

[Report 1946] / Medical Officer of Health, Billesdon R.D.C.

Contributors

Billesdon (England). Rural District Council.

Publication/Creation

1946

Persistent URL

<https://wellcomecollection.org/works/kz9bhrqv>

License and attribution

You have permission to make copies of this work under a Creative Commons, Attribution license.

This licence permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See the Legal Code for further information.

Image source should be attributed as specified in the full catalogue record. If no source is given the image should be attributed to Wellcome Collection.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

LIBRARY

HEALTH
E20 AUG47
O.R. 59



B I L L E S D O N

R U R A L D I S T R I C T C O U N C I L

-----oo-----

A N N U A L R E P O R T

of the

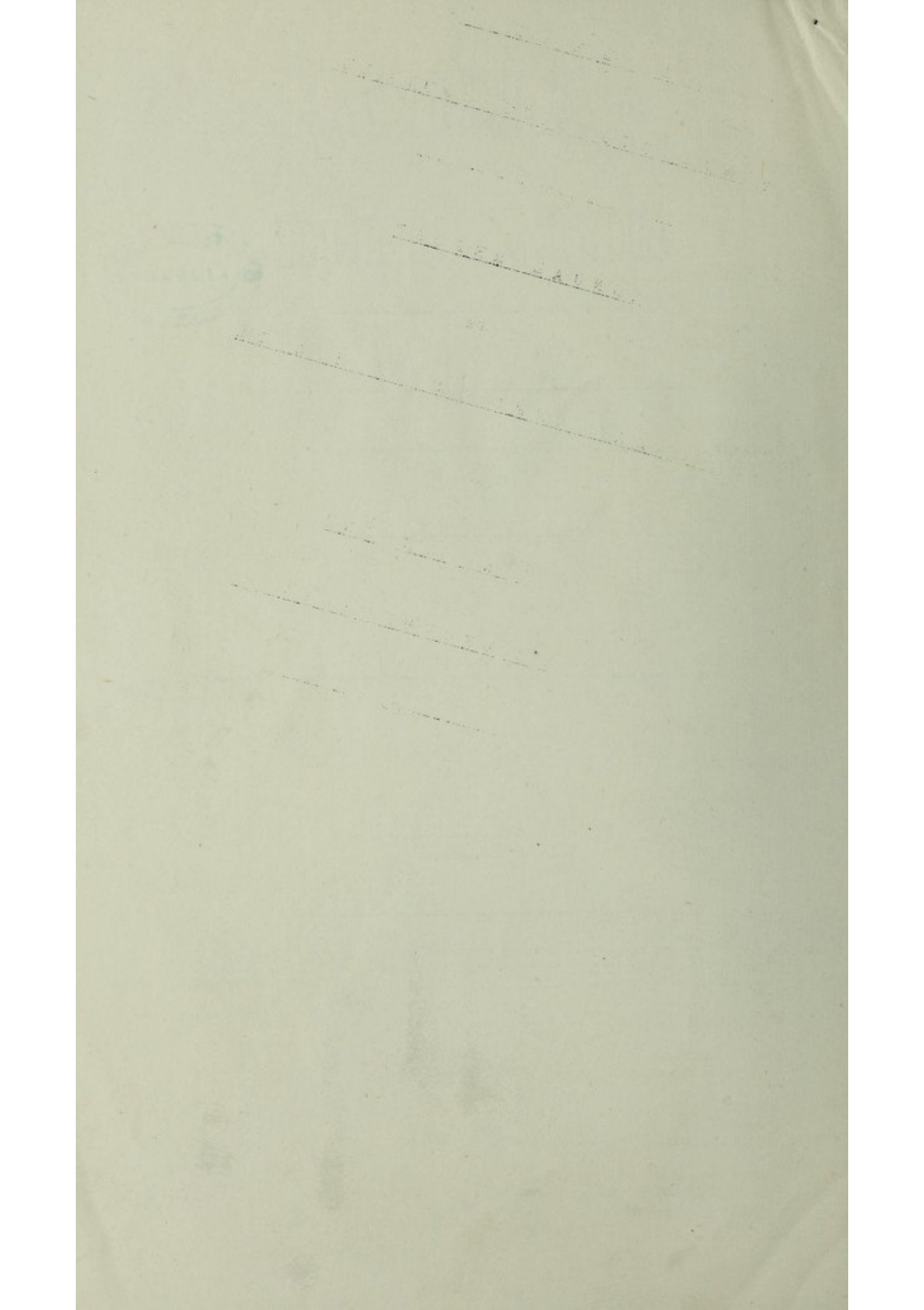
M E D I C A L O F F I C E R O F H E A L T H

for the

Y E A R E N D I N G

31st D E C E M B E R, 1 9 4 6.

