be a condition of contract that the artisan labour employed be African only, with capable supervision, unless the Director of Public Works shall, owing to his deeming any particular work in any trade cannot be satisfactorily performed by African artisans, permit any such particular work to be done by other artisan labour. The ratio to be allowed under the contract between supervisors and African artisans, which must necessarily vary in the different trades, to be left to be fixed by the Director of Public Works, but with the proviso that in a general way for concrete work, walling, and other similar heavy portions of the work, where a considerable number of artisans would be required, it should not be more than one supervisor to fifteen artisans."

"A draft of the proposed conditions of contract on this matter to be circulated to members of the Committee in due course for information."

"II (a) That Resolution H above be submitted to Government and the policy outlined therein inaugurated if it receives the approval of Government."

"III That in the event of tenders being invited for the erection of this housing, the conditions of contract as to sureties, percentage of payments on account as the works proceed, and percentage of

contract prices to be held in hand by Government during the periods for which contractors have to maintain their work be as follows:—

- (a) Surety bonds to be required only at the discretion of the Director of Public Works, and in any event to be not more than 15 per cent of the amount of the contract or, alternatively, contractors to be required to deposit money or securities with the Director of Public Works, again only if deemed necessary at the discretion of the Director of Public Works, and in any event such money or securities to be of value of not more than 15 per cent of the contract, and, if such deposits are in money, interest on the same during the term held to be paid by Government at, say, 2 per cent per annum, or if securities are deposited, any dividends or rents or what not accruing on same to be taken by the contractor.
- (b) Payments on account to contractors to be at the rate of 40 per cent of the value of the work done.
- (c) On completion of the works the same to be paid for up to 95 per cent of the amount of the contract, and 5 per cent only held in hand by Government during the period of maintenance.

14. That for the present no tenders be invited or negotiations entered into as to the erection of either European or Asiatic housing in Nairobi, this question to be further discussed at a later meeting of the Committee.

37. At the meeting on May 26th, 1927, the matter was again considered by the Loan Works (Buildings) Committee, Minute No. 5 of that meeting reading as follows:—

The correspondence between the Director of Public Works, the Resident Commissioner and Mr. Keeping on this matter was placed before the Committee.

The Chairman reported with reference to Resolution II (a) of the meeting of 13th May, 1927, that it might be taken that the policy outlined in Resolution II of the same meeting did receive the approval of Government, and might therefore be inaugurated.

After consideration it was resolved:—

- (a) That the negotiations with Mr. Keeping be not carried any further, and he be informed that the Loan Works (Buildings) Committee cannot now see their way to recommend his offer to Government for acceptance, but at the same time he be thanked for this offer and informed that, as Government have now decided to invite tenders for the erection of buildings required in Mombasa, he will in due course be given an opportunity to tender for the work.
- (b) That the sites for both the European and Asiatic housing at Mombasa should be fixed by the Mombasa Housing Committee, the Resident Commissioner, Mombasa, and the Director of Public Works in consultation.

(c) That on the sites being fixed as provided in (b) above, drawings and necessary contract documents (those latter embodying the conditions as to employment thereon of African artisan labour as laid down in Resolution II of the meeting held on 13th May, 1927) be prepared and in due course tenders invited thereon. All possible expedition was to be given to this work.

38. On October 5th, 1927, the Committee had before it (quoting from Minute No. 3):—

(a) Notice to contractors inviting tenders which it was proposed to insert in the local Press.

(b) Clauses 1 and 2 of the proposed general conditions of contract for the work, Clause 2 having reference to the employment of only African artisan labour on the works of the contracts.

It was resolved:—

That such drafts be not approved for the present. The whole question of employment of African labour as a condition of all works to be further considered after discussion by technical members.

At the meeting on March 20, 1928, a tender for the first 12 European houses for construction at Mombasa was accepted, without restrictions as to the race of the labour for skilled work. At the meeting on December 13th, 1927, it was resolved:—

(1) That 100 instead of 50 Asiatic quarters for Nairobi (part two rooms and part three in four) be placed on Priority A, and tenders be invited for the erection thereof without any stipulation as to the use of African labour.

(2) That the erection of the Asiatic quarters sanctioned in Mombasa be proceeded with as soon as possible as a Priority A work.

39. All subsequent contracts for buildings in Nairobi and Mombasa, except one for ten Asian houses which is referred to later, were let without restriction.

40. The principle of employing Africans for skilled work had not, however, by any means been abandoned. Minute No. 1 of the meeting of December 13th, 1927, reads as follows:—

Letter No. 9365 of 30th November, 1927, from Director of Public Works to Hon. Colonial Secretary and a draft circular from the Director of Public Works to Executive Engineers, Public Works Department, was before the meeting.

This outlined a method of training selected Africans, the basis of the training being that they should work alongside trained artisans of any trade, who would assist them with their work.

It was resolved:—

(a) That the scheme be submitted to Government for approval, subject to the Committee being satisfied that Africans being employed on works were receiving the instruction or supervision in their particular trade of a qualified European in that trade.

(b) That the Director of Public Works should ask if necessary for such European leading artisans as are necessary to carry out the policy of (a).

41. The matter was further considered at the meeting on January 31st, 1928, and the Minutes record as follows:—

The Director of Public Works submitted that the work of training Africans and of erecting works out of Loan funds would proceed more rapidly if the restrictions as to the class of labour to be employed on Schedule B buildings were removed.

At present there were no Africans in certain trades and it would be impossible to finish a building entirely with African artisan labour. Moreover, very great delay in construction occurred, with resulting loss to Government especially in overheads. He suggested:

(1) That Resolution No. 1 of meeting of 13th December, 1927, approving the Director of Public Works' scheme of training selected Africans by the contact method, provided they were under the supervision of a qualified European, be agreed to and be applicable to Class B buildings.

(2) To instruct the Director of Public Works' authority that training of Africans is regarded as of vital consequence, and that every possible method should be utilized to effect this without restricting his actions unduly.

He was convinced that the best method of training Africans was by working alongside trained artisans. This method was already being employed on some of the Schedule A buildings, and if the restrictions as regards the buildings in Schedule B were removed the method could be employed more extensively and the number of Africans under training increased.

Major Ward said he was in sympathy with the Director of Public Works' scheme, subject to the qualification that the European supervision was adequate. The restrictions as to labour on Schedule B buildings were, however, laid down by the Elected Members, and he felt he had no power to agree to their withdrawal. He understood they were to meet the Hilton Young Commission about the 7th February, and suggested it might be opportune to submit the question to the Elected Members then.

42. The method was put into effect with varying degrees of success at different localities. It depended largely on the extent to which the Indians themselves entered into the project. In some localities the Indians enthusiastically co-operated. Probably the most satisfactory results were obtained at Kisumu, where a number of the Loan buildings were constructed through the medium of selected natives working alongside Indian artisans at constructional work. Those buildings were constructed cheaply and well. Many of these natives had been employed for years in the Public Works Department, assisting Indians in skilled trades, and had thus acquired a measure of experience under industrial conditions rather than under school conditions. Others had acquired some experience in craftsmanship elsewhere under commercial methods, and thus had an idea of the principle of attaining and taking pride in a good output when working against time. In some other localities it was not so successful, owing to the difficulty in securing natives of the right type, or less goodwill on the part of the Indian artisans.

43. This method of training was abandoned in 1930, for as the Native Industrial Training Depot apprentices became more experienced and contractors increased in numbers, so ensuring more competition in tendering, it became the practice to utilize the services of the Native Industrial Training Depot for the construction of such buildings as were deemed to be within their capacity and were in a position to supply gangs for, and to carry out the remainder by contract without restriction in respect of the nationality of the skilled labour to be employed by the contractor.

44. Exploration of the relative economy of carrying out work with African artisan labour and without restriction regarding race was revived at a later date, and in Minute 5 of the meeting of the Committee held on May 19th, 1932, the following was recorded:

(a) Asian Quarters, Nairobi (Balance of 150).—The Superintending Engineer explained that in order to carry out the policy of employing African artisans and thereby demonstrate their capabilities on a commercial basis, it was proposed to call alternative tenders for the remaining 10 Asian quarters to be erected in Nairobi, as follows:

(i) Tenders stipulating that only skilled African labour should be employed under the necessary European or other supervision.

(b) Tenders without any stipulation as to race of skilled labour to be employed as in the normal contracts let by the Public Works Department.

It was further explained that the aim of the proposals was to find employment for African artisans who had served their apprenticeship with the N.I.T.D., or any skilled Africans available. It was also thought that the Education Department might wish to come to terms with the tenderers under (a) above to supply gangs of N.I.T.D. apprentices.

It was resolved that alternative tenders be called on the lines of the proposals put forward.

Fifteen contractors tendered on both bases and eight more on the basis of no restriction as to race. The lowest tender for construction without restriction was Sh. 59,000, and the lowest tender with the restriction that African artisans only be employed was Sh. 72,242 6s. The contract was let to the second lowest tenderer (with the African artisan restriction) for the sum of Sh. 72,167 but the contractor failed to carry the contract to completion owing to financial difficulties.

45. An attempt was made to ascertain the relative economy of construction by Native Industrial Training Depot apprentices and by contract without restriction regarding race of the artisans. To this end, contract 48 Asian quarters at Mombasa. The building consisted of 24 quarters, each 24' wide by one line and 24 others identical in design but situated on a contract was let to one line of 24 quarters. The arrangements were made for the Native Industrial Training Depot apprentices to carry out the work of 24 quarters. The cost of the work was compared with the cost of the work done by the Native Industrial Training Depot apprentices. The results showed that the cost of the work done by the Native Industrial Training Depot apprentices was lower than the cost of the work done by the contract.

46. It will be observed that throughout the earlier years of the Loan programme several conflicting policies were operative. The desire to carry out the work by contract conflicted with the desire to use construction of the Loan buildings as a means for training Africans. Attempts to combine both policies—that is, to let contracts with the stipulation that only native artisans should be employed—failed. The design and execution of the programme was complicated by decisions at intervals that some buildings in the programme were either unnecessary or could be postponed, resulting in the Priority A and B programmes, which were added to and varied at intervals. The fluctuating programme resulted in much wasted work for surveys, designs and estimates were often prepared for a work which at the time was regarded as urgent.

but after the investigations, general arrangement drawings or sketch designs and estimates were ready, a change of policy or plan resulted in postponement or abandonment of the design. In cases of postponement it not infrequently happened that, when the project again became an important issue, ideas had changed, resulting in the old plans being abandoned and new ones prepared. The four-year programme contemplated early in 1926 thus extended to nine years. Some projects which were regarded as important in 1926 never finally sanctioned; others were added; in other cases again, old proposals were so much varied before sanction that they amounted to new projects.

47. The difficulties which the Buildings Committee in 1926 foresaw were undoubtedly some of the causes of the difficulties with which the Department and the Loan Works (Buildings) Committee were faced up to 1930. The shortage of contractors was pronounced. African artisans were insufficient in number, and were practically untrained; Indian artisans were insufficient in number, except in the principal towns, and were difficult to attract elsewhere; the suitability of various local materials for buildings of Loan standard had not been adequately tested, and experimental work in the various localities and in numerous directions was progressing; African unskilled labour could only be obtained on contract through the medium of professional recruiters from the Nyanza Province or elsewhere, with resulting high charge charges and recruiting fees; the impact of a large Government building programme and on the colony, joined with activity in the construction of water supplies and roads, as well as private building and farm development, had a considerable effect on the available labour supply. The Priority A buildings were to be constructed by whatever method would ensure their most rapid completion. The Priority A buildings which were sanctioned between January 1st, 1926, and December 31st, 1927, consisted of Government House, Mombasa; Government House, Nairobi; European Schools at Nairobi, Nakuru, Eldoret, and Mombasa; Indian School at Nairobi; European and Asian Housing at Nairobi, Mombasa, Nakuru and Eldoret; Eldoret Native Hospital; Kerugoya Native Hospital; Post Office at Nairobi; and the Indian Hospital at Nairobi. The Priority B buildings were also regarded as urgent, and were to be constructed as far as possible by native labour, though the instructions varied greatly as to the degree in which this policy was to be adhered to.

48. Staff for construction, in addition to staff for design and quantity surveying, as well as plant and materials, had to be procured, workshops made, and temporary stores constructed. Quarries, opened up, brickworks made, and construction proceeded with, often before the working drawings and bills of quantities were fully ready.

49. During 1928 and 1929 contractors, mostly Indians, had been gradually increasing in number. They had set up their own organizations in towns, and were undertaking building work over a much wider area of the colony than formerly. A few were good; many were indifferent. Competition in tendering improved greatly. Materials for construction and rates had become more stabilized, and the labour market was improving with the onset of the depression. It was usually possible to let contracts for favourable prices, even in out-stations. Even at such localities as Kabarnet and Migingo it was possible to let contracts. Except in so far as the necessity for pursuing the policy of training Africans still prevailed in a modified form, construction by contract superseded departmental construction for the remainder of the buildings which were sanctioned for execution from time to time. The change was without repercussions. Material and plant had been purchased for departmental execution on a high market. Workshops, workshop machinery, store buildings, etc., had been erected or installed. The transport and constructional plant had in fact been mostly liquidated against works by charging fairly high rent for its use against construction costs, but much of the material, fairly high rent for its use against construction costs, but much of the material, fairly high rent for its use against construction costs, but much of the material, this was used or disposed of as the case might be on the buildings still remaining for departmental execution or through the medium of apprentices

from the Native Industrial Training Depot and on revenue-charge works. It was also found suitable to supply material to contractors, to manufacture articles for fixing by them, and to let plant to them on hire. By these methods the remaining high-priced material was gradually disposed of, the plant used up, and the workshops employed. Apart from this circumstance, however, and even as the depression advanced, it was found more economical to purchase a large proportion of the principal fittings and materials, such as windows, sanitary fittings, steel, and articles of special kinds, through the Crown Agents for the Colonies, so making use of their organization for securing cheap prices for first-class articles by tender in England and obtaining the advantage of discounts on freight charges by sea and rail, as well as escaping Customs duty as a charge against the works. The result of these factors was that, although contracts were let for construction, much work of a character which is normally included in contracts still remained as a departmental activity.

50. The buildings executed up to the end of 1934, costing £1,018,638 for construction, were carried out in the following ways:

£508,928 or 49.97 per cent	Departmentally.
£118,697 or 11.16 per cent	through the medium of Native Industrial Training Depot Apprentices.
£402,113 or 39.48 per cent	by Contract.

51. The expenditure charged to construction in each year, inclusive of certain buildings which were purchased, was as follows—

	£		£
1926	790	1930	141,746
1927	56,896	1931	157,414
1928	135,390	1932	50,082
1929	194,987	1933	19,026
1929	234,930	1934	69,265

52. The cost of labour, stores and transport remained high during the earlier years and dropped materially during later years, with the result that the cost of constructional work fell. Most of the departmental work was carried out in the earlier years when rates were high, and the contract work during the later years when rates were falling.

53. The reductions in African labour costs, due largely to the lower prices of maize meal and other articles of native diet, are reflected in the following average costs of native labour according to departmental records.

	COST OF NATIVE UNSKILLED LABOUR PER MAN DAY IN CENTS OF A SHILLING		
1927	72	1931	56
1928	72	1932	48
1929	70	1933	48
1930	66	1934	44

54. The average costs of Asian artisan labour indicate a reduction of about 15 per cent, but during the depression, casual Indian artisans were often obtainable, by Asian contractors especially, at very low wages on account of the labour market being overstocked at times.

55. The average cost of the principal imported material used in buildings also shows a reduction of approximately 15 per cent. Transport by road is difficult to assess on account of widely varying rates throughout the Colony, but it is considered that the average reduction amounts to some 40 per cent during the eight-year period from 1927 to 1934.

VI.—ESTABLISHMENT—BUILDINGS.

56. As indicated in paragraphs 26 and 27, it had become clear during 1927 that the liquidation of the Common Expenses Suspense Account monthly was unworkable. By September 30th, 1927, the unliquidated balance stood at £60,261. The Treasurer and Auditor were anxious to have the method for

accounting for administration and general charges regularized. In August and September, 1927, a new system of accounting for these general charges was prepared and brought into effect on October 1st, 1927. It received the covering approval of the Loan Works (Buildings) Committee on December 7th, 1927, in so far as it related to Public Buildings.

57. This scheme provided for the closing of the Common Expenses Account and opening the following accounts against "Advances pending the raising of the Colonial Loan" —

- (1) Establishment—
 - (a) Buildings.
 - (b) Roads.
 - (c) Water Supplies.
 - (d) General.
- (2) Nairobi Loan Transport.
- (3) Mwachie Estate Account.
- (4) Machinery and Plant.
- (5) Joinery Machine Shop.
- (6) Blacksmith Shop.

with proposals for the liquidation of Accounts (2) to (6) by the end of the Loan programme by charges against works.

58. To the appropriate sub-heads of Establishment there were to be charged staff salaries, free house allowances, passages, rail fares, transfers, experimental work, temporary buildings, and incidental expenses incurred in connection with Loan staff. To sub-head (1) (a) Establishment there were to be charged similar expenses which could not be allocated directly to the Buildings, Roads and Water Supplies sub-heads, but which were common to all three. As far as staff was concerned, this related chiefly to those Loan officers concerned with accounting, storekeeping and clerical activities. The Establishment General was to be liquidated against the other three sub-heads of Establishment monthly by apportioning the monthly total by the following manner: Buildings, 86 per cent; Roads, 8 per cent; Water Supplies, 6 per cent.

59. A schedule showing the deduction from each of the sanctioned provisions for works to finance the Establishment Accounts on the basis that all works sanctioned at that time would be finished by December 31st, 1930, was approved by the Committee. By this action allocations were made as follows to the four Establishment Accounts: (a) Buildings, £109,060; (b) Roads, £22,460; (c) Water Supplies, £11,800; (d) General, £56,900; totalling £200,220.

60. It was accepted by the Loan Works (Buildings) Committee that so many uncertain and variable factors existed in connection with the execution of the Loan programme, it was impossible to gauge with any great degree of accuracy the probable overheads which each item should bear; that the sums represent the present estimate of such amounts and the deductions were made in varying proportions according to the estimated ability of each item to bear them; and that such factors as transfers and substitutions of items, uncertainty as to the ultimate policy in respect of housing of officials, investigation of projects from which nothing finally eventuated, influenced the matter.

61. As regards Accounts Nos. (2) to (6), various methods for gradual liquidation against works were approved and adopted.

62. During subsequent years it became the practice, when new buildings were approved for design and construction by reallocation or new financial provision to enhance the relevant Establishment by a percentage deducted from the total sum so as to provide for their design, quantity surveying and general charges. These percentages were ordinarily adequate to cover the

actual requirements for such individual buildings, but had the effect of leaving stranded in the Establishment the costs of surveys, designs and general charges on abandoned proposals with no construction provision appurtenant to them, so rendering impossible eventual liquidation of those charges against executed works.

63. Throughout the progress of the continually varying building programme, one of the principal factors which caused embarrassment and delay in design and estimating with resulting enhanced costs, especially in the earlier years, was the absence in the case of most of the townships of approved town planning schemes. In some cases town planning was proceeding simultaneously; in others, it had not been started. Questions relating to siting, water supply and drainage resulted in the preparation and consideration of tentative projects before a measure of concurrence of opinion amongst the authorities concerned could be achieved. The staff expenditure involved, in time, traveling, surveys, tentative designs, estimating, interviews and correspondence in connection with any proposal, whether it eventually reached fruition or was abandoned, was therefore far greater than is usual.

64. The Establishment charges had been estimated on the basis that all the building works would be finished by the end of 1930 and the Loan staff discharged. Owing to alterations in the programme, delays due to land questions, town planning, siting, prior provision of water supplies either out of Loan or Revenue, the employment of Loan staff on surveys, designs and estimates for proposals not in the programme, abandonment of surveys and designs in favour of others or in consequence of reallocations, the position at the end of 1930 was that there remained about £210,000 worth of buildings in the original programme still to be executed. Towards the end of that year also, provision was made for the Law Courts and Central Offices, while the proposed new K.A.R. Lanes again came to the fore. The result of these further proposals and reallocations brought the total provision for buildings still remaining to be executed at the end of 1930 to £530,000.

65. Premature though it may have been, it was, however, thought desirable by the Committee to proceed to allocate the Establishment Charges to individual works, and at the meeting of the Committee held on May 10th, 1931, the following Treasury memorandum was approved:—

Method of Adjusting Excesses and Savings on Items and Procedure in regard to the Allocation of Establishment Charges.—
At the meeting of the Loan Works (Buildings) Committee held on the 3rd March, 1931, the Treasurer proposed that, in order to simplify reallocations between items which may be authorized by the Committee, it would be convenient in future to transfer all ascertained savings as they occurred to a pool under each subdivision of the approved loan schedule, and to meet any expenditure excesses or additions in respect of items in each subdivision from the funds available in its pool. The Committee expressed agreement with this proposal, the adoption of which, apart from accounting convenience, will facilitate the work of the Committee when reallocations are submitted for approval.

2. The Treasury has also had under consideration the procedure in regard to the allocation of establishment charges. At present there is an account for Establishment Buildings, and establishment expenditure has been allocated to this account. In order to ascertain the expenditure incurred on each work against the provision authorized by the Committee, it is necessary to charge off the establishment expenditure to the individual works, and arrangements are being made for this to be done in future. It must be mentioned, however, that the provision authorized by the Committee, shown in the second column of the statements attached, includes establishment costs at varying percentages for different works. It is considered that establishment provision should represent a fixed percentage of construction costs, and the expenditure will then fall evenly over all

items. The establishment provision has therefore been amended and the figures shown in the last column of the statement now reflect the revised position which is submitted to the Committee for approval. It should be made clear that the revised figures do not entail any increase in expenditure over the amount authorized by Legislative Council, and that the alterations that have been made are due, with two exceptions, solely to the reallocation of establishment charges on the more equitable basis. In some cases the provision has been reduced and in others it has been increased, the result being that establishment provision for each item now represents a fixed percentage of the amount approved by the Committee for construction, without entailing any increase on the total provision under the subdivisions.

1. The exceptions referred to are the provision for Government House, Nairobi and Mombasa. The amount approved by the Committee for Nairobi was £68,100 and for Mombasa £70,800. The excess of £2,400 was previously reported to the Committee, and it has now been covered by funds available in the housing pool. An excess of £16 on Government House, Mombasa, is similarly covered by a transfer from the pool.

4. It is now proposed with the approval of the Loan Works Committee to embody the revised schedule, which has been prepared on the above basis, in the Seasonal Loan Statement for submission to Legislative Council.

(A) PUBLIC BUILDINGS

	Approved by Loan Works Committee		Amount for Construction		Amount for Establishment		Revised Total	
	£	£	£	£	£	£	£	£
(1) HOUSING FOR GOVERNMENT SERVANTS								
1. Government House, Mombasa	19,400	19,476				7,059	70,508	19,410
2. Government House, Nairobi	68,100	68,474						
3. Housing at Out-stations:								
Kenia	1,669	1,359			306		1,785	
Mombasa (Kilifi)	8,392	7,561			1,862		9,133	
Voi (Taita)	3,410	3,110			621		3,761	
Kilifi	5,030	4,568			956		5,624	
Machakos	5,335	5,759			1,296		6,665	
Ngong	4,048	4,048			848		4,896	
Nairobi	8,878	6,200			1,299		7,499	
Nairobi	12,248	11,018			2,308		13,388	
Kisumu	23,320	21,240			4,460		28,000	
Kisumu	6,436	5,558			1,143		6,598	
Kisumu	6,349	5,728			1,069		6,762	
Kericho	18,791	17,489			1,039		19,807	
Makamega	5,974	4,962			659		5,962	
Mombasa	3,460	3,144			619		3,773	
Port Har	2,238	2,954			619		3,593	
Kericho	2,238	2,954			602		3,542	
Muramba	2,826	2,896			1,045		3,941	
Meru	7,650	6,880			1,067		8,947	
Bumruji	24,787	21,048			591		25,339	
Eldoret	3,064	2,899			1,286		3,711	
Nanyuki	6,633	6,965			674		7,311	
Kisumu	3,938	3,254			674		4,459	
Kisumu	4,680	3,687			1,060		4,747	
Isiolo	5,011	5,061			1,218		6,279	
Maseno	1,765	4,298			714		4,125	
Diis	3,443	3,413			419		3,419	
Mtwapa	2,000	2,000			16,651		96,740	
Kabete	106,698	79,469			40,599		239,894	
Mombasa	266,226	163,385			4,484		26,583	
Nairobi		21,409						
Pool—Unallocated								
	£ 653,176	548,696	104,679	668,175				

(A) PUBLIC BUILDINGS—(Contd.)

	Approved by Loan Works Committee		Amount for Construction		Amount for Establishment		Revised Total	
	£	£	£	£	£	£	£	£
(2) MEDICAL BUILDINGS								
Mombasa	7,475	2,276					376	2,652
Mombasa (Kilifi)	5,250	4,686					774	5,460
Tana River	2,085	1,861					307	2,168
Voi (Taita)	5,846	5,219					892	6,081
Kilifi	3,075	2,745					454	3,199
Machakos	5,872	3,725					615	4,338
Nairobi	2,398	2,141					354	2,495
Nairobi	7,000	6,247					1,032	7,279
Nairobi	14,818	13,372					2,209	15,581
Nairobi	8,200	6,966					1,161	8,127
Nairobi	5,125	2,792					461	3,259
Port Har	8,128	2,792					461	8,258
Muramba	3,127	2,792					307	2,748
Meru	2,085	1,861					297	5,196
Ngong	5,000	4,482					540	3,806
Nairobi	8,541	3,866					694	9,700
Ngong	6,519	1,026					152	4,484
Kericho	4,066	4,152					758	5,117
Kisumu	5,481	4,872					687	6,168
Nairobi (Medical Laboratory)	34,580	22,487					3,862	34,367
Pool—Unallocated		4,571					418	2,248
	121,146	112,474	18,669	131,524				
(3) EDUCATIONAL BUILDINGS								
EUROPEAN:								
Nairobi	37,782	34,000					4,259	38,263
Kabete	73,280	66,726					7,599	84,324
Makuru	41,800	37,849					4,011	46,011
Eldoret	42,620	37,960					4,736	48,698
Kilifi	24,480	21,830					2,791	24,481
AFRICAN:								
Nairobi	56,000	49,980					6,252	56,282
ARAB:								
Mtwapa, Mombasa	13,000	8,637					1,081	9,718
AFRICAN:								
Kabete	26,400	26,400						26,400
Pool—Unallocated		6,235					366	7,015
	315,212	283,160	32,112	315,212				
(4) OTHER BUILDINGS								
Mombasa	25,500	23,550						1,950
Kisumu	600	600						600
Nairobi:								
K.A.R. Lines	80,000	69,560					10,494	90,054
Law Courts	136,820	126,176					10,644	147,820
Central Offices	165,820	155,916					20,972	186,887
Medical Store	1,000	1,000					1,017	1,017
Ngong	7,200	6,409					852	7,617
Nairobi	1,200	1,200					1,200	1,814
Nairobi	4,000	3,700					297	3,997
Pool—Unallocated	600	600					65	700
EUROPEAN:								
P.W.D. Building	3,440	3,062					479	3,541
Government Offices	2,760	2,400					376	2,776
AFRICAN:								
Nairobi	400	356					66	412
Kisumu	3,600	3,130					490	3,620
Mombasa	2,350	2,086					323	2,424
Pool—Unallocated		400					65	462
	596,244	560,508	66,946	658,244				
SUMMARY								
HOUSING	653,176	548,696	104,679	658,175				
MEDICAL BUILDINGS	121,146	112,474	18,669	131,524				
EDUCATIONAL BUILDINGS	315,212	283,160	32,112	315,212				
OTHER BUILDINGS	46,816	380,364	55,880	436,244				
TOTAL PUBLIC BUILDINGS	1,536,150	1,324,694	211,221	1,536,150				

66. The schedule did not, in fact, provide a uniform Establishment percentage of Construction costs, as stated in the memorandum, the uniformity only extending to items within each sub-head of the head Public Buildings, according to the ability of the sanctioned provision for construction costs in each case to bear them. Apart from certain buildings which were not included at all and others which could only bear a small percentage addition if the sanctioned sum were to be adhered to, the average percentages for Establishment thus combined with construction costs were 20.947 per cent for (1) Housing for Government servants; 16.523 per cent for (2) Medical Buildings; 12.51 per cent for (3) Educational Buildings, and 15.661 per cent for Other Buildings.

67. Therefore, the principle of the schedule, although acceptable as a provisional allocation, could not be regarded as final, because not only was much of the programme still unfinished and liable to variations of decisions before completion of designs and execution, but a varying percentage according to the purpose of the building could only be justified as a temporary expedient, for there was no reason for believing that a building designed for, say, a European school should bear a different Establishment charge from that for, say, a native hospital or a medical research laboratory, or again that the Establishment charge for a house for a Government servant should be the highest of all. Moreover, in the combination of the Establishment head with works charges, not only had no deductions been made for surveys, designs, estimating and quantities for abandoned proposals, but some buildings which had been constructed and to which Establishment charges were apportioned were omitted. Government House, Nakuru, was only accorded a percentage of 11 per cent for Establishment, although, owing to frequent changes of design of details during construction and the difficulty of incorporating a new structure with an old one, it would be likely to have proved higher, than the average on a statistical record of Establishment if this were possible.

68. It became clear during 1933 and 1934 that the works remaining for execution out of the sanctioned Loans were so few in number that it was not necessary to retain the Establishment account for the expenses of such Loan staff and other general Loan expenses as remained could be divided up monthly amongst the works in proportion to the cost of the time of the staff and other expenditure incurred on them. The Establishment Account had been inaugurated when there were a very large number of works under simultaneous investigation and design, and the intention has always been to combine the Establishment charges with works charges, so that each completed work carries its assessed proportion of the Establishment charges. As already shown in paragraph 24, it was thought, when the Common Expenses Suspense Account was inaugurated, that the programme would be finished by the end of 1929, and, as indicated in paragraph 59, when the Establishment Buildings was substituted for it, it was believed that the works would be complete by December 31st, 1936. For the reasons stated in paragraph 64, this did not come about. It was therefore decided to close the Establishment Account on December 31st, 1934.

69. The provisional combination of Establishment with Construction costs which was decided on May 16th, 1931, for completed works was, as shown in paragraph 67, not founded on methods which could be defended as giving a true picture of actual costs, because—

- (1) The percentages added to buildings falling under each item were based on the sums which each sanctioned item could bear without over-expenditure.
- (2) No deductions were made for the expenditure incurred on investigations, surveys and designs by the Loan staff for works which were abandoned or eventually carried out from revenue, or other activities on which the Loan staff was employed.
- (3) Structures which were dealt with to some degree by the Loan staff and which should in consequence bear a small percentage of Establishment charges bore no percentage.

(4) The Construction cost of the extensions to the Public Works Department head offices and stores yard and of the railway sidings, £6,864, remained as a charge against Establishment, and no addition was made for staff charges connected with the work, whereas the construction of similar work at Nakuru and Eldoret was charged to Construction and had a quota of Establishment added.

70. The revised distribution of the Establishment up to December 31st, 1934, on which date the account was closed, is based on the following considerations:—

- (1) The total charges to Establishment on December 31st, 1934, amounted to £224,214.
- (2) The total charges to Construction up to the same date amounted to £1,057,390, of which £948,226 was on completed buildings, the difference being on buildings still under construction on December 31st, 1934.
- (3) After various deductions for separate action, amounting to £62,568 in the aggregate, have been made from the Establishment Account of £224,214, and £92,352 from the Construction Account on completed buildings of £948,226, the balance of Establishment amounting to £161,646 should be distributed over the individual buildings comprised in the balance of Construction, amounting to £855,874, at the uniform percentage of 18.88 per cent, independent of the purpose for which the building was designed and erected and its method of design and construction.

71. Appendix I sets forth the way in which the percentage of 18.88 average Establishment quota is arrived at, being the ratio of the net aggregate Establishment charge of £161,646 to the net aggregate Construction charge of £855,874.

72. It will be observed from Appendix I that the deductions of £62,568 from the Establishment, £224,214, to arrive at the sum of £161,646 for spreading *pro rata* over the balance of Construction costs consist of—

A.—Transfer from Establishment to Construction of the construction cost of Public Works Department head offices, stores yard and railway sidings	6,864
B.—Preliminary investigation of proposed buildings	22,957
C.—Establishment charges allotted to buildings which were in the course either of design or construction on 31st December, 1934, up to that date	26,698
D.—Special Establishment charge allotted to certain individual buildings	6,049
	£62,568

It will be seen that the deductions from Construction on completed buildings of £948,226 amounting to £92,352 to arrive at the sum of £855,874 representing the balance of Construction costs, over which the balance of Establishment of £161,646 is spread *pro rata*, consist of—

A.—Buildings to which a special Establishment charge is allotted	72,695
B.—Buildings to which no Establishment charge is allotted	19,757
	£92,352

73. The reason why special Establishment charges, smaller than the average, are allocable to certain structures is that the Loan staff was only partially concerned with those structures. The reason why no Establishment charges are allocable in other instances is that those instances are structures

66. The schedule did not, in fact, provide a uniform Establishment percentage of Construction costs, as stated in the memorandum, the uniformity only extending to items within each sub-head of the head Public Buildings, according to the ability of the sanctioned provision for construction costs in each case to bear them. Apart from certain buildings which were not included at all, and others which could only bear a small percentage addition if the sanctioned sum were to be adhered to, the average percentages for Establishment thus combined with construction costs were 20.947 per cent for (1) Housing for Government servants; 16.523 per cent for (2) Medical Buildings; 12.51 per cent for (3) Educational Buildings, and 15.661 per cent for Other Buildings.

67. Therefore, the principles of the schedule although acceptable as a provisional allocation, could not be regarded as final, because not only was much of the programme still unfinished and liable to variations of decisions before completion of designs and execution, but a varying percentage according to the purpose of the building could only be justified as a temporary expedient, for there was no reason for believing that a building designed for a European school should bear a different Establishment charge from that for, say, a native hospital or a medical research laboratory, or again that the Establishment charge for a house for a Government servant should be the highest of all. Moreover, in the combination of the Establishment head with works charges, not only had modifications been made for surveys, designs, estimating and quantities for abandoned proposals, but some buildings which had been constructed and to which Establishment charges were apportioned were omitted (Government House, Nairobi), was only accorded a percentage of 11 per cent for Establishment, although, owing to frequent changes of design of details during construction and the difficulty of incorporating a new structure with an old one, it would be likely to have proved higher, than the average on a statistical record of Establishment if this were possible.

68. It became clear during 1933 and 1934 that the works remaining for execution out of the sanctioned Loans were so few in number that it was not necessary to retain the Establishment account for the expenses of such Loan staff and other general Loan expenses as remained could be divided up monthly amongst the works in proportion to the cost of the time of the staff and other expenditure incurred on them. The Establishment Account had been inaugurated when there were a very large number of works under simultaneous investigation and design, and the intention has always been to combine the Establishment charges with works charges, so that each completed work carries its assessed proportion of the Establishment charges. As already shown in paragraph 24, it was thought, when the Common Expense Suspense Account was inaugurated, that the programme would be finished by the end of 1929, and, as indicated in paragraph 59, when the Establishment-Buildings was substituted for it, it was believed that the works would be complete by December 31st, 1936. For the reasons stated in paragraph 64, this did not come about. It was therefore decided to close the Establishment Account on December 31st, 1934.

69. The provisional combination of Establishment with Construction costs which was decided on May 19th, 1931, for completed works was, as shown in paragraph 67, not founded on methods which could be described as giving a true picture of actual costs, because—

- (1) The percentages added to buildings falling under each item were based on the sums which each sanctioned item could bear without over-expenditure.
- (2) No deductions were made for the expenditure incurred on investigations, surveys and designs by the Loan staff for works which were abandoned or eventually carried out from revenue, or other activities on which the Loan staff was employed.
- (3) Structures which were dealt with to some degree by the Loan staff and which should in consequence bear a small percentage of Establishment charges bore no percentage.

(4) The Construction cost of the extensions to the Public Works Department head offices and stores yard and of the railway sidings, £5,864, remained as a charge against Establishment, and no addition was made for staff charges connected with the work, whereas the construction of similar work at Nakuru and Eldoret was charged to Construction and had a quota of Establishment added.

70. The revised distribution of the Establishment up to December 31st, 1934, on which date the account was closed, is based on the following considerations:—

- (1) The total charges to Establishment on December 31st, 1934, amounted to £224,214.
- (2) The total charges to Construction up to the same date amounted to £1,057,390, of which £948,226 was on completed buildings, the difference being on buildings still under construction on December 31st, 1934.
- (3) After various deductions for separate action, amounting to £62,568 in the aggregate, have been made from the Establishment Account of £224,214, and £92,352 from the Construction Account on completed buildings of £948,226, the balance of Establishment amounting to £161,646 should be distributed over the individual buildings comprised in the balance of Construction, amounting to £855,874, at the uniform percentage of 18.88 per cent, independent of the purpose for which the building was designed and erected and its method of design and construction.

71. Appendix I sets forth the way in which the percentage of 18.88 per cent Establishment quota is arrived at, being the ratio of the net aggregate Establishment charge of £161,646 to the net aggregate Construction charge of £855,874.

72. It will be observed from Appendix I that the deductions of £62,568 from the Establishment, £224,214, to arrive at the sum of £161,646 for spreading *pro rata* over the balance of Construction costs consist of—

	£
A.—Transfer from Establishment to Construction of the construction cost of Public Works Department head offices, stores yard and railway sidings	6,864
B.—Preliminary investigation of proposed buildings	22,857
C.—Establishment charges allotted to buildings which were in the course either of design or construction on 31st December, 1934, up to that date	26,698
D.—Special Establishment charge allotted to certain individual buildings	6,400
	£62,568

It will be seen that the deductions from Construction on completed buildings of £948,226 amounting to £92,352 to arrive at the sum of £855,874 representing the balance of Construction costs, over which the balance of Establishment of £161,646 is spread *pro rata*, consist of—

	£
A.—Buildings to which a special Establishment charge is allotted	72,595
B.—Buildings to which no Establishment charge is allotted	19,757
	£92,352

73. The reason why special Establishment charges smaller than the average, are allocable to certain structures is that the Loan staff was only partially concerned with those structures. The reason why no Establishment charges are allocable in other instances is that those instances are structures

which were purchased and no alterations were designed and executed, or else structures with which the Loan staff was not concerned or only concerned to a trivial degree.

74. The sum of £161,646, showing an average percentage of 18.88 of the direct charges on completed works at 31-12-1934 amounting to £855,874, is made up of—

	£	Percentage of £855,874
(a) Outside Architects' Fees	£113,722	
(b) Public Works Department Architectural Staff	£21,984	
(c) Quantity Surveying Staff	35,706	4.17
(d) Engineering Staff	21,252	2.48
(e) Clerks of Works, Foremen, etc.	8,358	0.98
(f) Accounts Staff (including Treasury Staff Employed on Loan Accounts)	26,465	3.09
(g) Stores Staff	21,896	2.56
(h) General Clerical Staff and Typists	23,087	2.70
(i) Telephones, Telegrams and Miscellaneous	23,805	2.78
	1,277	0.15
	£161,646	18.88

75. An analysis of architectural costs shows the following:—

	£
(1) Outside architects' fees appertaining to buildings architecturally designed by them and constructed	£290,460
Fees paid	13,722

Add—

Proportion of Public Works Department architectural staff charges on collaboration with outside architects on architectural matters connected with the above and on supervision of construction

2,992
£16,714 = 5.75%

(2) Cost of Public Works Department staff on buildings designed by the Public Works Department architects and constructed. Construction cost

£18,992 = 3.36%

Owing to the fact that the Government Architect himself was a Revenue-charger officer for most of the period and his duties including not only Revenue-charged buildings but also the design of the Loan buildings which were architecturally dealt with by the Public Works Department through the Assistant Architects and Draughtsmen employed thereon, it would be correct, in order to obtain a true comparison, to add the value of his services in connection with Loan buildings to the sum of £18,992. The value of Revenue-charged buildings dealt with by him during the period was £246,354 and of Loan buildings £565,474. The portion of his emoluments inclusive of pension commitments, housing, etc., requiring to be added to the sum of £18,992, is £4,578, and this addition increases the percentage for (2) above from 3.36 per cent to 4.17 per cent.

76. It will be seen that the cost of architectural design by means of the Public Works Department architectural staff was less than the cost of architectural design through the medium of the outside architects. It should, however, not be inferred from this that the valuable services rendered by Sir Herbert Baker were not worth the extra cost. The chief object of the employment of Sir Herbert Baker was to introduce into the Colony at an early stage in its growth a type of architecture for its public buildings which was suitable. It is generally agreed that the modification of the Italian Renaissance with which the name of Sir Herbert Baker is associated, is simple and effective. From the economic point of view, however, a method under which the purely architectural design is carried out by one authority

and the structural design, the design of engineering services, the specification writing and quantities by another authority, cannot be defended, for it leads to the necessity for an unduly large number of drawings and difficulties of co-ordination. Nevertheless, these were the only terms on which Sir Herbert Baker's services were obtainable.

77. In the consideration of the ratio of Establishment to Construction it is to be noted from paragraph 50 that 60.52 per cent of the work was constructed departmentally or through agencies such as the Native Industrial Training Depot. If all of the work had been carried out by contract in all respects, many of the items of the Establishment would have comprised "contractors' overheads" and been included in accepted tenders as appearing as Construction costs. This applies to the whole of (a) Stores Staff, and a large part of (c) Clerks of Works, Foremen, etc., (d) Accountancy Staff, and (e) General Clerical Staff and Typists. A further analysis shows that if that had been the case (the reduction in Establishment with consequential increase of Construction would have been—

(c) Clerks of Works, Foremen, etc.	£17,000
(d) Accountancy Staff	12,000
(e) Stores Staff	23,087
(f) General Clerical Staff and Typists	10,000
	£62,087

The direct charges would have been thereby increased from £855,874 to £917,961 and the Establishment charges reduced from £161,646 to £99,559, thus giving a percentage of Establishment to Construction of 10.84 per cent.

78. Appendix H shows the details of the revised combination of Establishment with Construction, and Appendix III shows these details arranged on the lines of the Loan Statements for comparison with those Statements. The revised summary of expenditure is as follows:—

	Provision	Expenditure to 31st December, 1934
1. Housing for Government Servants	653,476	688,118
2. Medical Buildings	131,524	129,267
3. Educational Buildings	315,212	330,028
4. Other Buildings	447,544	294,343
5. Investigations and Designs for Abandoned Projects	10,743	22,857
6. Malt Drying Installation		10,744
	£1,858,198	£1,885,354
	Balance on 31st December, 1934	£272,714

79. In order to arrive at the balance available for new works on December 31st, 1934, there has to be deducted from this sum of £272,714 the following items, amounting to £197,714

	£
A. Sum not Raised in the 1930 Loan	61,682
B. Sum Required to Complete Buildings under Construction on 31st December, 1934	
(1) Law Courts	23,760
(2) Kitale Native Hospital	1,819
(3) Brigade Magazines, Latrines, Bath and Washrooms, K.A.R. Lines	100
(4) Mathari Mental Hospital	1,575
	27,254
C. Central Government Offices According to New Design	100,369
D. Reserve to Cover Commitments for Passages and Leave Salaries of Loan Staff, Accrued to 31st December, 1934	1,000
E. Reserve for Contingencies	7,409
	£197,714

Leaving a balance of £75,000 for new proposals, inclusive of their administration charges, from January 1st, 1935.

which were purchased and no alterations were designed and executed, or else structures with which the Loan staff was not concerned or only concerned to a trivial degree.

74. The sum of £161,646, showing an average percentage of 18.88 of the direct charges on completed works at 31-12-1934 amounting to £855,874, is made up of—

	£	Percentage of £855,874
(a) Outside Architects' Fees	£13,722	
(b) Public Works Department Architectural Staff	£21,984	
	35,706	4.17
(c) Quantity Surveying Staff	21,252	2.48
(d) Engineering Staff	8,358	0.98
(e) Clerks of Works, Foremen, etc.	26,466	3.09
(f) Accountancy Staff (including Treasury Staff Employed on Loan Accounts)	21,896	2.56
(g) Stores Staff	23,087	2.70
(h) General Clerical Staff and Typists	23,906	2.78
(i) Telephones, Telegrams and Miscellaneous	1,277	0.15
	£ 161,646	18.88

75. An analysis of architectural costs shows the following:—

	£
(1) Outside architects' fees appertaining to buildings architecturally designed by them and constructed. Construction cost £290,460. Fees paid	13,722
Add— Proportion of Public Works Department architectural staff charges on collaboration with outside architects on architectural matters connected with the above and on supervision of construction	2,992
	£16,714 = 5.75%
(2) Cost of Public Works Department staff on buildings architecturally designed by the Public Works Department architects and constructed. Construction cost £565,474	£18,992 = 3.36%

Owing to the fact that the Government Architect himself was a Revenue-charge officer for most of the period and his duties including not only Revenue-charge buildings but also the design of the Loan buildings which were architecturally dealt with by the Public Works Department through the Assistant Architects and Draughtsmen employed thereon, it would be correct, in order to obtain a true comparison, to add the value of his services in connection with Loan buildings to the sum of £18,992. The value of Revenue-charge buildings dealt with by him during the period was £246,354 and of Loan buildings £565,474. The portion of his emoluments inclusive of pension commitments, housing, etc., requiring to be added to the sum of £18,992, is £4,578, and this addition increases the percentage for (2) above from 3.36 per cent to 4.17 per cent.