-----oo-----



BILLESDON RURAL DISTRICT
COUNCIL
ANNUAL REPORT

of the
MEDICAL OFFICER OF HEALTH

1946.

Mr. Chairman, My Lord, Lady and Gentlemen,

In accordance with the instructions of the Ministry of Health, I deal briefly in this report with matters within my responsibility regarding public health and preventive medicine:-

GENERAL STATISTICS.

Area (in acres)	...	49,728.
Registrar General's estimate of population...	...	7,018.
Number of inhabited houses	...	2,185
Rateable value	...	£34,684.
Sum represented by penny rate	...	£139.

VITAL STATISTICS.

		<u>Males</u>	<u>Females</u>	<u>Totals.</u>
Births	- Legitimate	67	62	129
	Illegitimate	12	4	16
		<u>79</u>	<u>66</u>	<u>145</u>
		<u>Rate for</u>	<u>Rate for</u>	
		<u>District</u>	<u>England & Wales</u>	
Birth Rate	...	20.7	19.1	
Death Rate	...	12.4	11.5	
Infant Mortality Rate per				
1,000 live births...	...	48.3	43.0	

CAUSES OF DEATH.

	<u>Males</u>	<u>Females</u>
Tuberculosis of respiratory system ...	1	1
Cancer of buccal cavity and oesophagus	1	-
Cancer of stomach and duodenum ...	-	5
Cancer of all other sites ...	7	3
Intracranial vascular lesions ...	4	8
Heart disease ...	10	11
Other diseases of circulatory system..	1	5
Bronchitis ...	1	2
Pneumonia ...	2	1
Other respiratory diseases ...	2	-
Diarrhoea under 2 years ...	-	1
Other digestive diseases ...	-	2
Carried forward	29	39

THE HISTORY OF THE
UNITED STATES OF AMERICA
FROM 1789 TO 1861

BY

W. D. HOWARD

Author of "The History of the United States of America from 1789 to 1861"

Published by the
Author, 100 N. 3rd St., St. Louis, Mo.
and by the
Publishers, 100 N. 3rd St., St. Louis, Mo.

Copyright, 1861.

THE HISTORY OF THE
UNITED STATES OF AMERICA
FROM 1789 TO 1861

BY
W. D. HOWARD

Author of "The History of the United States of America from 1789 to 1861"

Published by the
Author, 100 N. 3rd St., St. Louis, Mo.
and by the
Publishers, 100 N. 3rd St., St. Louis, Mo.

THE HISTORY OF THE
UNITED STATES OF AMERICA
FROM 1789 TO 1861

BY
W. D. HOWARD

Author of "The History of the United States of America from 1789 to 1861"

Published by the
Author, 100 N. 3rd St., St. Louis, Mo.
and by the
Publishers, 100 N. 3rd St., St. Louis, Mo.

<u>Causes of Death (Continued).</u>		<u>Males</u>	<u>Females</u>
Brought forward		29	39
Premature Birth	...	1	3
Congenital Mal-formation - Birth injury			
infant diseases	...	-	1
Suicide	...	1	-
All other causes	...	<u>6</u>	<u>7</u>
		<u>37</u>	<u>50</u>

GENERAL PROVISION OF HEALTH SERVICES FOR THE AREA.

1. PUBLIC HEALTH OFFICERS OF THE AUTHORITY.

Medical Officer of Health - J. Young, M.B., Ch B, D.P.H. Camb.

The Medical Officer of Health acts for the Leicestershire and Rutland Combined Districts in which this District is included.