76. It will be seen that the cost of architectural design by means of the Public Works Department architectural staff was less than the cost of architectural design through the medium of the outside architects. It should, however, not be inferred from this that the valuable services rendered by Sir Herbert Baker were not worth the extra cost. The chief object of the employment of Sir Herbert Baker was to introduce into the Colony at an early stage in its growth a type of architecture for its public buildings which was suitable. It is generally agreed that the modification of the Italian Renaissance with which the name of Sir Herbert Baker is associated, is simple and effective. From the economic point of view, however, a method under which the purely architectural design is carried out by one authority

and the structural design, the design of engineering services, the specification writing and quantities by another authority, cannot be defended, for it leads to the necessity for an unduly large number of drawings and difficulties of co-ordination. Nevertheless, these were the only terms on which Sir Herbert Baker's services were obtainable.

77. In the consideration of the ratio of Establishment to Construction it is to be noted from paragraph 50 that 60.52 per cent of the work was constructed departmentally or through agencies such as the Native Industrial Training Depot. If all of the work had been carried out by contract in all respects, many of the items of the Establishment would have comprised "contractors' overheads" and been included in accepted tenders, so appearing as Construction costs. This applies to the whole of (g) Stores Staff, and a large part of (e) Clerks of Works, Foremen, etc., (f) Accountancy Staff, and (h) General Clerical Staff and Typists. A further analysis shows that if that had been the case the reduction in Establishment and consequential increase of Construction would have been—

(e) Clerks of Works, Foremen, etc.	£ 17,000
(f) Accountancy Staff	12,000
(g) Stores Staff	23,087
(h) General Clerical Staff and Typists	10,000
	£62,087

The direct charges would have been thereby increased from £855,874 to £917,961, and the Establishment charges reduced from £161,646 to £99,559, thus giving a percentage of Establishment to Construction of 10.84 per cent.

78. Appendix II shows the details of the revised combination of Establishment with Construction, and Appendix III shows these details arranged on the lines of the Loan Statements for comparison with those Statements. The revised summary of expenditure is as follows:—

	Provision	Expenditure to 31st December, 1934
1. Housing for Government Servants	£ 653,475	£ 598,115
2. Medical Buildings	131,524	129,227
3. Educational Buildings	315,212	330,028
4. Other Buildings	447,543	204,343
5. Investigations and Designs for Abandoned Projects		22,937
6. Mice Drying Installation	10,748	10,744
	£ 1,658,198	£ 1,285,384
Balance on 31st December, 1934—£272,714		

79. In order to arrive at the balance available for new works on December 31st, 1934, there has to be deducted from this sum of £272,714 the following items, amounting to £197,714:—

A. Sum not Raised in the 1930 Loan	£ 61,682
B. Sum Required to Complete Buildings under Construction on 31st December, 1934	
(1) Law Courts	£ 23,760
(2) Hospital, Native Hospital	1,819
(3) Bridges, Magazines, Latrines, Bath, and Washhouses, K.A.R. Lines	100
(4) Mather's Mental Hospital	1,575
	£ 27,254
C. Central Government Offices According to New Design	100,369
D. Reserve to Cover Commitments for Passages and Leave Salaries of Loan Staff, Accrued to 31st December, 1934	1,000
E. Reserve for Contingencies	7,409
	£ 197,714

Leaving a balance of £75,000 for new proposals, inclusive of their administration charges, from January 1st, 1935.

80. The cost of construction of the railway sidings and the offices and yard for the Public Works Department at Nairobi was, as indicated in para. 26, charged to the Common Expenses Suspense Account. This was transferred to the Buildings—Establishment Account when the Common Expenses Suspense Account was closed, as no sub-item had as yet been approved as to the cost of similar work at the Eldoret and Nakuru Public Works Buildings and yard. On closure of the Establishment—Buildings Account, the construction cost of £6,864, with its appropriate Establishment quota of £549, therefore appears in Appendix III as a new sub-item, £7,413, under the item "Other Buildings", in accordance with Appendices I and II. The introduction of a new item under sub-head A. Public Buildings, entitled "Preliminary Investigation of Proposed Buildings, £22,957" requires the sanction of Legislative Council, but there is no way of avoiding the introduction of this new item if a true picture is to be provided of the comprehensive costs of individual works and groups of works, for it is clearly impossible to combine the cost of making surveys, drawing estimates, etc. for work which were not proceeded with, with the cost of works which were carried out. It is therefore necessary to introduce a new item in addition out of sanctioned provision under A. Public Buildings to allocate these costs.

81. The expenditure of £22,957, a part of the above provision, is in fact trivial for the numerous surveys, designs and estimates for projects which were not proceeded with in the execution of a programme for buildings spread over a period of one-and-a-half million pounds. The same Select Committee on the Loan Proposals, incorporated with the report of the Select Committee on the Loan Proposals, observes that the lack of fixity of the original Loan proposals, as the Select Committee observes that the buildings to which the expenditure of other buildings which have received or are to receive approval of the Select Committee. It is observed, in fact, that the programme for the building programme (1925) by the Government was for designs which were not proceeded with. The total sum of £22,957 as set forth in Appendix IV, and consist of the Public Works Department expenditure. There is little doubt, however, that if all the considerable small items could be evaluated and the aggregate added the total would be far higher.

VII. DETAILS OF BUILDINGS CONSTRUCTED.

ITEM I.—HOUSING (INCLUDING GOVERNMENT HOUSES, NAIROBI AND MOMBASA), 1926-31.

82. The provision for the accommodation of Government servants throughout the colony and Protectorate which was set forth in the Report of the Select Committee of Legislative Council on the Loan Proposals, 1925, and approved by Legislative Council on December 15th, 1925, was £546,430 (excluding Government Houses, Nairobi and Mombasa), consisting of £280,076 for Europeans, £226,354 for Asians, and £40,000 for Africans, comprising quarters for 180 Europeans, 412 Asians, and an undated number of Africans. The expenditure actually incurred on housing was £491,739, consisting of £296,465 for 163 Europeans, £148,510 for 256 Asians, and £44,324 for 942 Africans. Provision was also made in the Report of the Select Committee for £30,000 for Government Houses, and a further sum of £20,000 was considered to be likely to be required later. The cost of the Government Houses at Nairobi and Mombasa was £96,376.

83. Although the policy of constructing quarters for Government servants according to the programme recommended by the Select Committee gave rise to no criticism during the debate in Legislative Council, it was found in practice that questions relating to housing gave rise to more difficulties than any of the other sub-heads of Loan buildings. Out of 669 minutes recorded by the Loan Works (Buildings) Committee, no fewer than 266 or 39.74% deal

with housing. This difficulty in arriving at final decisions, which in various aspects of the subject was spread over a number of years, was due principally to (1) fluctuations of opinion regarding policy, especially in respect of housing at Mombasa and Nairobi; (2) difficulties in obtaining concurrence of opinion in the Committee itself as well as between the various other authorities concerned regarding the most suitable designs for European, Asian and African quarters at the various centres and their siting; (3) uncertainty regarding the permanence of some of the out stations; (4) difficulty in deciding regarding the number of quarters of each kind which should be provided at each locality. As a result of the decisions arrived at from time to time, the buildings finally decided on and constructed differed greatly, both in siting and kind, from those contemplated in the programme of the Select Committee.

84. Questions relating to policy which were under consideration from time to time included the application in so far as might be possible of the principles of the Hudson Report of 1925 and the consolidation of house allowances with salaries. The Treasurer and Director of Public Works reported to the Loan Works (Buildings) Committee on these questions. At the meeting of the Committee held on July 23rd, 1927, the "Outline of a Workable Scheme of Assistance to enable Officials to Build their own Houses" was approved with modifications. The proposal received Legislative Council approval on May 15th, 1928, as far as Europeans were concerned, under the title of "A Scheme to Advance Money to European Civil Servants to enable them to Build their own Houses", and as far as Asian quarters concerned on April 15th, 1930 under the designation "Scheme to Advance Money to Asian Civil Servants to enable them to Build their own Houses." The project, involving the issue of loans on a 15 year redemption period to individual officers on the security of the buildings which were constructed by them, was financed out of the revenue of the Colony, but much time was spent by various officers of the Loan staff in approving designs, measuring up for payment of advances, advice and reporting to the competent authority. It was recognized from the outset that the scheme would only have a limited application on account of the relatively small proportion of officers who were permanently stationed at Nairobi and Mombasa. The total numbers of Europeans and Asians who were accepted as participants of the schemes and erected their own houses were 27 and 10 respectively. The amounts advanced were £32,841 and £6,697 respectively.

85. As urgency became established from time to time, the satisfaction of the Committee, and as sites and designs were settled, authority was received to proceed with the construction of houses in Nairobi and Mombasa with the result that in the aggregate the following accommodation was provided at those towns: Nairobi, 63 European quarters, comprising 4 Class I, 3 Class II, 15 Class III, 15 Class IIIA, 9 Class IIIb, 15 Class IV, at a cost of £113,004; 149 Asian quarters, at a cost of £82,264; and 283 African quarters (accommodating 574 employees), at a cost of £28,379; and Mombasa, 12 European quarters, comprising 11 Class III, 1 Class IV, at a cost of £32,129; 80 Asian quarters, at a cost of £46,841; and 60 African quarters, at a cost of £6,600. In respect of design, the difficulty of obtaining concurrence of opinion was altogether exceptional, with the result that numerous designs had to be prepared to set forth the relative merits and demerits of the different types.

86. The Select Committee of Legislative Council of 1925 advised the grading of Government servants as follows:

European Officials.

- Grade A.—Officers drawing a fixed salary of £1,000 per annum or over.
- Grade B.—Officers drawing a salary of £700 to £1,000 per annum, and including all District Commissioners.
- Grade C.—Officers drawing a salary of £500 to £700 per annum.
- Grade D.—Officers drawing a salary of under £500 per annum.

Non-European Officials.

Grade A.—First, Second, Third and Fourth Grade and Junior Clerks, etc., according to circumstances; and advised the following classification and preliminary estimates:—

CLASSIFICATION	ESTIMATES			
	Nairobi	Kisumu, Machakos, Eldoret, etc.	Fort Hall, Nyasa, etc.	Kisumu, Mumukuti, Meru, etc.
EUROPEAN OFFICIALS—				
Class 1 House, 6 main rooms, Grades A and B	2,000	2,100	2,200	2,000
Class 2 House, 5 main rooms, Grade B	1,600	1,680	1,700	2,100
Class 3 House, 4 main rooms, Grade C	1,200	1,200	1,200	1,000
Class 4 House, 3 main rooms, Grades C and D	1,000	1,100	1,150	1,400
NON-EUROPEAN OFFICIALS—				
Class 5 House, 3 smaller main rooms than Class 4, Grade A	550	580	600	700

QUARTERS LANDS AND LAKE LANDS

CLASSIFICATION	ESTIMATE			
	Mombasa	Kisumu	Eldoret, etc.	Vol. etc.
EUROPEAN OFFICIALS—				
Class 1 House, 6 main rooms, Grades A and B	2,400	2,880	2,640	2,520
Class 2 House, 5 main rooms, Grade B	2,000	2,400	2,200	2,100
Class 3 House, 4 main rooms, Grades C and D	1,600	1,920	1,760	1,580
Class 4 House, 3 main rooms, Grade D	1,200	1,300	1,350	1,080
NON-EUROPEAN OFFICIALS—				
Class 5 House, 3 smaller main rooms than Class 4, Grade A	500	500	500	550

ST. With regard to European housing, plans of various descriptions were prepared to give effect to Mr. Baden's proposals, especially in relation to flats and chummersies, and tentative type drawings and estimates for various localities with varying accommodation were elaborated. The services of the architect for the major Loan buildings, Mr. J. A. Hoogerty, were also requisitioned for type designs for the coast, but his designs were not acceptable to the Loan Commission Committee. The chief difficulty was to design in such a way as to provide reasonable accommodation for the different grades within the same provided for each grade and classification, while building cost remained high and to secure concurrence of opinion amongst the various organizations which were concerned. Opinions differed widely on such questions as the most convenient arrangement of accommodation, the area and number of rooms, veranda space, and it was important to secure, in so far as might be possible, the arrangement which would be most suitable from all points of view.

At the meeting of the Loan Works (Buildings) Committee on May 26th, 1927, Government was advised that the grading of European officers established in the Report of the Select Committee on the Loan Proposals should be amended as follows:—

Grade A.—Officers drawing a fixed salary of £1,200 per annum or over.

Grade B.—Officers drawing a fixed salary of £840 to £1,200 per annum and including all District Commissioners.

Grade C.—Officers drawing a fixed salary of £600 to £840 per annum.

Grade D.—Officers drawing a fixed salary of under £600.

89. Similarly the designs for Asian housing in the various townships, and its siting, was found to be controversial, with the result that in several of the townships alternative designs also had to be considered and prepared so as to enable the relative advantages of the various sites, in co-ordination with town planning proposals, drainage projects, etc., to be estimated. In Mombasa especially the problem was difficult, and it was only after much local discussion and the preparation of alternative designs that a measure of concurrence was achieved.

90. The question of the most suitable types of housing to be provided out of Loan for the African Civil Service became controversial at an early stage. Some held that future cultural advancement must be taken into consideration and that the type of housing provided would have a profound influence on such advancement. The subject gave rise to a long debate in Legislative Council on February 28th, 1925 and was referred to an *ad hoc* Select Committee. Although the general principles applicable to such housing were decided by the acceptance of the report of that Committee, it was not until July, 1927 that the Loan Works (Buildings) Committee finally approved the lay-out and designs for Nairobi. Consideration of this problem rendered necessary the preparation of a number of tentative schemes, and the design decided on, consisting of one room with veranda space for married individual or one room for two bachelors, together with outbuildings, drainage, roads, etc., covered the requirements of the moment in a sanitary way within available funds rather than providing for the possible needs of the future consequent on cultural advancement.

91. The quarters for African Civil Servants which were carried out from time to time consisted of the following:—

Station	Married Quarters	Single Quarters	Dormitories	Other Quarters	Africans Housed	Cost
	No.	No.	No.	No.	No.	£
Nairobi	187	77	—	—	574	28,370
Mombasa	49	30	37	*2	80	6,600
Machakos	11	—	—	—	1	137
Nairobi	26	86	—	—	76	3,346
Kisumu	130	130	—	—	90	3,202
Eldoret	63	44	—	—	112*	2,711
Nairobi	11	—	—	—	1	168
Total	247	196	37	2	942	44,624

*One Dining-room, One Reading-room.

†Native Clerk's Quarters (Superior Type).

‡Sixty African Quarters, 10 feet by 10 feet.

§African Quarters Erected by Municipality.

92. Appendix VI sets forth the final results of the construction of quarters for servants of Government, as sanctioned from time to time and constructed between 1926 and 1934.

93.

Government House, Nairobi, £75,460.

(1) The architectural design of this building is the work of Sir Herbert Baker. Construction was started in December, 1926, and finished in August, 1928. The structure was erected by direct labour under the control of the Department, Mr. A. J. S. Hutton, A.R.I.B.A., being the Architect in charge of construction, and the late Mr. E. J. Titman the Clerk of Works, but contracts were let for the supply of doors and frames, panelling, plumbing and electric light. Progress was hampered in the early stages by the lack of working drawings, for the completion of the building was regarded as being so urgent that it had to be started when only the working foundation

Non-European Officials.

Grade A.—First, Second, Third and Fourth Grade and Junior Clerks, etc., according to circumstances; and advised the following classification and preliminary estimates:—

CLASSIFICATION	ESTIMATE			
	Nairobi	Kiambu, Machakos, Eldoret, etc.	Fort Hall, Nyero, etc.	Mtini, Mombasa, Meru, etc.
	£	£	£	£
EUROPEAN OFFICIALS—				
Class 1 House, 6 main rooms, Grades A and B	2,000	2,100	2,200	2,000
Class 2 House, 5 main rooms, Grade B	1,600	1,600	1,700	2,100
Class 3 House, 4 main rooms, Grade C	1,200	1,200	1,250	1,800
Class 4 House, 3 main rooms, Grades C and D	1,000	1,100	1,150	1,400
NON-EUROPEAN OFFICIALS—				
Class 5 House, 3 smaller main rooms than Class 4, Grade A	550	580	650	700

COAST LANDS AND LAKE LANDS

CLASSIFICATION	ESTIMATE			
	Mombasa	Kisumu	Kwale, etc.	Voi, etc.
	£	£	£	£
EUROPEAN OFFICIALS—				
Class 1 House, 6 main rooms, Grades A and B	2,400	2,450	2,640	2,520
Class 2 House, 5 main rooms, Grade B	2,000	2,050	2,200	2,100
Class 3 House, 4 main rooms, Grades C and D	1,600	1,620	1,760	1,680
Class 4 House, 3 main rooms, Grade C	1,250	1,300	1,500	1,500
NON-EUROPEAN OFFICIALS—				
Class 5 House, 3 smaller main rooms than Class 4, Grade A	500	500	550	550

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91. The quarters for African Civil Servants which were carried out from time to time consisted of the following:—

Locations	Married Quarters	Single Quarters	Dormitories	Other Quarters	Africans Housed	
					No.	£
Nairobi	No. 187	No. 77	No. 37	No. 2	No. 574	£ 28,370
Mombasa	40	30	—	—	80	6,800
Machakos	11	—	—	—	1	137
Nairobi	56	25	—	—	76	3,346
Kisumu	150	130	—	—	90	3,202
Eldoret	82	44	—	—	120	2,711
Nairobi	11	—	—	—	1	166
TOTAL	247	196	37	2	942	44,524

*One Dining-room, One Reading-room.

†Native Clerk's Quarter (Superior Type).

‡Sixty African Quarters, 10 feet by 10 feet.

§African Quarters Erected by Municipality.

92. Appendix VI sets forth the final results of the construction of quarters for servants of Government, as sanctioned from time to time and constructed between 1926 and 1934.

93.

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(1) The architectural design of this building is the work of Sir Herbert Baker. Construction was started in December, 1926, and finished in August, 1928. The structure was erected by direct labour under the control of the Department, Mr. A. J. S. Hutton, A.R.I.B.A., being the Architect in charge of construction, and the late Mr. E. J. Titman the Clerk of Works, but contracts were let for the supply of doors and frames, panelling, plumbing and electric light. Progress was hampered in the early stages by the lack of working drawings, for the completion of the building was regarded as being so urgent that it had to be started when only the working foundation

drawings and the sketch designs with some details for the superstructure were ready. The co-ordination of the delivery of materials of construction with labour was therefore a matter of difficulty, which was intensified by the delay in the preparation of the bills of quantities, themselves dependent on the availability of the working drawings. It was decided on the advice of the Loan Works (Buildings) Committee dated March 14th, 1927, to omit the ball-room and dining-room loggia in the first instance owing to uncertainty regarding costs under the circumstances. The dining-room loggia was reinstated by resolution on May 26th, 1927, and the ball-room on April 2nd, 1928, when the work was approaching completion.

(2) The design for the new building provided for the incorporation of the old Government House with alterations to it. Progress was hindered by the old house being in occupation and the necessity for the construction of a new building to accommodate the occupants, before underpinning operations could be begun on the old building preparatory to the commencement of alterations to it. A part of the "Conference Wing" of the new building was therefore completed first and occupied towards the end of August, 1927 and by the end of the year the whole of that wing, which includes the kitchen and dining-room, was ready for occupation.

(3) The structure is built with concrete block walling of 1-3-6 mixture and plastered. The whole building is roofed with Mangalore tiles, except the kitchen, etc., where Bell's asbestos sheeting is used and the top flats of the dining-room and ball-room. The ground floor is of concrete with wood block finish. The upper floor is constructed of reinforced concrete tee-section (with brick infill) plastered to form the ceiling underneath and to bed the regular strip flooring above. The floor of the dining-room is finished in polished flat of the ball-room is a strip floor in teak on bearers resting on rolled steel joists sprung from the concrete underneath on railway wagon springs smoothed in grease. The lavatory floors are partly of Kenya marble terraces and partly of black Belgian marble terrazzo.

(4) The new accommodation provided in Government House, Nairobi, comprises the following:—(i) On Ground Floor: (a) His Excellency's office, (b) Private Secretary's offices, (c) Conference room, (d) Conference Secretary's office, (e) Clockroom, (f) Morning room and ante-room, (g) Breakfast room, (h) Dining-room, (i) Ball-room and ante-room, and on the First Floor: (j) Ten bedrooms, (k) Ten bathrooms, (l) Day and night nurseries, (m) Rooms for maids, linen, and native servants. Annexes provide two kitchens, scullery, serving lobby, scullery, pantry, larder, wine cellar, rice-machine room, and fuel room.

(5) The expenditure also included extensive alterations to the old Government House which was incorporated in the new one, lay-out of grounds, sewage disposal and water supply.

Government House, Mombasa, £20,916.

(1) This building was architecturally designed by Sir Herbert Baker and the construction carried out under the supervision of Messrs. Hurle Bath, Webb and Archer. The new design incorporated the old structure which was entirely remodelled. The accommodation provided comprised on the Ground Floor: Clockroom, Private Secretary's bedroom, office and loggia, (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z) (aa) (ab) (ac) (ad) (ae) (af) (ag) (ah) (ai) (aj) (ak) (al) (am) (an) (ao) (ap) (aq) (ar) (as) (at) (au) (av) (aw) (ax) (ay) (az) (ba) (bb) (bc) (bd) (be) (bf) (bg) (bh) (bi) (bj) (bk) (bl) (bm) (bn) (bo) (bp) (bq) (br) (bs) (bt) (bu) (bv) (bw) (bx) (by) (bz) (ca) (cb) (cc) (cd) (ce) (cf) (cg) (ch) (ci) (cj) (ck) (cl) (cm) (cn) (co) (cp) (cq) (cr) (cs) (ct) (cu) (cv) (cw) (cx) (cy) (cz) (da) (db) (dc) (dd) (de) (df) (dg) (dh) (di) (dj) (dk) (dl) (dm) (dn) (do) (dp) (dq) (dr) (ds) (dt) (du) (dv) (dw) (dx) (dy) (dz) (ea) (eb) (ec) (ed) (ee) (ef) (eg) (eh) (ei) (ej) (ek) (el) (em) (en) (eo) (ep) (eq) (er) (es) (et) (eu) (ev) (ew) (ex) (ey) (ez) (fa) (fb) (fc) (fd) (fe) (ff) (fg) (fh) (fi) (fj) (fk) (fl) (fm) (fn) (fo) (fp) (fq) (fr) (fs) (ft) (fu) (fv) (fw) (fx) (fy) (fz) (ga) (gb) (gc) (gd) (ge) (gf) (gg) (gh) (gi) (gj) (gk) (gl) (gm) (gn) (go) (gp) (gq) (gr) (gs) (gt) (gu) (gv) (gw) (gx) (gy) (gz) (ha) (hb) (hc) (hd) (he) (hf) (hg) (hh) (hi) (hj) (hk) (hl) (hm) (hn) (ho) (hp) (hq) (hr) (hs) (ht) (hu) (hv) (hw) (hx) (hy) (hz) (ia) (ib) (ic) (id) (ie) (if) (ig) (ih) (ii) (ij) (ik) (il) (im) (in) (io) (ip) (iq) (ir) (is) (it) (iu) (iv) (iw) (ix) (iy) (iz) (ja) (jb) (jc) (jd) (je) (jf) (jg) (jh) (ji) (jj) (jk) (jl) (jm) (jn) (jo) (jp) (jq) (jr) (js) (jt) (ju) (jv) (jw) (jx) (jy) (jz) (ka) (kb) (kc) (kd) (ke) (kf) (kg) (kh) (ki) (kj) (kl) (km) (kn) (ko) (kp) (kq) (kr) (ks) (kt) (ku) (kv) (kw) (kx) (ky) (kz) (la) (lb) (lc) (ld) (le) (lf) (lg) (lh) (li) (lj) (lk) (ll) (lm) (ln) (lo) (lp) (lq) (lr) (ls) (lt) (lu) (lv) (lw) (lx) (ly) (lz) (ma) (mb) (mc) (md) (me) (mf) (mg) (mh) (mi) (mj) (mk) (ml) (mm) (mn) (mo) (mp) (mq) (mr) (ms) (mt) (mu) (mv) (mw) (mx) (my) (mz) (na) (nb) (nc) (nd) (ne) (nf) (ng) (nh) (ni) (nj) (nk) (nl) (nm) (nn) (no) (np) (nq) (nr) (ns) (nt) (nu) (nv) (nw) (nx) (ny) (nz) (oa) (ob) (oc) (od) (oe) (of) (og) (oh) (oi) (oj) (ok) (ol) (om) (on) (oo) (op) (oq) (or) (os) (ot) (ou) (ov) (ow) (ox) (oy) (oz) (pa) (pb) (pc) (pd) (pe) (pf) (pg) (ph) (pi) (pj) (pk) (pl) (pm) (pn) (po) (pp) (pq) (pr) (ps) (pt) (pu) (pv) (pw) (px) (py) (pz) (qa) (qb) (qc) (qd) (qe) (qf) (qg) (qh) (qi) (qj) (qk) (ql) (qm) (qn) (qo) (qp) (qq) (qr) (qs) (qt) (qu) (qv) (qw) (qx) (qy) (qz) (ra) (rb) (rc) (rd) (re) (rf) (rg) (rh) (ri) (rj) (rk) (rl) (rm) (rn) (ro) (rp) (rq) (rr) (rs) (rt) (ru) (rv) (rw) (rx) (ry) (rz) (sa) (sb) (sc) (sd) (se) (sf) (sg) (sh) (si) (sj) (sk) (sl) (sm) (sn) (so) (sp) (sq) (sr) (ss) (st) (su) (sv) (sw) (sx) (sy) (sz) (ta) (tb) (tc) (td) (te) (tf) (tg) (th) (ti) (tj) (tk) (tl) (tm) (tn) (to) (tp) (tq) (tr) (ts) (tt) (tu) (tv) (tw) (tx) (ty) (tz) (ua) (ub) (uc) (ud) (ue) (uf) (ug) (uh) (ui) (uj) (uk) (ul) (um) (un) (uo) (up) (uq) (ur) (us) (ut) (uu) (uv) (uw) (ux) (uy) (uz) (va) (vb) (vc) (vd) (ve) (vf) (vg) (vh) (vi) (vj) (vk) (vl) (vm) (vn) (vo) (vp) (vq) (vr) (vs) (vt) (vu) (vv) (vw) (vx) (vy) (vz) (wa) (wb) (wc) (wd) (we) (wf) (wg) (wh) (wi) (wj) (wk) (wl) (wm) (wn) (wo) (wp) (wq) (wr) (ws) (wt) (wu) (wv) (ww) (wx) (wy) (wz) (xa) (xb) (xc) (xd) (xe) (xf) (xg) (xh) (xi) (xj) (xk) (xl) (xm) (xn) (xo) (xp) (xq) (xr) (xs) (xt) (xu) (xv) (xw) (xx) (xy) (xz) (ya) (yb) (yc) (yd) (ye) (yf) (yg) (yh) (yi) (yj) (yk) (yl) (ym) (yn) (yo) (yp) (yq) (yr) (ys) (yt) (yu) (yv) (yw) (yx) (yy) (yz) (za) (zb) (zc) (zd) (ze) (zf) (zg) (zh) (zi) (zj) (zk) (zl) (zm) (zn) (zo) (zp) (zq) (zr) (zs) (zt) (zu) (zv) (zw) (zx) (zy) (zz).

(2) The structure was erected between May, 1926, and August, 1927, and is built of corall blocks plastered inside and out. It is roofed with Mangalore tiles. The ground floors are of concrete finished in wood block, granolithic marble or local tiles. The dining-room floor is finished in teak. The first floor is of reinforced concrete supported on steel joists, wood block flooring being used in the rooms and granolithic in the corridors.

ITEM 2.—MEDICAL BUILDINGS.

95. The Medical Buildings proposed by the Select Committee on the Loan Proposals, 1925, consisted of—

Machakos District	8,000	Native Hospital.
Kitui District	3,000	Native Hospital.
Kenya District	6,500	European, Asiatic and Native Hospitals.
Central Kavirondo and Kisumu Districts	12,350	European Hospital, Native Hospital, M.O.H.'s Office and Laboratory.
North Kavirondo District	8,000	Native Hospital.
Fort Hall District	3,000	"
Meru District	2,000	"
Narok District	4,800	"
Malindi District	4,800	"
Tana River District	2,000	"
Mombasa District	14,000	General Hospital.
Nakuru District	5,000	Native Hospital.
Supervision	76,840	
	2,827	
	£ 79,667	

The Committee remarked that: "The hospitals recommended by the Select Committee form part of a comprehensive scheme destined to have an undoubted effect upon the health of the Colony and particularly upon the health of the native population."

96. Under the Head of "Expenditure" which the Select Committee consider will be necessary in the near future, the Select Committee on the Loan Proposals, 1925, included, as requirements for Nairobi: Lunatic Asylum, £50,000; Bacteriological Laboratory, £25,000; Infectious Diseases Hospital, £2,800; Hospital Administration Block, £1,000; Medical Stores Hospital, Native Civil Hospital, £5,000.

97. The Medical Buildings which were constructed as authorized from time to time by the Loan Works (Buildings) Committee were as follows:—

Cost	Remarks
931	Unfinished on 31-12-1934.
4,783	Do.
2,855	Do.
4,494	Do.
6,225	Do.
3,117	Do.
3,979	Do.
2,406	Do.
1,210	Do.
16,463	Do.
8,281	Do.
3,500	Do.
4,412	Do.
2,769	Do.
5,261	Do.
4,306	Do.
4,936	Do.
4,540	Do.
5,345	Do.
34,494	Do.
£ 129,297	

98. Much consideration was also given from time to time to various other proposals for medical buildings, sometimes involving the preparation of surveys, plans and estimates. The principal proposals investigated but not proceeded with were: (1) the Kenya African Medical Training Corps Scheme, £14,000; (2) Indian Hospital, Nairobi; (3) Native Hospital, Nairobi, £30,000; (4) Combined Hospital, Mombasa, £220,000; (5) Native Hospital, Murungu; (6) Native Hospital, Kapenguria, £1,840.

99. The wards provided in the eighteen Native Hospitals which were erected accommodated 630 beds in the aggregate. The hospitals comprised the following accommodation:

Kitale Native Hospital, £9,131.—Three 10-bed wards; administration block comprising five rooms; kitchen, laundry, mortuary, dressers' quarters and out-patients' department.

Nyeri Native Hospital, £2,635.—Three 10-bed wards; administration block with out-patients' department, and outbuildings comprising hospital kitchen, laundry, mortuary and dressers' quarters.

Kilifi Native Hospital, £4,494.—Three 6-bed wards, one 4-bed ward, one 2-bed ward; administration block including operating theatre, sterilizing room, out-patients' department, and outbuildings comprising hospital kitchen, laundry, mortuary and dressers' quarters.

Fort Native Hospital, £8,225.—Three 8-bed wards, one 2-bed ward; administration block including operating theatre, sterilizing room, anaesthetizing room, out-patients' department, and outbuildings comprising hospital kitchen, laundry, mortuary and dressers' quarters.

Meru Native Hospital, £3,117.—One 8-bed ward; administration block with out-patients' department, separate operating theatre, and outbuildings comprising dressers' quarters and kitchen.

Naivasha Native Hospital, £5,410.—Two 12-bed wards, six 2-bed wards; out-patients' department, and outbuildings comprising hospital kitchen, laundry, mortuary and dressers' quarters.

Narok Native Hospital, £2,410.—One 10-bed ward, two 1-bed wards; administration block including operating theatre, out-patients' department, and outbuildings comprising kitchen, laundry, mortuary and dressers' quarters.

Nakuru Native Hospital, £7,210.—Five 12-bed wards, five 2-bed wards; administration block including out-patients' department, separate building for operating theatre, sterilizing room and anaesthetizing room, and outbuildings comprising hospital kitchen, laundry, mortuary and dressers' quarters.

Nairobi Native Hospital, £3,730.—Five 12-bed wards, one 6-bed ward, one 4-bed ward, one 2-bed labour ward, two 2-bed and two 1-bed Asian wards; administration block including operating theatre, sterilizing room, anaesthetizing room, and outbuilding comprising dressers' quarters.

Kitima European Hospital, £6,000.—Four 2-bed wards, two 1-bed maternity wards, 12-bed children's and day rooms; kitchen, stores and pantry are connected to the main building by a covered way; outbuildings comprising dressers' quarters, mortuary, engine house and battery room, electric light plant.

Kakamega Native Hospital, £8,281.—Four 12-bed wards, one 4-bed ward; administration block including out-patients' department, separate operating theatre and sterilizing room, outbuildings comprising kitchen, laundry, mortuary and dressers' quarters.

Fort Hall Native Hospital, £3,500.—One 12-bed ward, one 6-bed ward, two 2-bed wards; administration block including out-patients' department, and outbuildings comprising dressers' quarters.

Kericho Native Hospital, £4,412.—Three 12-bed wards, two 2-bed wards; administration block including out-patients' department, separate operating theatre, and outbuildings comprising laundry, mortuary and dressers' quarters.

Meru Native Hospital, £2,769.—One 12-bed ward, two 2-bed wards; out-patients' department, separate operating theatre, laundry.

Eldoret Native Hospital, £5,261.—Three 12-bed wards, one 6-bed ward, one 4-bed ward; one 4-bed and one 2-bed Asian wards; administration block including out-patients' department, separate operating theatre, and outbuildings comprising kitchen, mortuary and dressers' quarters.

Masambweni Native Hospital, £4,396.—Three 8-bed wards, one 4-bed ward, one 2-bed ward; administration block including operating theatre, sterilizing room, and out-patients' department; outbuildings comprising kitchen, laundry, mortuary and dressers' quarters.

Nabarnet Native Hospital, £4,936.—One 12-bed ward, one 8-bed ward; administration block including operating room and out-patients' department; outbuildings comprising kitchen, laundry, mortuary and dressers' quarters.

Kericho Native Hospital, £4,540.—Two 12-bed wards, three 2-bed wards; administration block including operating theatre, sterilizing room, and out-patients' department; outbuildings comprising kitchen, laundry, mortuary and dressers' quarters.

Kimbu Native Hospital, £5,340.—Four 10-bed wards, five 2-bed wards; administration block including operating theatre, sterilizing room, anaesthetizing room, and out-patients' department; outbuildings comprising kitchen, laundry, mortuary and dressers' quarters.

100. The type layout for these hospitals provided for extensions in the future though only essential portions were constructed. They were erected in concrete, brick, or stone, with concrete floors and corrugated iron roofs, according to the material which was readily available.

101. *Medical Research Laboratory, Nairobi.*

Cost, £34,494. Commenced, November 1929; Finished, February 1931.

(1) The architectural design was prepared by Mr. J. A. Hoogterp. The accommodation provided in this building consists of fifty-five rooms for various purposes, separate calf lymph buildings, insectary and block of native quarters.

(2) The structure is sited in the Hospital Reserve on Nairobi Hill, and the lay-out provides for European, Asian and Native Hospitals to be grouped round the building. The walls are of brick plastered internally and externally, the external plaster being finished off in "Snowcrete" and "Lezante" in the proportion of 7 to 3 by volume, for weather-resisting purposes. The roof is of Mangalore tiles, except the flat roof connecting the wings which is finished in asphalt on concrete. The floors are finished in cedar strips, except in the corridors, lavatories, dark-room, stores, etc., where granolithic is laid in squares of 30 square feet. In the laboratories all the waste channels are of acid-resisting stoneware jointed in special bitumastic compound. A complete gas installation with "Silverite" generators and gas piping leads petrol gas to all Bunsen burners.

ITEM 3. EDUCATIONAL BUILDINGS

102. The recommendations of the Select Committee on the Loan Repayments for Schools amounted to £270,000, divided as follows:

	£
(a) European Schools	80,000
(b) Indian Schools	30,000
(c) Arab Schools	13,000
(d) African Schools	12,000
(e) Nairobi School	35,000
(f) Nairobi Indian School Hostel	10,000
(g) Nakuru School	40,000
(h) Eldoret School	40,000
(i) Kitale School	20,000
	<hr/>
	£270,000

103. The schools which were constructed as authorized from time to time by the Loan Works (Buildings) Committee were as follows:—

	£	£
EUROPEAN—		
Nairobi Elementary School	40,409	
Kabete Secondary School	70,199	
Nakuru School	47,237	
Eldoret School	47,687	
Kitale School	31,100	
		236,692
INDIAN—		
Nairobi School		56,472
ARAB—		
Mwapa School		10,236
AFRICAN—		
Jonnes School	7,860	
Native Industrial Training Depot, Kabete	18,759	
		26,619
		£ 330,028

104. The Educational Buildings were, from the commencement, held to be of great urgency especially the European Schools and the Native Industrial Training Depot at Kabete. The European Secondary School at Kabete (later designated the Prince of Wales School) was, however, postponed, and authority to proceed was not given until April 2nd, 1923.

105. The accommodation for boarding and tuition which was provided in the European, Indian, Arab and African Schools was as follows:—

	NUMBER OF PUPILS	
	Boarding	Tuition
European	234	1,140
Indian	40	320
Arab	120	
African (Jonnes School)	50 Families	50 Families
African (N.I.T.D.)	300	300 Industrial

106. The principal features of these buildings are as follows:—

(1) *Nairobi Elementary School*—Cost, £40,409.

The building was architecturally designed by Sir Herbert Baker. It was started in October, 1923, and finished in December, 1923. Most of the work was executed by contract.

The accommodation provided consists of ten classrooms accommodating 300 pupils, assembly hall on first floor designed for 50 persons, covered playground on the ground floor, and native servants' quarters. Water-borne sewerage works are provided.

The building is constructed with concrete block walls, with poured concrete in-filling. The external walls being finished in "Atlas" white cement plaster. The roof is carried on R.S.J.'s with concrete slabs, supported with B.R.C. girders. The floor finishings of the classrooms and assembly hall are carried on in-situ blocks, and the corridors and covered playground are finished in cement with an asphalt of "Ironite." Crutall's standard school windows are used throughout the building, and the roof is finished with Mangalore tiles.

(2) *Prince of Wales School, Kabete*—Cost, £70,199.

The building was architecturally designed by Sir Herbert Baker. The work was commenced in October 1920, and finished in February 1921.

This building is constructed in three sections: (a) Tuition Block, (b) Boarding Block, (c) Dining and (Gymnasium) Block. The Tuition Block provides classrooms for 150 pupils, chemical and physical laboratories, lecture

theatre, library, subsidiary rooms, offices and lavatories. The Boarding Block contains dormitories for eighty pupils, day-rooms, changing-rooms, bathrooms and lavatories; it also includes staff quarters for two married masters, four single masters and two matrons. The Dining Hall is designed to accommodate 150 pupils. Workshops and native servants' quarters are also provided, and there is a water-borne system of sanitation to a septic tank. The water supply is provided from a borehole, and the building is also connected to the township mains.

The walls are of brick, plastered internally and externally, the external plaster being finished off in "Snowcrete" and "Ironite" to resist damp. The roofs of the main buildings are in Mangalore tiles and the flat roof of corridors in asphalt on concrete. All floors are finished in wood blocks, except in the gymnasium which is of deal on bearers. All windows are of steel. The corridor floors are of granolithic laid in squares of 30 square feet. The columns and floors are of reinforced concrete.

(3) *Nakuru School*—Cost, £47,237.

The architectural design was prepared by Sir Herbert Baker. The building was commenced in March 1927, and finished in November 1928.

The accommodation consists of

- (i) Centre block providing accommodation for 240 pupils in eight classrooms with cloakrooms, lavatories, staff rooms and stores.
- (ii) Junior boys' block providing for twenty-two boarders, with accommodation for staff, day-room, lavatories, etc.
- (iii) Senior boys' block providing for forty-four boarders, with dining-room, day room and staff quarters. The kitchen is connected to this block.
- (iv) Water-borne system of sewerage connected to a septic tank.
- (v) Native servants' quarters.

The principal features of construction are concrete block walls with poured concrete in-filling, the external walls being finished in cement plaster dis-tempered. The roofs are finished in Mangalore tiles. Cedar block flooring is used in the classrooms and assembly hall, and cedar board flooring in the junior and senior boys' boarding blocks. The first floors are carried on R.S.J.'s with concrete slabs reinforced with B.R.C. fabric in some cases, and mild steel rods in others. Asbestos sheets were used for the first floor ceilings, and the flat ceiling of the assembly hall was constructed in expanded metal and plaster finish. Crutall's steel windows were used throughout. The buildings were wired for electric light, the power for which being supplied from a lighting set.

(4) *Eldoret School*—Cost, £47,687.

Architecturally designed by Sir Herbert Baker. Commenced in December 1927, and finished in December 1929.

The accommodation provided consists of—

- (i) Classroom block providing accommodation for 300 pupils in eight classrooms, with provision for manual training and domestic science.
- (ii) Assembly Hall accommodating 300 persons.
- (iii) Boarding block for forty-eight boys, with day-room, dining-room, kitchen, etc., with two staff quarters.
- (iv) Native servants' quarters.
- (v) Water-borne sewerage connected to a septic tank.

Bricks were used for the walls, and in other respects the construction is on similar lines to the Nakuru School.

(5) *Kitale School—Cost, £31,160.*

Designed by the Government Architect, Mr. P. Dangerfield. Commenced April 1928, and finished in March 1930.

The accommodation provided consists of—

- (i) Tuition block, comprising six classrooms for 150 pupils, with assembly hall, etc.
- (ii) Boarding block for forty pupils, with day-rooms, dining room, kitchen and two staff quarters.
- (iii) Native servants' quarters.
- (iv) Water-borne sewerage connected to a septic tank.

The walls are constructed of bricks plastered internally and externally. The bricks were made at the departmental brickfields at Kitale and also by private contract. The floors are of concrete covered with wood strip flooring, except in the corridors which are finished in granolithic. The roof is of corrugated iron on wood trusses, with a concrete flat roof over corridor which extends the whole length of the classroom block. All windows are of steel. Electric light is provided, the power for which is supplied by a lighting set.

(6) *Indian School, Nairobi—Cost, £56,472.*

Architecturally designed by Sir Herbert Baker. Commenced in September 1927, and finished in December 1929.

The accommodation provided is—

- (a) Tuition block comprising thirteen classrooms for 350 pupils, with lecture room, two rooms for drawing, chemical and physical laboratories, manual training room, two libraries, assembly hall with gallery, visitors' rooms, etc.
- (b) Hostel for forty boys with day-room, library, dining-hall, kitchen, etc., and two staff quarters.
- (c) Headmaster's House.
- (d) Indian Superintendent's House.
- (e) Native servants' quarters.

Muilt of concrete back walling plastered externally and internally. Roof tiled with Mangalore tiles, except corridor flat roofs which are of asphalt finish. Floors of cedar strip flooring on concrete except in corridors, lavatories and ablution rooms, where granolithic slabs 2 feet square were laid on pat beds of mortar and sand with joints filled in with lime and sand weak mortar. Ceilings to ground floor rooms plastered and to upper floor rooms asbestos. Windows of steel built-in to concrete direct. Actinic glass set in Assembly Hall windows. Floor of hall in wood blocks. Plain hard finish obtained to plasterwork throughout with painted dados to all classrooms, staircases and corridors. All columns constructed by turning on a rough wooden lathe then hoisting in position as finished product.

(7) *Arab School, Mtwapa—Cost £10,236.*

Commenced in July 1930, and finished in December 1931.

Accommodation:—

- (i) Classroom block comprising one double classroom and five other classrooms.
- (ii) Two workshops.
- (iii) Six dormitories for twenty boys each.
- (iv) Dining-hall and kitchen.
- (v) Four native married quarters and usual offices.
- (vi) Water-borne sewerage to latrines and bath houses.

The walls are of 9 inch concrete blocks, with concrete floors, and corrugated iron roofs on wood trusses. This work was carried out under the control of the Supervisor of Technical Education with native labour, the general design having been approved by the Government Architect.

(8) *Native Industrial Training Depot, Kabete—Cost, £18,759.*

The accommodation provided consists of the Principal's house, three European married quarters, six European bachelor quarters, huts for junior instructors, six large and four small native dormitories, six native instructors' quarters, Principal's office, administration block and classrooms, carpenters' masons', painters' and smiths' shops, machine shop including machines and equipment, store, dining-hall, kitchen, bath and washhouses, latrines with septic tank, water supply and electric installation from Company's mains.

The early construction of the essential parts of the series of small buildings comprising the depot was regarded as very important by the Loan Works (Buildings) Committee in order to train native artisans for the smaller Loan buildings and reduce building costs. The work was carried out by the Education Department through the medium of the native pupils under training who worked under European Leading Artisans.

ITEM 1.—OTHER BUILDINGS.

107. Under this head there are grouped a number of miscellaneous buildings which do not fall under the heads of Housing, Medical or Educational. The Report of the Select Committee on the Loan Proposals, 1925, recommended provision for the following buildings of this character:—

Customs Office, Mombasa	£ 40,000
Offices, Rumuruti, and P.W.D. Offices and Yards, Nakuru and Eldoret	13,813
New Quarters and Lines for the King's African Rifles, Nairobi	80,000
Cold Storage Installation, Kilindini	15,000
	<u>£148,813</u>

108. Under "Expenditure which the Select Committee consider will be necessary in the near future", the Committee included the following:—

Central Block of Offices, Nairobi	£ 250,000
Supreme Court, Nairobi	80,000
Central Police Station and European N.C.O.'s Quarters, Nairobi	40,000
Central Prison, Nairobi	70,000
Medical Store, Nairobi	8,000
	<u>£448,000</u>

109. The cost of buildings falling under the sub-head "Other Buildings" which were authorized from time to time and carried out was as follows on 31-12-1934:—

Customs Office, Mombasa	£ 26,376
Administration Offices, Kwale	605
Medical Store, Nairobi	12,364
Administration Offices, Ngong	1,191
P.W.D. Buildings and Yard, Nakuru	7,952
Administration Offices, Rumuruti	2,031
Administration Offices, Machakos	719
P.W.D. Buildings and Yard, Eldoret	8,387
Veterinary Offices, Nanyuki	417
Administration Offices, Kisumu	3,230
Veterinary Offices and Store, Maseno	2,146
Administration Offices, Narok	1,124
Cold Storage Installation, Kilindini	13,941
Extension of P.W.D. Head Offices and Store Yard and the Construction of the Railway Siding	7,418
	<u>£81,069</u>

In addition, the following works were under construction for the subject of design at the end of the year:—

	Estimated Total Cost	Expended on 31-12-34	Remarks
	£	£	
K.A.R. Lines, Nairobi (Brigade Magazine, Latrines, Bath and Washhouse)	8,328	2,837	Construction in progress.
Law Courts, Nairobi	136,097	112,847	Idem
Central Offices, Nairobi	110,000	7,500	Design in progress.

110. Apart from the buildings which were eventually decided on for construction according to accepted designs, investigations, surveys and the preparation of designs and estimates etc. undertaken in connection with other proposals under the head of "Other Buildings", especially the Central Prison (£70,000) and the new K.A.R. Lines (£80,000), while the original project for the large Central Offices estimated to cost £250,000 was abandoned and the later project for offices estimated at £154,000 was greatly modified to bring the estimated cost down to £110,000. The cost against the Establishment on account of these abandoned investigations, surveys, drawings and estimating, partly in payments to outside architects and partly in time of the Public Works Loan staff, was considerable.

111. *Customs Office, Mombasa—Cost, £15,376.*

The original intention was to construct a new Customs Office at an estimated cost of £10,000. This project was abandoned in favour of the purchase of an old building at Kilindini Road which had been the Metropolitan Hotel for the sum of £20,000. Alterations were made so as to make the building suitable for Customs House purposes. Extensive repairs had to be carried out subsequently owing to the depredations of termites.

112. *Administration Offices, Kiunga—Cost, £655.*

This building consists of three offices, one toilet room and two stores of concrete block construction erected by the native apprentices of the Government School at Wai.

113. *Medical Store, Nairobi—Cost, £12,851.*

This work comprises two stores 167 feet by 61 feet, one of them containing the offices, an inflammable liquid store and a service yard. The type of construction is steel framing with mass concrete filling between the steel stanchions supporting steel trusses which are covered with corrugated iron. The floors are of concrete flag paving.

114. *Administration Offices, Ngong—Cost, £1,191.*

These offices consist of three rooms constructed in concrete blocks mostly by means of convict labour.

115. *Public Works Buildings and Yard, Nakuru—Cost, £7,952.*

This series of structures comprises four offices, drawing office, time-keeper's office, carpenters' and smiths' shops, road plant shed, two stores for materials; ration, petrol and oil stores; three clerks' houses, eight African quarters and railway siding, the whole being enclosed by wrought iron fencing.

116. *Administration Offices, Rumuruti—Cost, £719.*

This building consists of three offices, a court and a dispensary. It is constructed in concrete with corrugated iron roof.

117. *Public Works Buildings and Yard, Mbaraka—Cost, £3,387.*

This series of structures comprises three offices, and a drawing office, a storekeeper's office, clerks' and timekeeper's office, and a store, together with wrought iron fencing.

118. *Veterinary Offices, Nanyuki—Cost, £417.*

This small building consists of three offices constructed in concrete block walling, with concrete floors, G.C.I. roof on wood trusses. Steel windows are provided throughout.

119. *Administration Offices, Kisumu—Cost, £3,230.*

The accommodation provided consists of the District Commissioner's office, Assistant District Commissioner's office, Cashier's office, General Clerks' office, Records room, Registration office, Labour Inspector's office, Labour Inspector's Clerk's office, Court, Resident Magistrate's Chambers and room for Court Clerks. It is constructed in concrete blocks with corrugated iron roof.

120. *Veterinary Offices, Store, etc., Maseu—Cost, £2,140.*

The provision comprises two offices and a store, four dormitories, each for ten Africans, six single-room quarters for Africans, kitchen, bath, etc. The construction is in concrete blocks, with concrete floors, G.C.I. roof on timber trusses, and steel windows are fitted throughout.

121. *Administration Offices, Narok—Cost, £3,184.*

The accommodation provided consists of the District Commissioner's office, Assistant District Commissioner's office, Strong Room, Cashier's Room, with a partition set aside for Post Office.

122. *Cold Storage Installation, Kilindini—Cost, £13,044.*

This building is constructed of concrete blocks and roofed with asbestos tiles. There are five cold rooms of cubic capacities: 1,733 (two), 2,519 (two), and 3,839 (one) cubic feet, and an airlock of 2,447 cubic feet. The largest of these rooms is fitted with rails and hooks for the storage of meat. The insulation is cork in 3-inch slabs—two slabs' thickness on outside walls, floor, and ceiling, and one thickness on partition walls. The inside walls were plastered on metallic lathing, and ferrocrete cement was used for fixing the slabs. As an additional insulation five inches of diatomite were laid over the reinforced concrete ceiling and under the floor tiling in the first floor store room. The refrigerating plant, which employs ammonia as a refrigerant circulating through brass tanks in the cold rooms, was manufactured by Messrs. Peter Brotherhood and was erected by their erector. The plant is driven by a 35-57 h.p. a.c. motor, and includes an atmospheric condenser on the flat roof of the engine room, circulating water pump, long distance thermometers in the engine room and circulating fans in the cold rooms.

123. *Extension of Public Works Head Offices and Store Yard and the Construction of the Railway Siding—Cost, £7,433.*

The work executed consists of the construction of nineteen offices, drawing office, testing laboratory, sun-printing room, railway sidings, gantry, sheds, fencing.

The constructional cost of this item was originally charged to Establishment.

124. *K.A.R. Lines, Nairobi, Brigade Magazine, Latrines, Bath, and Wash Houses—Cost, £2,837 to 31-12-1934.*

This work was in progress on 31-12-1934. The design provides for a magazine of four chambers; four washhouses with concrete ablution benches, two women's bath houses comprising sixteen cubicles, two men's bath houses, each consisting of four ablution benches and one foot bath, two women's and children's latrines, and two men's latrines, together with drainage.

125. *Law Courts, Nairobi.*

In progress. Cost, £112,847 to end of 1934. Estimated total cost, £136,607.

This building, which is the largest in the Colony in cubic capacity (1,880,000 cubic feet), was well on the way to completion at the end of 1934. It is the principal feature of the new City Square of Nairobi. The contract for the foundations and substructure was let in 1931 and the work completed in January, 1932. Further progress with construction was then postponed

for financial reasons until August 1932, when a contract was let for the manufacture of the synthetic stone with which the outer walls were to be finished externally. The synthetic stones (14,062 in number and ranging up to 2 tons in weight) were finished by the end of 1933, and in January 1934 the main contract for the superstructure was placed. The structure is founded on the soft rock of volcanic origin which underlies much of Nairobi, the concrete foundations being reinforced with a grillage of steel rods so as to spread the weight in such a way that pressures do not exceed 2,800 lb. per square foot. Some of the concentrated loads had, however, to be taken down to the harder rock below. Special precautions were necessary to render the basement watertight by means of waterpooled plaster and drainage. The walls are partly of brick and partly of stone, the outside walls being faced with the synthetic stone. Concentrated loads are carried on stanchions of steel or columns of reinforced concrete. The floors are of reinforced concrete slabs supported on milled steel joists, and the stairs, beams and flats are of reinforced concrete. The roof trusses, ceiling bearers, etc., are of steel. The roof covering is in Mangalore tiles, and the flats over the courts are to be finished in Val de Travers bituminous.

Local kiln-dried timber is being used extensively for panelling and furniture. Court No. 1, Supreme Criminal, is to be panelled and furnished in mahogany; Court No. 2, Supreme Civil, in camphor; Court No. 3, Supreme Civil, in samboon; Court No. 4, Magistrate's Civil, in stained and polished pada; Court No. 5, Magistrate's Criminal, in camphor; and the Chief Justice's Chambers in nyatu. In the Law Library, also, on the first floor, the shelves, furniture and flooring are to be in camphor.

The courts are plastered with special acoustic plaster as recommended by the expert, Mr. Hope Bagenell.

The floors and dados of the corridors on the ground and first floors, of the cells in the basement, and the staircases are to be finished in terrazzo, the coloured constituents of which will be minerals from a granite found near Kiunga. The second floor corridors and other parts are to be finished in granolithic.

The floor of the offices generally will be of cedar wood block. The windows will be of steel glazed with "Calorex" anti-actinic glass, and the doors of silver-wood and camphor with skirting, picture rails, etc., to match.

The outside dimensions of the building are 253 feet 6 inches by 171 feet, and the area of the rooms and courts comprised in the designs for the basement, ground floor, first and second floors, will be 52,000 square feet.

As in the case of all other buildings under the Loan architecturally designed by Sir Herbert Baker and Mr. Hoogterp, the Public Works Department has had the tasks of structural designs, designs for the engineering services, comprising sanitation, drainage, electrical work and water supply, the preparation of specifications and bills of quantities, the letting and administration of contracts and the control of the execution of the work. The design of the Law Courts is depicted on 508 completed sheets of drawings, of which 163 were prepared by Sir Herbert Baker and Mr. Hoogterp showing the architectural work in general and in detail, and 347 by the Public Works Department comprising the remainder of the working drawings.

The accommodation to be provided is to be situated as follows:—

Judicial Department.

- (i) One Supreme Criminal Court with law room, public galleries, and ante-rooms.
- (ii) Two Supreme Courts with waiting rooms and public galleries.
- (iii) Two Magistrates' Courts with waiting rooms and public galleries.
- (iv) Twenty offices, law library, librarian's room, seven record rooms and four small strong rooms.
- (v) Two advocates' robing rooms.

Police Department.

- (i) Seven offices, one strong room and one store for criminal investigation department.
- (ii) One office for passport and immigration section.
- (iii) One office for police prosecutor.
- (iv) Two police offices, one association cell and twenty-five single cells.

Magistrate General and Public Trustee's Department.

Eight offices and three stores.

Commissioner of Prisons' Department.

Five offices and one store.

Central Revenue Section.

Ten offices and three stores.

District Treasurer.

Two offices.

Auditor Department.

One office.

Education Department.

Thirteen offices and two stores.

Agricultural Department.

Twenty offices and one store.

General.

One committee room, one telephone exchange room, one printing and dark room, caretaker's quarters comprising one living room, two bedrooms, kitchen, bathroom, etc.

Approximately three-eighths of the accommodation, including the five courts (three Supreme Courts and two Magistrates' Courts), the public and private chambers, various offices and the law library, are allotted to the Judicial Department and its activities. The remaining five-eighths of the accommodation are divided amongst the other Departments.

116, Central Offices, Nairobi.

Expenditure to end of 1934: £7,390.

The recommendation of the report of the Select Committee on the Loan Proposals (which was adopted by Legislative Council by motion on December 14th, 1932, under the head of "Expenditure which the Select Committee consider will be necessary in the near future" reads as follows:—

Central Block of Offices, Nairobi, £250,000.

This provision will enable the accommodation of the headquarters of the various Departments in Nairobi in one block of buildings. The need is obvious and the provision would undoubtedly tend to the expedition of business. The sum is not entirely productive but should result in a saving to officials and staff, and it is considered a sound economy. The estimate is approximate.

The proposal was to site the building on the suggested Ceremonial Way leading from Sixth Avenue direct to Government House, and the sketch designs were prepared by Sir Herbert Baker during his visit to the Colony.

This project was abandoned, and designs prepared for a smaller structure estimated to cost £154,000 to be erected on Nairobi Hill near the Secretariat at the end of the proposed Fourth Avenue leading direct from the middle of the City Square. The Law Courts and Central Offices would thus be the terminal features of the vista from that street and separated from one another by a distance of 3,500 feet.

This scheme again was found too expensive and modifications of design were put in hand for a less ambitious structure estimated to cost £110,000. The working drawings for this building were received during 1934 from the architect, and structural design was well advanced towards the end of the year when it was learnt that the consulting architect was not in agreement with much of the design. The suggestions of the consulting architect have been adopted.

C.—WATER SUPPLIES

I.—GENERAL.

112. The provision for Water Supplies, which was approved by the adoption by Legislative Council on February 20th, 1925, of the report of the first Select Committee on Loan Proposals, consisted of—

Mombasa Water Supply	£100,000
Kisumu Water Supply	£27,500
Eldoret Water Supply	£30,500

By the adoption of the report of the second Select Committee on Loan Proposals on December 15th, 1925, the following was added—

Nakuru Water Supply	£11,000
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The provision for Mombasa Water Works was enhanced to £168,800 under the Specific Loan Ordinance 1930, the Bill of which was passed by Legislative Council on November 28th, 1930.

The Nakuru Water Works, after completion at a cost of £10,288 from Loan and £10,712 from Revenue, was sold to the Nakuru Municipal Board for £21,000 with effect from the 1st of January, 1929, and that amount was transferred to Item 4 (Loans to Local Authorities) of the 1930 Loan under the authority of a Resolution of Legislative Council dated the 20th of December, 1929, corresponding credits of £1,288 and £10,712 being passed to Item 2 (Water Supplies) of the 1930 Loan, and to Revenue respectively.

113. The authorized expenditure and completed costs of Water Works were as follows—

	Authorized		Completed Cost	Remarks
	£	£		
Mombasa Water Works	188,800	168,769		Plus £21,854 out of Renewals Fund.
Kisumu Water Works	27,500	30,952		
Eldoret Water Works	30,000	27,436		
Nakuru Water Works	11,000	10,288		
	£ 257,300	237,445		

114. Although some investigation had been carried out in connection with these proposals prior to consideration by the Select Committees of the preliminary Estimates, it was only after the financial provision had been made and the staff became available that investigations and surveys of a detailed character could be undertaken and the relative merits of tentative projects compared. The principal preliminary difficulties which ordinarily arise in connection with proposals for water works projects in new countries are usually twofold. Firstly, decision on the source of supply without gauging over a period of years which alone would give reasonable certainty of constancy of supply. Secondly, determination of the probable growth of population of the town during the period. On the latter consideration depends the magnitude of the

component parts of the works which are to be designed. Decision on the second problem is known to be liable to grave error in new countries. Owing to unforeseen circumstances, the population may increase so rapidly that capital works of high cost based on a long life period may have to be replaced by much larger works within a few years. On the other hand, the population may remain stagnant or decrease. This uncertainty militates against decision to incur the greatly increased capital expenditure, with its attendant recurrent charges, on mains having a long life, and it is often found more suitable to utilize mains estimated to have a fifteen- to twenty-year life period, and build up a Renewals Fund for complete renewal at the end of the life period, than to incur the higher capital expenditure on works having an estimated life equivalent to the redemption period of the loan and designed to convey the estimated demand towards the end of that period.

During the years when these investigations and designs were in progress it was considered more suitable, in view of these uncertainties, to provide for low cost mains, though it has been found in practice that where the minimum capital cost is high (owing to the distance of the source of supply or other cause), relative to the number of consumers, it has not been practicable to start building up a Renewals Fund in the early years of operation without excessive water rates.

115. The towns of Mombasa, Kisumu and Nakuru had already been equipped with water works, which in the case of Kisumu and Nakuru had become inadequate to supply demands, while that of Mombasa would shortly become inadequate. The town of Eldoret was depending on rain-water tanks and supplies by water-cart from the polluted Susiani River which flowed through the town. Both railway and township at Kisumu were dependent on a steam pumping installation which had been put up for railway purposes in the beginning of the century. Nakuru had been provided with a small supply through a 3-inch pipe from the Mereroni River in 1914, and considerable extensions of the distribution system in the town by a network of small pipes had taken place during subsequent years. In the cases of Nakuru, Kisumu and Eldoret Water Works, it was found possible to arrive at decisions on the major problems which presented themselves soon after the appropriations had been made, but in the case of Mombasa the problems were found to be far more complicated. The preparation of the surveys and designs for these water works was carried out by members of the Water Branch of the Department, partly by Revenue and partly by Loan staff. The extremely valuable professional work of Mr. C. H. Wainstay, M.C., M.Inst.C.E., in connection with these designs and especially the difficult ones for Mombasa Water Works is worthy of mention in this report.

116. At Nakuru there was no other source of supply which compared at all favourably with the Mereroni River, and gaugings which had already been made while the old supply was in operation showed that the flow would be much more than adequate for all requirements. The conditions were unusually favourable, for a suitable point on the source of supply for tapping it by means of a simple intake was only eight miles from the position of the service tank, and a good hydraulic gradient was obtainable. It was therefore possible to provide a gravity supply at a capital cost per unit of population which compared very favourably with the other towns where conditions were not so good.

117. At Kisumu there were only two readily available sources of supply, namely the Lake and the Kibos River. Both were polluted sources. The Kibos River was selected because it provided a gravity supply, whereas the utilization of the water of Lake Victoria would have involved a pumping installation, and gaugings of the Kibos River at the point of intake over a short period appeared to indicate that it would meet all demands. The point of intake was only seven miles from the site for the service reservoir. During exceptionally dry years it has, in fact, been found subsequently that the flow of the river approaches dangerously near the supply for which the main was

calculated. Owing to the comparatively low capital cost in relation to the population supplied, it has been possible to deliver water rendered pure by sedimentation, filtration and chlorination to the consumers and to start building up a Renewals Fund.

II — MOMBASA WATER WORKS.

£128,028 of which £166,769 was from Loan.

118. As this was the largest and most expensive work undertaken from the Loan, it appears to merit more detailed description than any of the other works and buildings.

119. The mainland intake from Mombasa is badly provided by nature with surface supplies of water, and such small supplies as exist are usually highly charged with various salts in solution. The earliest survey for a supply of water to Mombasa was made in 1899. In that year a Royal Engineer Officer, Col. Bogle, was sent out for the purpose by the Colonial Office. Col. Bogle prepared a scheme for the supply of 500,000 gallons per day from a spring at the Shumba Hills at an estimated cost of £100,000. The works were not constructed, presumably for financial reasons, and the scheme appears to have failed largely by weather in later years.

120. Between the years 1909 and 1912 further investigations were made with the result that between 1912 and 1916 a project for supplying Mombasa from the Mleri streams in the Shumba Hills at 700 feet above sea-level, was carried out at a cost of £108,000. The works were greatly delayed as a result of the war and difficulties amongst the construction staff and workmen. Further works were carried out during ensuing years, mostly of the nature of alterations of the original scheme at a cost of £34,941 in the aggregate. The water had a highly solvent action on iron owing to its extreme chemical purity, and this action could only be reduced, without being overcome, by chemical treatment. Corrosion of the main, was in consequence, greater than normal.

121. By the end of the year 1924 the distribution system had been greatly extended on the Island, and Muzras and Changamwe were also being supplied with water. The average consumption of water during the year 1924 was 455,000 gallons per day. On individual days, when the supply to shipping was considerable, the demand was occasionally in excess of the capacity of the main delivering water from the Shumba Hills to the service reservoir. The capacity of that old main was 550,000 gallons per day.

122. From 1924 to 1926 projects for increasing the supply to 1,100,000 gallons per day from sources in the Shumba Hills were under survey and investigation, and alternative proposals were considered in collaboration with the Consulting Engineers. In 1926 the rapidly increasing demand for water in Mombasa, which had gone up 27 per cent since 1924, caused doubt as to whether 1,100,000 gallons per day would be sufficient to provide for in the new works. The census in 1926 also threw a new light on the rate of growth of Mombasa. It became evident that, if the growth of Mombasa were to retain its rate of increase, that amount of water would not be sufficient to justify high capital expenditure.

123. After careful review and comparison with the statistics of growing ports in other parts of the world, it was considered that the delivery of not less than 2,000,000 gallons per day should be provided for in the design for the new works. The problem was to find the 2,000,000 gallons per day. All the streams and springs in the Shumba Hills which were at all promising as sources of supply had been under investigation, but gauging had not been continued for long enough to justify confidence in their discharges at various points during long droughts. During the next two years gauging continued and, in addition, projects for the storage of floodwater in large reservoirs

west of Rabai, where the catchment areas seemed promising, were investigated. It was only after the dry season of 1928 that it was thought to have been adequately established that the combined discharge of four streams in the Shumba Hills, namely the Mleri, Votia, Mwaloganyi and Madabara, would if tapped at certain levels, give an adequate supply, while the projects to store floodwater in the region west of Rabai were found to be unsuitable.

124. A new project had to be prepared to provide for a new intake on the Mleri at a lower level, so that the other streams could be led into it when required. This proposal would necessarily be much more costly than the original scheme, not only because nearly double the supply was contemplated but the larger intake meant larger and heavier pipes, and this all reflected on the cost of transport charges and so forth as well as the actual alignment. The demand for water for the port, the railway and the town itself was growing with the expansion of trade of those years. Boosting plants to increase the carrying capacity of the old main were installed at two points as a temporary alleviation. In spite of this, the supply to the town had to be curtailed at intervals, and it was feared that at any moment the position might become acute. It was a matter of great urgency to get at least a section of the new scheme constructed so that the larger pipes would assist in supplying the town.

125. By the middle of 1928 the surveys for alternative routes had established the best alignment for this that was to be made, no matter which alternative was adopted for the remainder. The construction of sections and roads was started in the latter half of 1928, and ten miles of 18-inch cement-lined pipe with its various fittings and special pipes were put on order. Transport and laying started early in 1929. Although the construction of service roads and bridges in difficult country, concrete and earthworks, transport and the laying of these heavy pipes, each about three-quarters of a ton in weight—was delayed by the heavy rains of 1929, the first part of it was connected to the old main in October, and the remaining portion early in 1930, so ameliorating the difficulty of keeping Mombasa supplied with water. Exceptionally heavy work was involved, and many engineering problems had to be overcome in the execution of the work in a damp hot climate.

126. The design for the remainder of the gravitation main to Changamwe for the 2,000,000 gallons per day scheme was still under investigation in 1929—not to determine a way of doing it, but to ascertain which of the alternatives which presented themselves would be the cheapest and best. If Port Reitz had not extended athwart the direct line between Mleri and Changamwe, the alternatives which presented themselves would have been reduced. In 1929, Col. Bogle and the Consulting Engineers of that time had been favourably disposed towards a submarine crossing of the head of Port Reitz. This had been abandoned in 1912 as unduly hazardous. It was again revived by the Consulting Engineers, and it was therefore necessary to investigate it fully.

127. It was eventually decided late in 1929 that the project to cross the tidal creek by means of a main buried below the bottom was, altogether too risky, both in construction and maintenance, to justify its execution, even though it might have proved a little cheaper in capital cost. Consideration of the strength and erosive power of the currents, the depth and carrying capacity of the silt, outcrops of rock, the corrosive action of the water and the recurrent charges for maintenance led to the abandonment of the project. One of the other alternatives which involved crossing the Mwachu Estuary high up by means of a 240 ft. single span girder bridge with abutments carried on piles was decided on.

128. Coming now to a consideration of the works themselves. There is a new intake on the Mleri stream, in the Shumba Hills, 657 feet above sea-level, about 450 feet above the service reservoir. The length of the main from the intake to the service reservoir is 25.64 miles. Most of the main is of 18-inch internal diameter cement-lined pipe, but portions

of it consist of the old main laid in duplicate after reconditioning by the centrifugal application of cement lining. Other parts again are of 13-inch cement-lined main.

129. From a preliminary examination of the old 12-inch and 10-inch steel mains as a result of examination and pieces while the mains were in service, it was hoped that it would be possible to salvage a large portion of it and use it again in duplicate after reconditioning the pipes by the centrifugal application of cement lining. Plant for cement lining was hired from South Africa and installed at a site near Tunza village. The laying of the new 16-inch main from the headworks released the old 12-inch main from service and enabled it to be disjointed and transported to the reconditioning plant. After sweeping and testing, it was found that deterioration by internal corrosion had progressed to a greater degree than preliminary examination had revealed, and the proportion of rejects, coupled with the cost of transport over difficult country, showed that it would not be economical to use reconditioned pipes for such an extensive mileage as was originally hoped. Seven-and-a-half miles of old main were reconditioned and laid.

130. The lengths of mains of various diameters and hydraulic gradients comprised in the gravitation main consist of: 76,930 feet of 16-inch internal diameter cement-lined steel main, 1,570 feet of 15-inch 37.020 feet of 13-inch and 19,844 feet of old 12-inch main (reduced by lining to 10½ inches) laid in duplicate after reconditioning. The hydraulic gradient of the 16-inch main is 1.99 per cent, of the 15-inch .281 per cent, of the 13-inch .554 per cent, and of the reconditioned main in duplicate .445 per cent. There are 68 air-valves and 60 wash-out valves on the main. This composite pipe of varying diameters was calculated to deliver 2,600,000 gallons per day at the reservoir with allowance for deterioration of 6 per cent, and its carrying capacity after two years' use has been tested to 2,400,000 gallons per day. A Venturi meter is installed at the intake. The greatest pressure in the main under ordinary working conditions is 215 lb. per square inch or about 13 tons per square foot—that is near where it crosses the Mwachia River Estuary. Unbalanced pressures at bends were taken up by concrete where necessary.

131. The short lengths of main of small diameter to deliver water from the Votta, Mwalaganji and Mvumbuu have not been provided as the Mvumbuu had never fallen below one-and-a-half million, and this should be adequate for Mombasa for many years. The present consumption of Mombasa is 714,842 gallons per day on the average, though the peak demand is much greater.

132. The raw water at the headworks has a satisfactory degree of chemical purity but joined with high hydrogen-ion concentration and low alkalinity. The average pH value is 4.2 and the total alkalinity to methyl orange is 8.6 parts per million of equivalent calcium carbonate, the carbon dioxide content is about 9 parts per million. With a water of this kind it is necessary to treat it with hydrated lime and aerate it to some degree, so as to maintain equilibrium between the alkalinity and pH value in order to avoid slow solvent action on the cement lining of the pipes. It has therefore been necessary to retain the old lining plant at the headworks.

133. The gravitation main delivers the water to the service reservoir at Changanwe. The old reservoir, consisting of two concrete tanks of 750,000 gallons capacity each, was retained for the new scheme, and a third of 1,000,000 gallons capacity was added to increase the storage capacity to 2½ million gallons. The service reservoir thus has ample capacity to meet the daily fluctuations of demand of the town and a reserve to allow for cutting off the supply from the gravitation main when repairs are required. During the erection of the third tank there occurred the only mishap of any consequence experienced during the construction of the water works—or indeed during the execution of the whole loan programme of works—for, while the tank was being tested under water pressure, one of the walls failed, owing to an unnoticed error in the arrangement of the steel reinforcement in its

footing. That wall had to be rebuilt and the other walls strengthened. The distributing system to the tanks necessitated careful design to secure adequate control, and provision was also made for the tanks to be by-passed so that water could be delivered direct to the town without entering the service reservoir should this become necessary at any time. Provision is made for chlorinating the water by means of a Paterson chloronome, and a Venturi meter is fixed on the main outlet to the town.

134. The original distribution system of the town was laid in 1917 and was added to at various times by extensions to areas under development. The majority of these mains were entirely inadequate in carrying capacity for the new project, and in addition the effects of corrosion had been so intense, as in the case of the gravitation main, that, except for those laid as extensions in recent years, most of the pipes themselves were past reconditioning. The basis of redesign was to provide a pressure, at times of maximum demand, of not less than 60 feet head at the extreme end of the main loop. The mains are partly of cast iron and partly of steel with cement lining centrifugally applied. Fourteen miles of main, from 23 inches internal diameter downwards, were laid. In accordance with current practice, the mains are designed to convey three times the average demand to cope with the maximum demand for all purposes, including fire. Owing to the topography of the country surrounding Mombasa Island, it was not possible to obtain a site for a service reservoir which would give adequate pressure for full fire protection without the use of pumping fire engines. This is an ideal which is seldom realized and is out of the question at Mombasa. The scheme has, however, been designed so as to give the highest practicable pressure at each of the 277 hydrants installed on the system. The principal main, namely that conveying the water from the service reservoir to the Island is of cement-lined steel pipe 28 inches in internal diameter. The main crosses two tidal flats and Makupa Causeway between the Mainland and the Island. Over the Causeway, which consists of a high embankment 2,300 feet long, including a road and railway bridge of 285 feet opening, the pipe is carried overground on steel saddles bolted to concrete. As the Causeway is on a curve, each pipe is anchored down by a strap which restrains it from transverse movement but allows longitudinal movement, the movement being taken up by expansion joints every 300 feet. In order to avoid serious damage to the railway and road embankment in the event of a burst, an automatic self-closing valve of the Larner Johnson type is installed at the mainland end of the Causeway and is set to trip when the velocity of flow exceeds that of the maximum demand of the town, the closure being effected in twenty-two seconds without shock.

135. In view of the importance of maintaining a supply to the town and port in case of mishap, the cylinders of the abandoned Makupa Bridge were utilized to carry a standby main consisting of reconditioned 16-inch pipe. Moreover, the design of the distribution system on the Island is such that, in the event of a breakage at any point, the supply can still be continued, except to a small area in the vicinity of the breakage, during the time necessary to repair or replace the fractured pipe.

136. The cost of the water works was £225,624, of which £61,854 was borne by the Renewals Fund. The gravitation main comprising the intake works on the Mvumbuu Stream, the main itself, bridges, causeways, etc., the service roads and bridges, temporary works, plant, preliminary investigations, surveys and design, cost £169,857; the service reservoir, together with its appurtenant works, £3,145 (plus £7,474 from Revenue Funds); and the distribution system, including the special work on Makupa Causeway, £55,621. The opening ceremony was performed by His Excellency Sir Joseph Byrne, G.C.M.G., K.B.E., C.B., on March 3rd, 1934.

137. At the end of 1934 there were 1,680 service connections in use, thirty-four kiosks for the supply of water by sale in the streets, and a bulk supply to the Port. The water consumption during the year amounted to 260,761,000 gallons, and the revenue collected amounted to £36,053.

III.—KISUMU WATER WORKS—£90,652.

138. The source of this supply is the Kibos River, seven miles from Kisumu. The catchment is hilly pastoral country, 95 square miles in extent, which for the most part is densely populated. In consequence, the supply is a polluted one. The headworks consist of concrete intake weir, screens and Venturi meter. The filtration plant is situated at the headworks and comprises chemical dosing gear, two coagulation basins of 43,000 gallons and six Paterson pressure filters of five feet diameter each. The capacity of the filtration plant is 200,000 gallons per day. The gravitation main consists of 6.8 miles of 6-inch spigot and socket steel pipe, at a hydraulic gradient of 7.25 per cent, the capacity being 255,000 gallons per day. This main delivers the treated water to a service tank of 100,000 gallons capacity, constructed of pressed steel plates supported on concrete walls 8 feet 6 inches above ground level. Just before its entry into the service tank, the supply is chlorinated by means of a Paterson chlorinome. There are 265 service connections in the town, all of which are fitted with meters. These service connections are supplied through a distribution system from the service tank comprising 8,700 feet of 6-inch, 5,800 feet of 5-inch, 3,000 feet of 4-inch, 4,500 feet of 3-inch spigot and socket steel main, and 20,000 feet of 2½-inch screwed galvanized pipe. The headworks are at R.L. 4184, and the top water-level of the service tank is at R.L. 3925.

IV.—ELDOROT WATER WORKS—£27,436.

139. For the supply of Eldoret, only the Ellegirini River in the Elgeyo Forest Reserve, fifteen miles from Eldoret, presented a source of supply likely to be satisfactory. The project was a simple gravity one in easy country, and the capital cost in relation to the population to be supplied not unreasonable for unfiltered water.

140. The catchment above the intake on the Ellegirini River is about twenty-three square miles in extent consisting of dense forest and bamboo. The headworks consist of concrete intake weir with screens and lining plant at an elevation of 7,690 feet above sea-level. The gravitation main comprises 14½ miles of 5-inch spigot and socket steel pipe. This discharge into a reinforced concrete service tank of 100,000 gallons capacity, the top water level of which is R.L. 7030. There is a break-pressure tank situated ¼ mile from the service tank for the purpose of reducing the static head on the main. The hydraulic gradient of the portion above the break-pressure tank is .852 per cent, and for the portion below it .835 per cent. The calculated capacity of the main (Hazen Co.) is 175,000 gallons per day. No filtration or sterilization plant was provided. The distribution system from the service tank to the town consists of 9,750 feet of 6-inch, 8,800 feet of 5-inch, 41,500 feet of 4-inch, and 10,000 feet of 3-inch spigot and socket steel pipe. It supplied 270 service connections, all of which were metered. The undertaking was handed over to the Municipal Board of Eldoret in February, 1933.

D. ROADS AND BRIDGES

141. The recommendations of the Select Committee on the Loan Proposals, 1925, as contained in its report which was adopted by Legislative Council on December 15th, 1924, provided for—

	£
(1) Road Survey of the Colony	25,000
(2) Main Roads and Bridges	50,000
(3) Makupa Causeway	50,000
(4) Road Plant	50,000
	£175,000

The Select Committee also expressed the opinion that the provision of £50,000 for Main Roads and Bridges "should be made by way of an instalment of the necessary sum" and appended a list of roads and bridges, totalling £493,900 in cost, which "in the opinion of the Select Committee are deserving of special consideration."

142. As regards the provision of £25,000 for road survey, the Select Committee observed "that an essential preliminary to a general road scheme is a comprehensive survey" and in respect of the recommendation for £50,000 for road plant that "the advantage of the extended use of road plant, mechanical graders, etc., upon the roads of this Colony would be a reduction in cost and an economy in native labour coupled with increased speed in construction."

143. The public road system of the Colony was about 4,000 miles in length in 1925, but, although the most important roads leading from the principal towns had been properly surveyed, aligned and constructed as bridged and drained earth roads for short distances and in some cases provided with a wearing surface, the bulk of the public road system consisted of a series of earth tracks, inadequately provided with temporary types of bridges, culverts and drainage. Such roads were only suitable for the lightest traffic during dry weather and quickly became impassable under heavy traffic in wet weather. Decisions regarding the construction of the trunk railway to Uganda and of several branch railway lines rendered it possible to consider the lay-out for a public road system and construct it on more permanent lines without the danger of much of the expenditure being wasted.

144. In anticipation of an extensive road programme it was deemed advisable to obtain a road engineer, and to inaugurate a Roads Branch to deal with surveys, designs and construction. The services of Mr. R. S. Moore, who had had long experience in Australia, were secured late in 1926. After touring the Colony, Mr. Moore recommended, in a report entitled "Kenya Road Problem" which was published, the provision of an organization for survey, design, supervision of construction and maintenance consisting of ninety-five Europeans, seven Asians and six Africans and that the average annual expenditure in direct charges on the roads should be £153,000 from Revenue and £145,000 from Loan. The Roads Branch was set up, and a road location engineer together with three surveyors were obtained from Australia and one from England for the purposes of the road survey of the Colony. A road superintendent and seven foremen were also obtained from Australia for constructional purposes, as well as further staff of various denominations from England and locally. A Central Road Committee under the chairmanship of the Colonial Secretary was established in April, 1927, to advise Government on the road programme to be undertaken against Loan funds.

145. During the year 1926 opinion was more in favour of the construction of roads out of Loan from producing areas to railway stations than of the main roads and bridges which the Select Committee on the Loan Proposals of 1925 had put forward for consideration at a cost of £493,900. On June 22nd, 1927, the Central Road Committee appointed a Sub-Committee, consisting of the Road Engineer (Chairman), Chief Native Commissioner and Director of Agriculture (for his representative), to make detailed recommendations regarding a proposed Feeder Road Loan of £100,000. The Sub-Committee reported on September 27th, 1927, and as a result the Committee recommended the construction out of an instalment of £100,000 of the following roads:—

	£	Miles
1. Kitale-Elgon North	5,200	13
2. Langari Station-North	3,000	7
3. Kitale-Sandham's Bridge	3,650	7
4. Matunda-Biding S. West	3,200	10
5. Kitale-Eastern Cherangani	3,200	3
6. Elgeyo Station-S. E. Cherangani	5,000	17
7. Elgeyo-Moyben-Sergoit	2,400	4
8. Kiptabus-Farm 35	2,600	5
9. Turbo Station-South	500	1
10. Murkosi Station-South	5,000	—
11. South Kavirondo Area	2,000	—
12. North Kavirondo Area	2,000	—
13. Central Kavirondo Area	5,000	7
14. Lambara-Kericho	1,500	3
15. Koru Station-Club	1,300	3
16. Lushya-North	1,200	3
17. Rongai-Elburgon	6,000	14
18. Sabukia Area	3,000	6
19. Mole Area	1,500	4
20. Rongai-Loye Mole	1,200	3
21. Njoro-Kisumu	1,200	3
22. Salatia-Kisumu-South	3,500	6
23. Ng'anda-Kraggeop	2,000	—
24. Kiuchi Nyeri Native Reserve	3,600	6
25. Thompson's Falls-N. East	800	2
26. Aotibul Ridge	1,200	1
27. Nyai Station-Farwa N. E.	1,000	6
28. Ng'ara-Mole 20	1,750	5
29. B. via Milla-East	1,400	4
30. Mithabani Station-Ithagu	2,500	5
31. Kapiti Station-North	—	—
	£ 95,000	

Recommendations for a further instalment were made by the Sub-Committee, but consideration of these was deferred and the question of a further instalment did not again come up for examination.

146. The Sub-Committee recommended that all roads constructed under Loan should be surveyed and where necessary realigned. Permanent bridges and culverts should be constructed. The sections of the roads which become impassable should be hard-surfaced. Stone or murrum causeways should be built over swamps, black cotton soil tracts, etc. The remainder of the alignments should be constructed to a correct earth cross section and culverted. Where existing roads are untrafficable for the wagons, connections should be made to old roads to obviate the destruction of the new earth construction by this type of vehicle.

The approval of Legislative Council for raising a loan of £100,000 for roads was obtained by resolution on November 17th, 1927.

147. The authorized expenditure for road communications as authorized by resolutions of Legislative Council on December 15th, 1925, and November 17th, 1927, and provided under the 1925 and 1930 Specific Loan Ordinances, therefore comprised—

	£
(a) Road Survey of Colony	25,000
(b) Main Roads and Bridges	50,000
(c) Feeder Roads	100,000
(d) Makupa Causeway	50,000
(e) Road Plant	50,000
	£275,000

By subsequent resolutions involving reallocations between items, item (a) was altered to £33,950, item (c) to £93,750, and item (d) to £47,300.

148. As in the case of buildings, the bulk of the expenditure on construction of roads was incurred during the years 1927 to 1930 when the wages of labour and rations and the cost of material and transport were high. Moreover, labour was scarce largely owing to railway construction and other public and private development proceeding simultaneously. Labourers could often only be obtained by the employment of professional recruiters and contractors who had succeeded in obtaining labour. Heavy rail charges on labourers had often to be met, and frequent delays occurred on account of professional recruiters being unable to fulfil demands. Much of the work was executed by contract, but whether carried out by contract or by direct labour, the unit costs were high. A fairly high standard of design to sub-grade was, however, secured in most cases, the gradients and curves being good, the bridges and culverts permanent in type and the drainage adequate. The authorized programme of construction was completed except for a few small items, which had to be postponed from one cause or another, by the end of 1931. The services of the Loan staff for roads had been dispensed with at intervals as authorized work became reduced. Owing to the financial position, the Roads Branch was closed down and the post of Road Engineer abolished in December 1932.

149. The authorized and actual expenditure to December 31st, 1934, on road communications was as follows—

	Expended to	
	Authorized	£1-12-34
	£	£
Road Survey of Colony	33,950	33,731
Main Roads and Bridges	50,000	49,156
Feeder Roads	93,750	90,192
Makupa Causeway	47,300	45,595
Road Plant	50,000	49,939
	£ 275,000	268,613

(a) ROAD SURVEY OF THE COLONY—£33,731

150. Progress with a detailed survey of the public road system of the colony as a whole was not as great as was originally hoped during the period of the employment of the road surveyors as a charge against this item. This was partly due to their employment primarily on the surveys for the short lengths of roads under the Feeder Road Programme and partly to their occupation with investigations of other new proposals. On account of the wide range of these activities, the charges for travelling against the Loan provision were very high. The number of Leave Surveyor-months, including the field location engineer, but excluding absences on leave, from June 1927 to March 1932, amounted to 228, and the mileage of road surveyed inclusive of constructed roads and new proposals amounted to 1,161. This item also bore much of the cost of most of the designs for bridges on the Loan roads. A large amount of survey and alignment of roads was, however, also done by the Revenue staff of the Public Works Divisions against Revenue provision, and the mileage of the public road system under the Department and maintained out of public funds increased from about 4,000 miles in 1925 to 7,750 in 1931, and 10,511 with 222 bridges at the end of 1934, chiefly through the opening up of Native Areas out of the Colony's Revenue appropriations and Local Native Council allotments.

(b) MAIN ROADS AND BRIDGES—£49,156

151. This sum was expended on two roads—	
Mombasa-Kilindini, two miles	£28,307
Muhoroni-Songhor-Chemilili, eighteen miles	£20,849

152. The Mombasa Kilindini Road is not in fact one of the main country roads but a township street. Preliminary work in connection with the acquisition of plant and stone started early in 1927, and the bulk of construction work was finished before the end of 1928. The road consists of 36,050 square yards of bituminous macadam three inches thick laid by the penetration method on a foundation course of Mwachu stone and provided with a double seal coat. The finished carriage-way varied from 25 feet to 30 feet in width on different parts and up to 60 feet at important junctions. The bitumen used for half of the road was Trinidad Lake Bitumen and for the other half Mexphalt with "Spranex" seal coat. The total length of constructed carriage-way is 11,333 feet.

153. The Muhoroni-Singaiti-Chimili Road provided communication to an excellent standard between the producing area of Bonghor to the railway station of Muhoroni and Chimili. Much of the road was on black clay and the high cost per mile was largely due to transport of surfacing material at the transport rates which prevailed at that time as well as heavy earthwork in parts to secure a good subgrade with culverts, bridges, culverts and drainage up to the standard laid down for local roads.

154. The work executed consisted of the following:

	Expenditure
(1) KITALE-ELDON NORTH. Length 11½ miles. Constructed Departmentally. Started December, 1926, and completed in 1929.	4,789
(2) BURGAI STATION-NORTH. Length 7 miles. Constructed by Contract started 1929 and completed in 1930.	4,322
(3) KITALE SANDHAM'S BRIDGE. Length 6 miles. Improvements.	304
(4) MATUNDA NIBITHO'S BRIDGE. Length 7 miles. Commenced March 1930, and completed early in 1931.	3,763
(5) KITALE EAST-CHERANGANI. Length 11 miles. Constructed by Contract, except the first 4 miles. Commenced and completed in 1929.	4,927
(6) KITALE-S. E. CHERANGANI. Length 9 miles. Constructed Departmentally. Commenced in 1929 and completed in January, 1930.	2,554
(7) MUYOBI-SARGOTT. Length 11 miles. Constructed Departmentally except for Causeways and Culverts. Started late 1928 and completed in 1929.	4,726
(8) KIPLEGU'S FARM 35. Length 4 miles. Constructed by Contract. Started in 1929 and completed early in 1930.	1,770
(9) TURBO STATION-SOYITE. Length 10½ miles. Constructed Departmentally. Commenced and completed in 1929.	3,384
(10) MURKOSI STATION-SOUTH. Length 4 miles. Constructed by Contract.	113
(11) KITALE-MCCOY'S BRIDGE. Length 1 mile. Constructed by Contract in 1931. Contract terminated in 1930.	2,643
(12) NYANZA PROVINCE NATIVE RESERVE BRIDGES. Balance of work done Departmentally.	7,784
Makishi, 66 ft. span. Completed early in 1930.	
Oyau, 66 ft. span. Completed in July, 1930.	
Nzou, 208 ft. span. Completed in 1929.	
Riama, 59 ft. span. Completed in 1929.	
Nvancia, 28 ft. span. Completed in 1929.	
Schrawa, 32 ft. span. Completed in 1929.	
Nyauko, 32 ft. span. Completed in 1929.	
Nyauko, 71 ft. span. Completed in 1929.	
(13) KANG'AKO-LETHIN. Improvements. Length 2½ miles. Constructed Departmentally.	4,589
(14) KORI STATION-KORO CLUB. Length 2½ miles. 11 miles Departmentally, rest by Contract, 1931. Balance of funds, £107, finished over to Nyanza District Council for further works.	1,482
(15) LAJWA NORTH. Length 8 miles. Constructed Departmentally. Commenced 1931 and completed in 1932.	2,971
(16) KONGAI BRIDGEWAY. Length 7½ miles. Constructed Departmentally. Commenced March 1930, and completed in August 1930.	1,954
(17) SABATA AREA. Length 14 miles (including 5½ miles Gage Road). Constructed, partly Departmentally and partly by Contract. Most of the work completed in 1929 and the whole finally completed in July 1930.	4,926
(18) MOTO AREA. Length 8½ miles. Constructed Departmentally. Commenced in 1929 and completed in December 1930.	4,084
(19) UGAI-LOOGE-MUKO. Length 2 miles. Constructed Departmentally. Completed in 1929.	909

Expenditure
£

(20) NJIRO KISHOBO. Length 3½ miles. Constructed Departmentally. Commenced late in 1928 and completed in 1929.	1,098
(21) SABATA STATION-NORTH. Length 7 miles. Constructed partly by Contract and partly Departmentally. Includes 20 ft. span bridge over the Enarussora River. Completed in November 1930.	1,860
(22) NAIYASIA KISABOGOR. Length 6½ miles. Constructed by Contract. Commenced May 1929, and completed by the end of the year.	4,029
(23) SOUTH NYERI NATIVE RESERVE. Amount provided for reforming, drainage and part maintaining 5½ miles of the main Fort Hall-Embu Road between Sagana and Kigio, and the construction of six bridges. Commenced in June 1929, and completed by October 1930. Of the six bridges, three were 30 ft. span and three 16 ft. span.	8,029
(24) THOMSON'S FALLS-S. EAST. Length 4½ miles. Constructed Departmentally and completed by November 1931.	1,830
(25) AMBONI BRIDGE. Length 1½ miles. Commenced in September, 1928. Completed in March 1929. Constructed Departmentally.	839
(26) NYERI STATION FARMS N. E. Length 1½ miles. Constructed Departmentally. Commenced March 1929, and completed in September 1929. Includes 80 ft. span bridge over the Nairobi River.	1,061
(27) NAIRO MOMB. MILE 26 ON THE NYERI-KUMURUTI ROAD. Length 1½ miles. Light clearing and leveling only. 25 ft. wide. Commenced in May 1929, and completed in September 1929. All work done Departmentally. Includes an 18 ft. span bridge over the Mayo River.	842
(28) PUNDA MILLA-EAST. Length 5 miles. Constructed Departmentally. Commenced in 1928 and completed early in 1929.	2,042
(29) MUYOBI-UBANGA. Length 4 miles. Constructed Departmentally. Commenced late in 1928 and completed in August, 1929.	1,962
(30) ATHI RIVER-MACHAKOS. Length 24 miles. Improvements. Constructed in 1931.	2,929
(31) BRIDGE ROADS TO THOMSON'S FALLS NATIVE RESERVE. (a) OI Joro Orak. Length 14 miles. Constructed Departmentally. Commenced July 1930, and completed in December 1930.	3,489
(b) Morelands-Oholondo. Length 7 miles. Constructed by Contract. Completed in 1930. Separate Contract for 27 ft. span bridge over Oholondo River. Completed in January 1931.	

£ 90,192

(d) MAKUPA CAUSEWAY—£45,596.

155. Except for the road work, the combined railway and road causeway across the tidal strait between Mombasa Island and the mainland at Makupa was designed and constructed by the Beaya and Uganda Railways and Harbours Administration. The sum paid to that Administration for the portion of the causeway which was appurtenant to the road as distinct from the railway was £35,746. The balance of £9,749 was expended on the construction of the road on top of the causeway and the approach roads from the Island and Changanwa. It includes half the cost of an overhead bridge of 20 feet span over the railway and constructed by the Railways and Harbours Administration. Practically all of the road construction was carried out through the agency of the Municipal Engineer, Mombasa. Makupa Causeway is a combined embankment and bridge of 2,300 feet in total length. The bridge consists of five spans of 22 feet each, the roadway being 32 feet above mud-level. The piers and abutments carrying the trusses are supported by concrete cylinders of 12 feet external diameter sunk to about 30 feet into the silt of the bed of the Makupa Straits.

(e) ROAD PLANT—£40,359.

156. The plant purchased from this appropriation comprised 36 tractors, 31 graders, 19 lorries, 5 trailers, 6 ploughs, 1 scrapper, 1 Petter engine, 1 pulsmotor, 2 culvert bending rolls, together with miscellaneous spares, garage equipment, etc.

13th November, 1935

H. L. SIKES,
Director of Public Works.

STATEMENT SHOWING HOW THE PERCENTAGE ALLOCATION OF ESTABLISHMENT IS OBTAINED

DETAILS	EXPENDITURE	PERCENTAGE	PERCENTAGE
TOTAL EXPENDITURE UNDER P.W.D. HEAD OFFICES, STORES AND STORES YARD AND THE CONSTRUCTION OF THE RAILWAY SIDINGS	£ 224,214	100.00	100.00
TOTAL EXPENDITURE UNDER P.W.D. HEAD OFFICES, STORES AND STORES YARD AND THE CONSTRUCTION OF THE RAILWAY SIDINGS	£ 96,236	42.92	42.92
TOTAL EXPENDITURE UNDER P.W.D. HEAD OFFICES, STORES AND STORES YARD AND THE CONSTRUCTION OF THE RAILWAY SIDINGS	£ 11,304	5.04	5.04
TOTAL EXPENDITURE UNDER P.W.D. HEAD OFFICES, STORES AND STORES YARD AND THE CONSTRUCTION OF THE RAILWAY SIDINGS	£ 75,395	33.64	33.64
TOTAL EXPENDITURE UNDER P.W.D. HEAD OFFICES, STORES AND STORES YARD AND THE CONSTRUCTION OF THE RAILWAY SIDINGS	£ 26,688	11.86	11.86
TOTAL EXPENDITURE UNDER P.W.D. HEAD OFFICES, STORES AND STORES YARD AND THE CONSTRUCTION OF THE RAILWAY SIDINGS	£ 4,049	1.76	1.76
TOTAL EXPENDITURE UNDER P.W.D. HEAD OFFICES, STORES AND STORES YARD AND THE CONSTRUCTION OF THE RAILWAY SIDINGS	£ 161,646	72.10	72.10

NOTE: If the sum of £101,646, representing the net balance of expenditures charged to Establishment, is distributed over this net expenditure charged to Construction amounting to £235,874, the average percentage ratio is 48.66%, and except for the buildings scheduled above under C and D this percentage is shown in Appendix II as to the construction charge of each building or group of buildings.

APPENDIX II

£3,500,000 KENYA LOAN (1928) AND £3,400,000 KENYA LOAN (1930)
A. PUBLIC BUILDINGS
DETAILS OF REVISED COMBINATIONS OF ESTABLISHMENT WITH CONSTRUCTION COSTS AT 31st DECEMBER, 1934

NAME OF WORK	A. Existing Provision for Establishment and Construction	B. Existing Provision for Construction	C. Expenditure on Construction to 31-12-1934	D. Expenditure on Establishment to 31-12-1934	E. Combined Expenditure on Construction and Establishment to 31-12-1934
(1) HOUSING					
Government House, Mombasa	19,416	19,416	19,416	1,500	20,916
Government House, Nairobi	70,502	93,473	63,472	11,988	75,460
Kwale	1,897	1,517	1,517	286	1,803
Maldivi (Kilifi)	6,644	5,410	4,138	781	4,919
Voi (Taita)	3,481	2,878	6,678	54	6,732
Kilifi	5,006	4,138	4,138	781	4,919
Machakos	5,904	4,800	4,588	922	5,510
Ngong	4,815	3,981	3,980	752	4,732
Narok	18,652	10,791	10,791	2,088	12,879
Nakuru	22,785	19,006	13,791	2,548	20,339
Kisumu	6,594	5,465	5,464	1,040	6,504
Kisii	6,154	5,088	6,087	981	7,068
Kericho	21,150	17,457	17,457	2,807	20,264
Kakamega	5,479	4,591	4,524	86	4,610
Kianbu	3,178	2,027	2,672	486	3,158
Fort Hall	3,873	2,954	4,054	559	4,613
Korogoya	3,847	2,351	2,354	442	2,796
Meru	9,245	7,627	7,627	2,564	10,191
Rumuru	28,284	23,386	20,874	53	21,427
Eldoret	3,409	2,418	2,418	37	2,455
Nanyuki	8,915	7,271	7,271	1,09	8,360
Kisumu	3,811	3,234	3,234	37	3,271
Karibuni	4,845	4,008	4,008	77	4,085
Maseno	6,922	4,938	4,938	332	5,270
Digo (Masambweni)	4,091	3,382	3,382	639	4,021
Mtwapa	3,419	2,000	2,000	13,000	15,419
Kisumu	87,095	72,010	72,010	3,694	75,704
Mombasa					
Nairobi (includes Water and Sewerage Means)	228,399	188,833	188,832	16,605	205,437
Nairobi (late Mr. Martin's House)	2,990	2,030	2,030		2,990
Nairobi (Mr. Neeter's House)	1,368	1,378	1,368		1,368
Murranjia	31	25	25	5	31
Isiolo	265	198	198	37	235
TOTAL HOUSING	599,914	508,293	495,307	89,718	585,025
(2) MEDICAL BUILDINGS					
Nyeri Native Hospital	2,904	2,234	2,233	422	2,655
Maldivi (Kilifi) Native Hospital	4,405	3,781	3,780	714	4,494
Voi (Taita) Native Hospital	6,102	5,287	5,236	969	6,205
Kilifi Native Hospital	3,055	2,621	2,622	495	3,117
Machakos Native Hospital	3,901	3,343	3,347	432	3,779
Narok Native Hospital	2,859	2,066	2,065	392	2,457
Nakuru Native Hospital	7,093	6,066	6,065	1,145	7,210
Kisumu European Hospital	6,633	5,606	5,605	1,059	6,664
Kisumu Native Hospital	8,622	7,402	7,401	1,398	8,799
Karibuni Native Hospital	5,319	4,066	4,066	1,315	5,381
Fort Hall Native Hospital	4,324	3,029	3,019	591	3,610
Korogoya Native Hospital	2,714	2,714	2,713	701	3,414
Meru Native Hospital	5,158	4,325	4,325	446	4,771
Eldoret Native Hospital	4,399	3,698	3,698	839	4,537
Digo (Masambweni) Native Hospital	4,460	4,153	4,152	698	4,850
Kericho (Karibuni)	5,240	4,497	4,496	784	5,280
Kisumu	4,460	3,819	3,819	721	4,540
Kianbu	4,460	4,497	4,496	849	5,345
Nairobi Medical Laboratory	33,811	29,014	29,014	5,480	34,494
TOTAL MEDICAL BUILDINGS	121,731	103,952	103,042	19,631	123,673

APPENDIX II—Contd.

NAME OF WORK	A. Existing Provision for Establishment and Construction	B. Existing Provision Provided for Construction	C. Expenditure on Con- struction to 31-12-1934	D. Expenditure on Estab- lishment to 31-12-1934	E. Combined Expenditure on C and D to 31-12-1934
	£	£	£	£	£
(B) EDUCATIONAL BUILDINGS					
EUROPEAN:					
Nairobi School	38,211	33,980	33,980	6,420	40,400
Kabete School	66,433	68,047	69,047	11,152	70,199
Nakuru School	44,703	39,733	39,733	7,504	47,237
Eldoret School	45,134	40,125	40,111	7,576	47,687
Kitale School	26,490	26,211	26,210	3,000	31,100
INDIAN:					
Nairobi	57,446	47,503	47,501	8,971	56,472
ARAB:					
Mtwapa (Mombasa)	9,714	4,387	8,610	1,620	10,230
AFRICAN:					
James School	8,000	8,000	8,000	—	18,759
A.N.T.D.	18,400	18,400	18,400	—	—
TOTAL EDUCATIONAL BUILDINGS	318,564	281,635	281,329	48,699	330,028
(C) OTHER BUILDINGS					
QUEEN'S OFFICE, MOMBASA	22,917	22,917	22,628	1,750	24,378
KWALE OFFICE	907	577	576	192	685
NAIROBI MEDICAL STORES	12,057	10,126	10,384	1,963	12,348
NAIROBI P.W.D. BUILDINGS AND YARD	1,153	1,002	1,002	189	1,191
NAIROBI P.W.D. BUILDINGS AND YARD	7,137	6,889	6,989	1,293	8,282
NAIROBI OFFICES	1,975	1,708	1,708	323	2,031
MILIMOTO OFFICES	709	605	605	114	719
ELDORET P.W.D. BUILDINGS	3,395	2,849	2,849	66	3,387
ELDORET OFFICES	406	361	361	66	417
KISUMU ADMINISTRATION OFFICE	3,143	2,718	2,717	518	3,235
MASENO OFFICES AND STORE	2,687	1,868	1,866	341	2,146
NAIROBI OFFICES	1,150	888	886	179	1,124
NAIROBI OFFICES	11,300	14,890	14,294	1,750	13,044
COLD STORAGE INSTALLATION					
TOTAL OTHER BUILDINGS	66,303	64,549	64,538	9,094	73,632
WORKS IN PROGRESS					
MATHARI MENTAL HOSPITAL	9,368	5,800	3,993	800	4,793
K.A.R. LINES (BRIGADE MESSENGER) LINES, BATH AND WASH HOUSES	3,220	3,027	2,344	473	2,817
LAW COURTS, NAIROBI	136,607	118,110	95,947	17,800	112,847
KITALE NATIVE HOSPITAL	2,700	5,000	776	155	891
WORKS SANCTIONED BUT CONSTRUCTION NOT PROCEEDED WITH					
K.A.R. LINES, NAIROBI	74,128	66,231	—	—	—
ELDORET ADMINISTRATION OFFICE	2,776	2,400	—	—	—
COASTAL OFFICES, NAIROBI	104,882	133,010	120	—	—
ROLES	54,700	48,091	—	—	—
EXPENDITURE ON EXTENSION OF P.W.D. HEAD OFFICES AND STORES, YARD, AND THE CONSTRUCTION OF THE RAILWAY SIDING			16,864	549	7,413
PROPOSALS TO OUTSIDE ARCHITECTS FOR SERVICES IN CONNECTION WITH PROPOSALS SUBSEQUENTLY ABANDONED OR POSTPONED INDEFINITELY				7,687	7,687
EXPENDITURE ON ACCOUNT OF SURVEYS, QUANTITIES AND ESTIMATES, ETC., OTHER THAN THOSE REFERRED TO ABOVE, SUBSEQUENTLY ABANDONED OR POSTPONED INDEFINITELY				15,200	15,200
TOTAL	1,547,456	1,335,289	1,057,890	217,360	1,274,740

*£246 of this expenditure incurred on previous work.
†Construction cost previously charged to Establishment now shown under Construction.

APPENDIX III

£3,500,000 KENYA LOAN (1928) AND £3,400,000 KENYA LOAN (1930)

A. PUBLIC BUILDINGS—TOTAL PROVISION £1,558,198
DETAILS OF REVISED COSTS TO 31ST DECEMBER, 1934, OF ITEMS (1) TO (4)

NAME OF WORK	Provision for Construction and Establishment	Revised Expenditure on Construction and Establishment to 31-12-34	Remarks
	£	£	
(1) HOUSING FOR GOVERNMENT SERVANTS			
(1) Government House, Mombasa	19,416	20,916	Completed
(2) Government House, Nairobi	70,502	75,490	
(3) Housing—			
Kwale	1,835	1,895	
Mahindi (Kilifi)	0,834	4,914	
Voi (Taita)	3,481	3,422	
Kitui	5,005	4,019	
Machakos	5,903	5,802	
Ngong	4,815	4,733	
Narok	6,453	4,022	
Nakuru	13,062	12,329	
Kisumu	23,785	20,359	
Kitale	6,596	6,434	
Kericho	6,154	5,958	
Rakocanga	21,160	20,790	
Kisumu	5,374	5,378	
Fort Hall	3,178	3,123	
Kerugoya	3,073	3,012	
Murungu	31	30	
Mera	2,847	2,798	
Mumuri	9,225	9,067	
Eldoret	28,283	24,483	
Nairobi	3,409	3,350	
Kitale	8,916	8,763	
Kabaret	3,911	3,845	
Isiolo	2,410	2,35	
Maseno	4,848	4,786	
Digo (Mwanbweni)	5,072	5,869	
Mtwapa	4,091	4,021	
Kabete	2,419	2,000	
Mombasa	87,095	85,610	
Nairobi (includes Water and Sewerage Works)	232,677	228,785	
Unallocated	55,261	—	
TOTAL HOUSING	653,175	688,115	
(2) MEDICAL BUILDINGS			
Kitale Native Hospital	2,750	931	Work in progress at 31-12-34.
Mathari Mental Hospital	6,368	4,793	Completed.
Nyeri Native Hospital	2,004	2,658	
Mahindi (Kilifi)	4,405	4,494	
Voi (Taita)	6,109	6,225	
Kitui	3,025	3,117	
Machakos	3,003	3,059	
Narok	2,389	2,496	
Nakuru	7,058	7,210	
Kisumu	15,158	15,483	
Rakocanga	8,117	8,281	
Fort Hall	3,518	3,590	
Kerugoya	4,324	4,413	
Mera	2,714	2,769	
Eldoret	5,166	5,281	
Digo (Mwanbweni)	4,309	4,390	
Kericho	4,450	4,934	
Kitale	5,340	5,845	
Kisumu	38,411	34,494	
Nairobi (Medical Laboratory)	1,275	—	
Unallocated	—	—	
TOTAL MEDICAL BUILDINGS	131,524	129,307	

APPENDIX III—(Contd.)

NAME OF WORK	Provision for Construction and Establishment	Revised Expenditure on Construction and Establishment to 31-12-34	Remarks
(3) EDUCATIONAL BUILDINGS			
European—			Completed
Nairobi	98,241	40,409	"
Kabete	66,433	70,199	"
Nakuru	44,703	47,287	"
Eldoret	45,134	47,687	"
Kisale	29,490	31,190	"
INDIAN—			"
Nairobi	53,445	56,472	"
ARAB—			"
Mtwapa, Mombasa	5,718	10,236	"
AFRICAN—			"
Kabete	20,400	26,628	"
Unallocated	1,648		"
TOTAL EDUCATIONAL BUILDINGS	316,312	350,028	
(4) OTHER BUILDINGS			
Customs Office, Mombasa	23,627	25,379	Completed.
Kwale Office	867	885	
K.A.R. Lines, Nairobi	3,329	3,837	Original scheme abandoned. Work in progress at 31-12-34 on authorized expenditure of £3,329.
Nairobi Law Courts	196,507	112,847	Work in progress at 31-12-34. Scheme under design.
Nairobi Central Offices	110,000	7,590	Completed.
Nairobi Medical Stores	12,057	12,854	"
Ngong Offices	1,150	1,191	"
Nakuru P.W.D. Buildings and Yard	7,737	7,952	"
Rumuruti Offices	1,975	2,031	"
Machakos Offices	700	719	"
Narok Offices	1,186	1,124	"
Eldoret P.W.D. Buildings	3,295	3,387	"
Nanyuki Offices	406	417	"
Kisumu Administration Office	3,143	3,230	"
Maseno Offices and Store	2,087	2,146	"
Nairobi P.W.D. Buildings and Yard		7,413	"
Cold Storage Installation, Mombasa	11,300	13,044	"
Unallocated (including Eldoret Offices and Balance on K.A.R. Lines and Central Offices)	128,305		"
TOTAL OTHER BUILDINGS	447,544	204,343	

APPENDIX IV

DETAILS OF ESTABLISHMENT COST OF £22,957 ON SURVEYS, DESIGNS, ESTIMATES, ETC., FOR PROJECTS SUBSEQUENTLY ABANDONED TO BE RE-ALLOCATED TO A NEW SUB-HEAD ENTITLED "INVESTIGATIONS AND DESIGNS FOR ABANDONED PROJECTS" UNDER HEAD A. PUBLIC BUILDINGS

	£	£
A. FEES PAID TO OUTSIDE ARCHITECTS FOR SERVICES IN CONNECTION WITH PROPOSALS SUBSEQUENTLY ABANDONED OR GENERAL IN CHARACTER		
(1) General Expenses of Sir Herbert Baker's visit to advise Government on various general matters—Town Planning and General Policy	499	
(2) District Offices of Government	225	
(3) Abandoned Schemes for Central Offices of Government	6,383	
(4) Abandoned part of Law Courts Design	200	
(5) Various Designs subsequently abandoned for Government House, Processional Way, etc.	2,390	
		7,667
B. COST OF SERVICES OF PUBLIC WORKS DEPARTMENT LOAN STAFF ON SURVEYING, PLANNING, TOWN PLANNING, DESIGNING, DRAWING, SEWERAGE AND DRAINAGE DESIGN, ETC. AND FINAL ESTIMATES FOR THE ABOVE ABANDONED SCHEMES		
(1) General Expenses of Sir Herbert Baker's visit to advise Government on various general matters—Town Planning and General Policy	200	
(2) District Offices of Government	100	
(3) Abandoned Schemes for Central Offices of Government	2,600	
(4) Abandoned part of Law Courts Design	100	
(5) Various Designs subsequently abandoned for Government House, Processional Way, etc.	400	
		3,400
C. COST OF SERVICES OF PUBLIC WORKS DEPARTMENT LOAN STAFF ENGAGED ON SURVEYS, DESIGNS, QUANTITIES AND ESTIMATES (other than those in "A" above) SUBSEQUENTLY ABANDONED		
(1) Drawings and quantities for £24,000 scheme for double storey Asian Quarters, Mombasa, in full detail	2,000	
(2) Preliminary drawings for European Houses for Nairobi and Mombasa, abandoned in favour of others to provide more accommodation and amenities	500	
(3) Preliminary drawings for flats for housing European Civil Servants at Nairobi and Mombasa	250	
(4) Preliminary drawings for buildings at Nyeri and Muriranjias	200	
(5) Drawings and quantities for Class II House, Kisumu, Class IV House, Msambweni, and Class III House, Narok	280	
(6) Drawings and estimates for various types of houses to comply with the recommendations of Mr. Baden	300	
(7) Survey, preliminary lay-out, drawings and estimates for a £250,000 Combined Hospital at Mombasa	1,250	
(8) Survey, preliminary lay-out, drawings and estimates for a £40,000 Central Prison, Nairobi	700	
(9) Survey, preliminary lay-out and estimates for a Combined Hospital, Nairobi	600	
(10) Preliminary drawings and estimates for India Girls' School, Mombasa	200	
(11) Preliminary drawings and estimates for Vehicle Station, Nairobi	300	
(12) Preliminary drawings and estimates for Police Headquarters, Nairobi	300	
(13) Preliminary drawings and estimates for K.A.R. Lines, Nairobi and Nanyuki	2,000	
(14) Preliminary drawings and estimate for African Quarters, Eldoret	250	
(15) Preliminary drawings and estimate for African Quarters, Kisumu	200	
(16) Preliminary drawings and estimate for Native Hospital, Muriranjias	100	
(17) Preliminary drawings and estimate for Housing, Isiolo	100	
(18) Preliminary drawings and estimates for Medical Store, Nairobi	300	
(19) Working drawings and estimate for Eldoret Offices	250	
(20) Working drawings and estimates for Asian Quarters, Eldoret, Kisumu	450	
(21) Working drawings—District Commissioner's House, Kwale	50	
(22) Working drawings, Native Hospital, Malindi	100	
Carried forward	£ 10,550	11,067

APPENDIX IV—Contd.

	£	£
Brought forward ...	10,550	11,097
(23) Preliminary drawings, Native Hospital, Lamu	25	
(24) Preliminary drawing, New Post Office, Mombasa	50	
(25) Preparing site plans, estimates, conference, etc., Veterinary Quarantine Station, Mombasa	100	
(26) Survey of old Y.M.C.A. Buildings, Nairobi, for Central Revenue Offices	10	
(27) Preliminary drawing for New Operating Theatre, Native Hospital, Nairobi	25	
(28) Preliminary drawings, European Block, Mathari Mental Hospital	50	
(29) Preliminary drawings, proposed Indian Hospital, Nairobi	50	
(30) Preliminary drawings, proposed By-products Factory	20	
(31) Estimating and conference, proposed Gosh Hospital, Nairobi	50	
(32) Preliminary drawings, proposed Agricultural Department sketch, Nairobi	10	
(33) Training and estimate of Agricultural Department sketch, New Laboratory, Scott Laboratory	10	
(34) Working drawings—Additions to Red-water Stables, Kabete	10	
(35) Preliminary drawing, Plant Breeding House, Scott Laboratory	80	
(36) Drawing for Police Headquarters, Nakuru		
(37) Preliminary drawing, Resident Magistrate's Courts, Nakuru and Kisumu	50	
(38) Estimate sketch, extensions to District Commissioner's Office, Kisumu	16	
(39) Working drawing, District Commissioner's Office, Meru	30	
(40) Lay-out plans, working drawings, African Housing, Mombasa	100	
(41) Drawing for Class III and Class IIIa House, Nairobi	50	
(42) Working drawing, Assistant District Commissioner's House, Ngara	60	
(43) Drawing for Senior Commissioner's House, Mwachaka	50	
(44) Drawing for Senator's House, Kikuyu	20	
(45) Working drawing, Class II House, Kericho	20	
(46) Design and working drawings, Provincial Commissioner's House, Kapenguria	50	
(47) Design and working drawings, House and Office, Lodwar	150	
(48) Working drawings, Class I and Class II Houses, Meru and sketch design, T.O.'s House, Rumuruti	80	
(49) Working drawing, Class I House, Rumuruti	50	
(50) Working drawing, Class III House, Rumuruti	20	
(51) Site plan and prints of plant layout, Eldama Ravine Paper Factory	100	11,100
	£	22,967

APPENDIX V
 £3,600,000 KENYA LOAN (1948) AND £4,000,000 KENYA LOAN (1950)
 LOAN EXPENDITURE TO 31-12-1954—DISTRIBUTION OF EXPENDITURE OVER THE PERIOD 1925-54

YEAR	A. BUILDINGS		B. WATER SUPPLIES		C. COMMUNICATIONS		COMBINED TOTAL OF A, B, AND C	
	Construction	Establishment	Construction and Establishment	Establishment	Construction	Establishment	Construction	Establishment
1925	790	86	14	7,795			8,585	8,011
1926	5,805	11,423	922	31,048	227	3,274	40,174	81,544
1927	135,390	38,873	2,411	34,332	6,285	56,959	278,006	44,319
1928	184,987	38,829	7,933	41,582	3,283	2,045	292,189	25,465
1929	234,931	41,262	3,003	25,794	3,131	81,689	286,946	98,996
1930	141,760	38,975	287	2,405	3,907	31,425	165,801	49,989
1931	157,414	29,058	1,740	77,154	981	18,272	196,299	314,855
1932	50,092	14,107	2,442	22,648	3,371	776	22,648	16,053
1933	101,056	8,256	1,645	19,062	1,596	1,256	33,258	43,130
1934	69,265	5,985	1,142	2,245	761	791	1,288	6,197
			212,218	298,236			1,044,050	1,772,438
			314,428	14,428			54,428	14,428
1925-54	1,951,324	224,214	10,945	224,857	291,246	47,367	1,474,622	288,548

NOTE:—The sum of £1,060,036 includes an amount of £31,885 for Mombasa Water Supply. The credit of £4,428 represents the value of plant and materials taken over by Revenue.

COMBINED TOTAL OF ESTABLISHMENT
 Mombasa Water Supply £4,428
 Mombasa Water Supply £3,303
 Mombasa Water Supply £2,650
 Mombasa Water Supply £2,400
 Mombasa Water Supply £12,904
 Mombasa Water Supply £7,607

COMBINED TOTAL OF ESTABLISHMENT
 Mombasa Water Supply £4,428
 Mombasa Water Supply £3,303
 Mombasa Water Supply £2,650
 Mombasa Water Supply £2,400
 Mombasa Water Supply £12,904
 Mombasa Water Supply £7,607

APPENDIX VI
EXPENDITURE ON HOUSING FOR GOVERNMENT SERVANTS, INCLUDING ESTABLISHMENT CHARGES, TO 31-12-1994.

66

HOUSING (SUB-HEAD 1)	EUROPEAN QUARTERS										ASIAN QUARTERS					AFRICAN QUARTERS					TOTAL	REMARKS							
	Class I		Class II		Class III		Class IIIA		Class IV		Hostel		Class V		Cost		Married Quarters		Single Quarters				Dormitories		Other Quarters		No. of Africans		Cost
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.			No.	No.	No.	No.	No.	No.	
Nairobi	4	5	15	15	3	1	8	15	15	15	113,064	147	82,798	111	40	77	37	42	574	228,638	£	28,470	£	228,638	The sum of £118,004 includes 1043 for additional to Messrs Bungalow, Reading room, 1				
Mombasa	1	2	2	2	2	2	2	2	2	39,129	30	65,881	40	80	80	80	80	80	80	86,610	£	6,600	£	86,610					
Malindi (KCB)	1	1	1	1	1	1	1	1	1	1,300	1	503	—	—	—	—	—	—	—	1,803	£	1,803	£	1,803					
Uoi (Teta)	1	1	1	1	1	1	1	1	1	4,014	1	342	—	—	—	—	—	—	—	4,914	£	4,914	£	4,914					
Kiriti	1	1	1	1	1	1	1	1	1	4,087	1	833	—	—	—	—	—	—	—	4,919	£	4,919	£	4,919					
Machakos	1	1	1	1	1	1	1	1	1	5,865	1	—	—	—	—	—	—	—	—	5,865	£	5,865	£	5,865					
Nyong	1	1	1	1	1	1	1	1	1	4,572	1	700	—	—	—	—	—	—	—	4,734	£	4,734	£	4,734					
Narok	1	1	1	1	1	1	1	1	1	3,630	1	472	55	35	35	35	35	35	35	3,984	£	3,984	£	3,984					
Nakuru	1	1	1	1	1	1	1	1	1	8,984	1	499	—	—	—	—	—	—	—	9,483	£	9,483	£	9,483					
Kisumu	1	3	3	3	3	3	3	3	3	17,187	2	1,164	—	—	—	—	—	—	—	20,351	£	20,351	£	20,351					
Kisii	1	1	1	1	1	1	1	1	1	6,484	—	—	—	—	—	—	—	—	—	6,484	£	6,484	£	6,484					
Kericho	1	1	1	1	1	1	1	1	1	6,048	—	—	—	—	—	—	—	—	—	6,048	£	6,048	£	6,048					
Kakamega	1	3	3	3	3	3	3	3	3	17,498	3	3,294	—	—	—	—	—	—	—	20,792	£	20,792	£	20,792					
Klambo	1	1	1	1	1	1	1	1	1	4,214	2	1,164	—	—	—	—	—	—	—	5,378	£	5,378	£	5,378					

Includes 1 Class III and 2 Class IV Houses purchased for £4,900.

80 African quarters, 10 by 10'

Includes £1,300 for Water Supply.

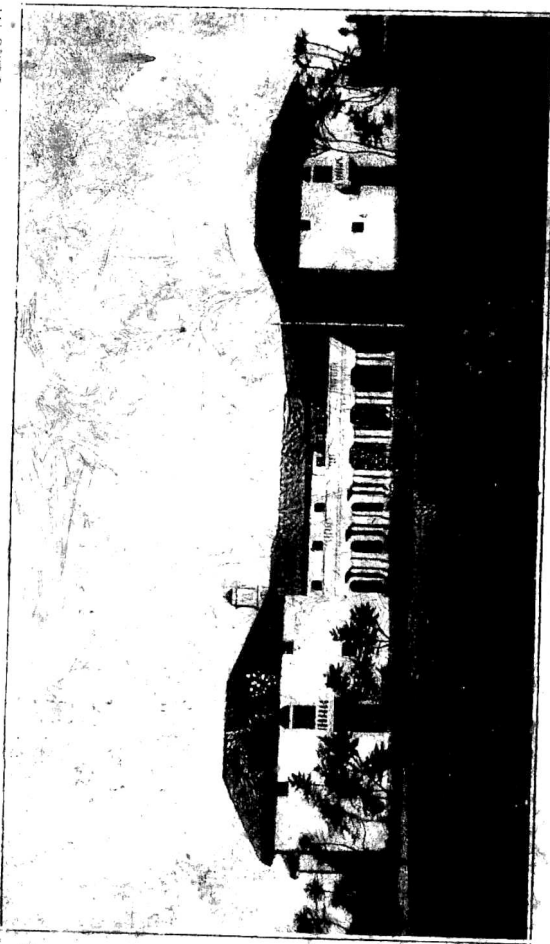
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EXPENDITURE ON HOUSING FOR GOVERNMENT SERVANTS, INCLUDING ESTABLISHMENT CHARGES, TO 31-12-1994—Contd.

HOUSING (SUB-HEAD 1)	EUROPEAN QUARTERS										ASIAN QUARTERS					AFRICAN QUARTERS					TOTAL	REMARKS							
	Class I		Class II		Class III		Class III Type		Class IV		Hostel		Class V		Cost		Married Quarters		Single Quarters				Dormitories		Other Quarters		No. of Africans		Cost
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.			No.	No.	No.	No.	No.	No.	
Nairobi	5	13	63	0	27	56	1	298,405	266	149,870	247	196	37	2	942	44,394	491,739	Includes 1 Class III House purchased for £1,300. African quarters erected by Municipality. Native Clerk's quarter (superior type). Purchased.											
Fort Hall	1	1	1	1	1	1	1	2,587	1	536	1	188	—	—	—	—	—	—	—	3,123	£	3,123	£	3,123					
Kerugoya	1	1	1	1	1	1	1	3,612	—	—	—	—	—	—	—	—	—	—	—	3,612	£	3,612	£	3,612					
Meru	1	1	1	1	1	1	1	2,798	—	—	—	—	—	—	—	—	—	—	—	2,798	£	2,798	£	2,798					
Rumurudi	1	1	1	1	1	1	1	7,305	2	1,762	32	44	—	—	—	—	—	—	—	9,067	£	9,067	£	9,067					
Eldoret	1	1	1	1	1	1	1	15,066	10	6,706	32	44	—	—	—	—	—	—	—	24,483	£	24,483	£	24,483					
Nanyuki	1	1	1	1	1	1	1	3,182	—	—	1	—	—	—	—	—	—	—	—	3,960	£	3,960	£	3,960					
Kilale	1	1	1	1	1	1	1	5,660	—	—	—	—	—	—	—	—	—	—	—	5,660	£	5,660	£	5,660					
Kabarnet (Kerio)	1	1	1	1	1	1	1	3,845	4	3,197	—	—	—	—	—	—	—	—	—	7,042	£	7,042	£	7,042					
Maseno	1	1	1	1	1	1	1	4,786	—	—	—	—	—	—	—	—	—	—	—	4,786	£	4,786	£	4,786					
Digo (Mombweni)	1	1	1	1	1	1	1	5,869	—	—	—	—	—	—	—	—	—	—	—	5,869	£	5,869	£	5,869					
Kwaya	1	1	1	1	1	1	1	4,021	—	—	—	—	—	—	—	—	—	—	—	4,021	£	4,021	£	4,021					
Kwana Hired	1	1	1	1	1	1	1	2,900	—	—	—	—	—	—	—	—	—	—	—	2,900	£	2,900	£	2,900					
Water Main Govt. House, Nairobi	1	1	1	1	1	1	1	1,816	—	—	—	—	—	—	—	—	—	—	—	1,816	£	1,816	£	1,816					
Sower, Nairobi	1	1	1	1	1	1	1	3,351	—	—	—	—	—	—	—	—	—	—	—	3,351	£	3,351	£	3,351					
European School Murranjias	1	1	1	1	1	1	1	30	—	—	—	—	—	—	—	—	—	—	—	30	£	30	£	30					
Isiolo	1	1	1	1	1	1	1	235	—	—	—	—	—	—	—	—	—	—	—	235	£	235	£	235					
TOTAL HOUSING	5	13	63	0	27	56	1	298,405	266	149,870	247	196	37	2	942	44,394	491,739	Share of extension to office, Nyero. Preliminary investigation.											

Share of extension to office, Nyero.

Preliminary investigation.



INDIAN SCHOOL, NAIROBI

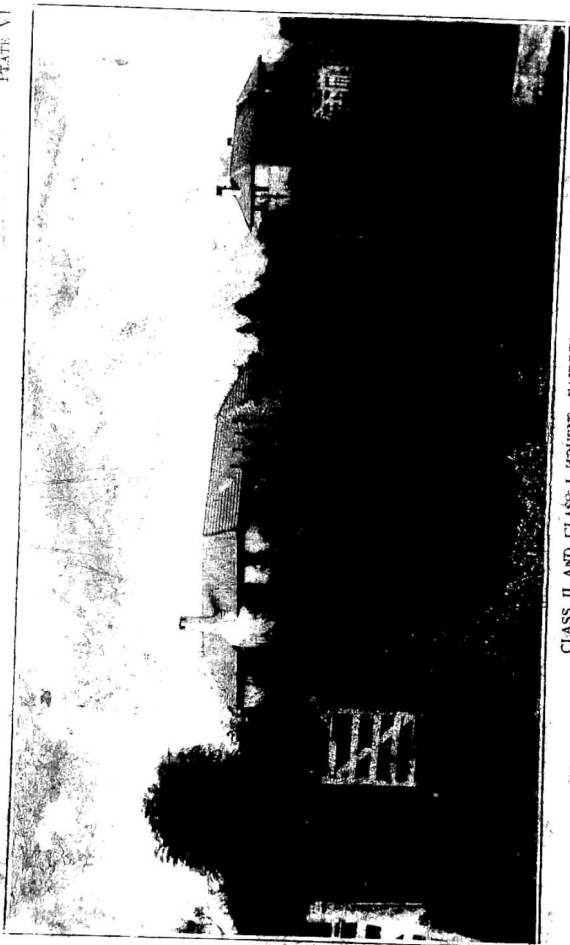
Tuition Block : Classrooms for 330 pupils, lecture-room, drawing-room, chemical and physical laboratories, manual-training room, two libraries, assembly hall with gallery and visitors' rooms.
Cost £40,129. Finished December 1929



KLAMATH NATIVE HOSPITAL

Cost \$5,247. Finished June 1930

(Exterior of the principal Native Hospital which were constructed)
Administration Block: Four 12-bed wards, eye 2-bed ward, operating theatre, sterilizing room, anaesthetizing room, out-patient section, X-ray laboratory, mortuary, and dressers' quarters.

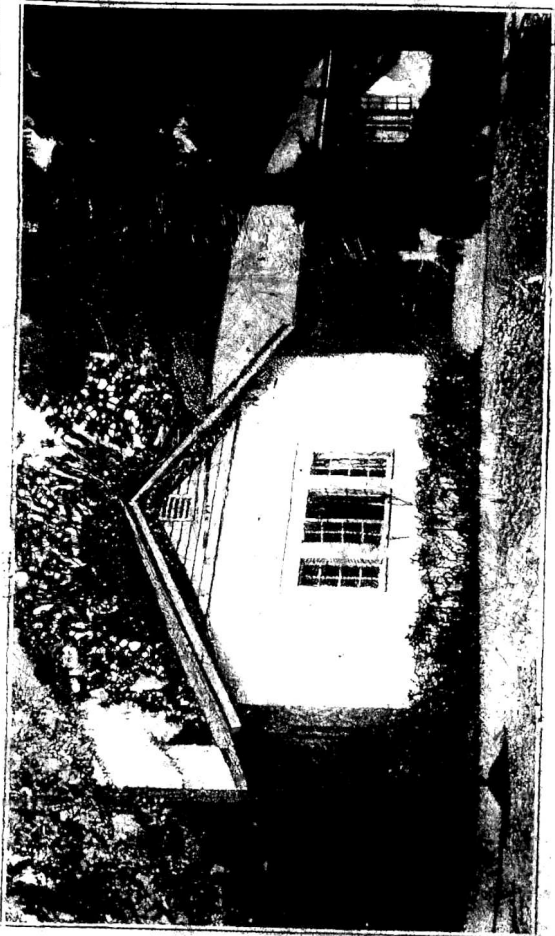


CLASS II AND CLASS I HOUSES, NAIROBI

(Example of three Class II and four Class I Houses Constructed at Nairobi)

Average Cost of Class II House, £2,213; and Class I House, £2,919

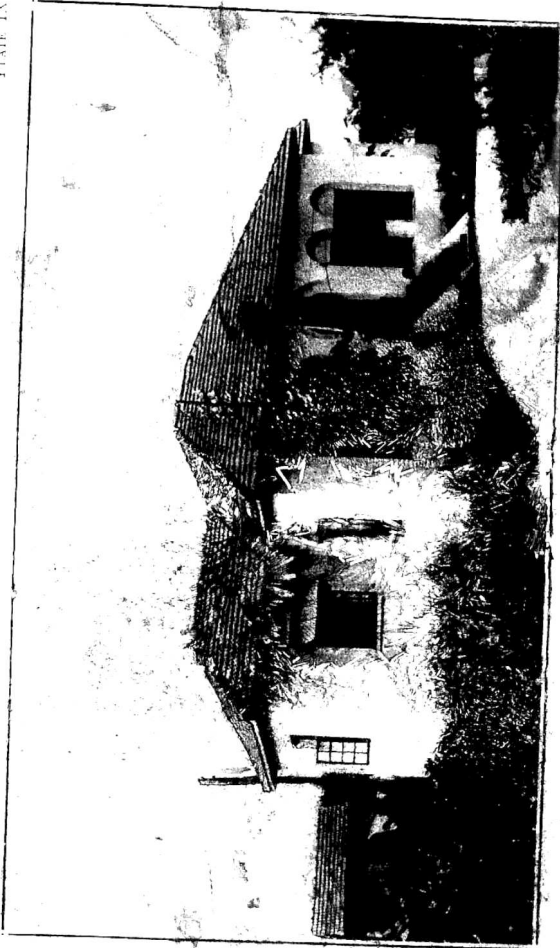
- Class II: Sitting-room, dining-room, claired veranda, three bedrooms, study, atrium, garage, and usual offices.
- Class I: Sitting-room, dining-room, hall and offices on ground floor; four bedrooms, two dressing-rooms, two bathrooms and box-room on first floor.



CLASS III. HOUSE, KLAMBD

Cost \$1,585

Sitting-room, dining-room, three bedrooms, veranda, bathroom and office.



CLAY'S HOUSE, MOMBASA

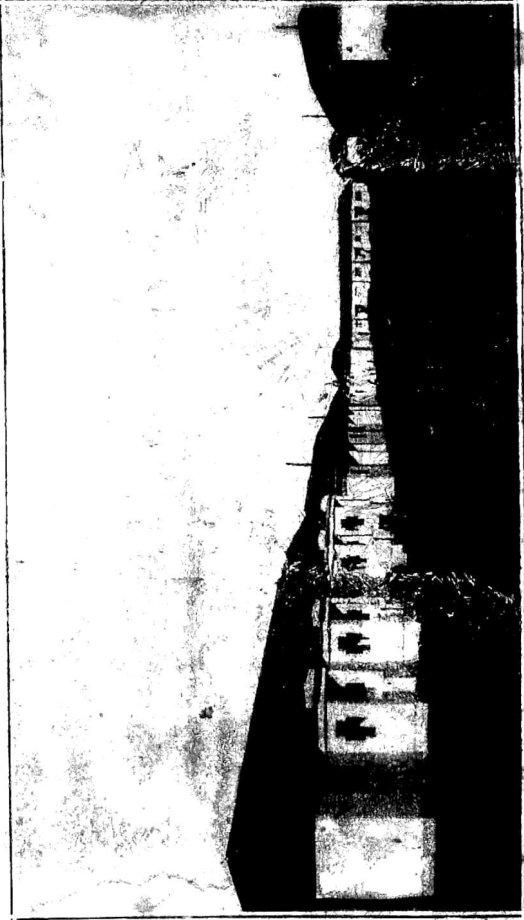
(Example of three? 'as III. House Cooper's at Mombasa)

Average Cost \$1027

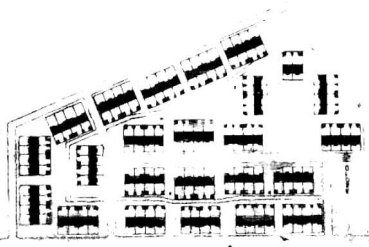
Sitting-room, dining-room, two bedrooms, tiled veranda, bathroom, etc. and office.



CLASS IV HOUSE, NAIROBI
(Example of fifteen Class IV Houses at Nairobi, and Environs)
Average Cost, K. 11,000.
Living-rooms, veranda, and veranda.



ASIAN HOUSING, NAIROBI
 Cost \$50,587. Finished December 1930
 Some of the ninety-four Asian two-room quarters, each consisting of one living-room, one bedroom, store, bathroom and kitchen.



PROPERTY OF THE U.S. GOVERNMENT

Layout Plan

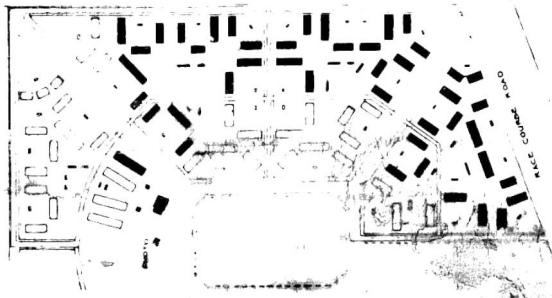
PLATE NU



AFRICAN HQS NAIROBI

Cost £28,000. Completed December 1925

Accommodation for 574 Africans consisting of 117 n. q. quarters, 11 single quarters, 11 dining room and 11 lounge-rooms.



Lay-out Plan

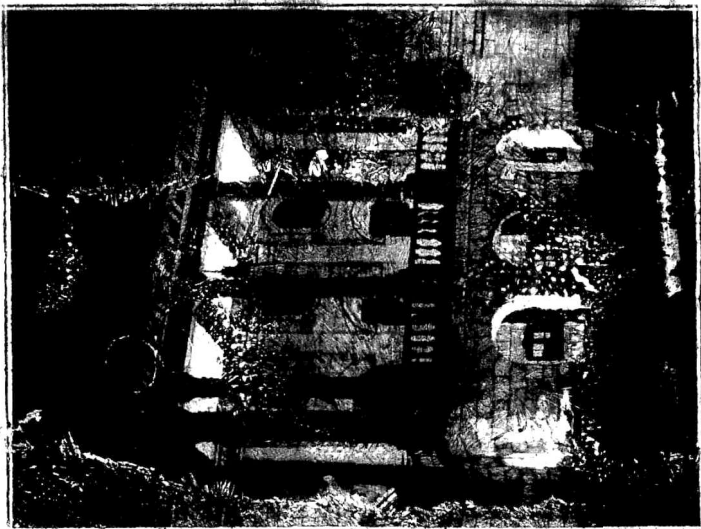


By permission of Messrs. J. H. B. & Co., Nairobi.

LAW COURTS, NAIROBI

in progress at end of 1934. Estimated Total Cost, £138,607

The accommodation provided on three floors and the basement comprises five courts, ancillary rooms, law library, 90 offices, committee-rooms, archives, stores, strong-rooms and other subsidiary rooms, caretaker's quarters, lavatories and lift.



By permission of the Kenya Government, Nairobi.
PORTICO OF LAW COURTS, NAIROBI



(a)



(b)

KISUMU WATER WORKS

Cost £30,052. Finished, 1923

Provides for the delivery of 255,000 gallons per day from the Kibos Stream

(a) Intake works on the Kibos River and filtration plant.

(b) Paterson Filters.



MACUPA CAUSEWAY

Cost \$45,585 to end of 1907

Combined embankment and bridge, 2,300 feet in length. Bridge consists of 57 feet each; the roadway bears 37 feet above mud-level.