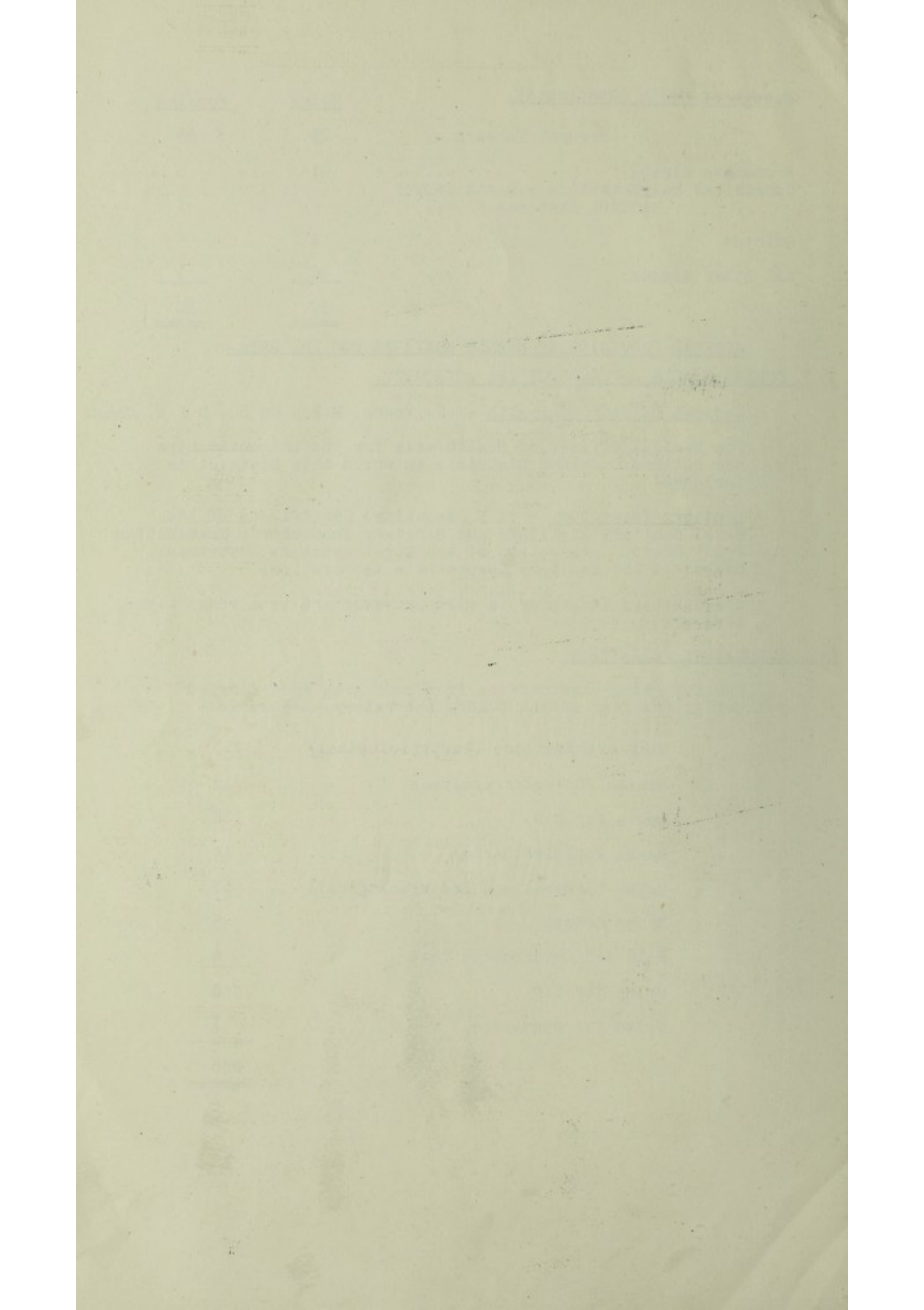
Sanitary Inspector. - A.E. Sweeting, Certificate of the Royal Sanitary Institute and Sanitary Inspector's Examination Joint Board. Associate of the Royal Sanitary Institute. Member of the Sanitary Inspector's Association.

The Sanitary Inspector is also Surveyor and is a whole time officer.

2. LABORATORY FACILITIES.

The following examinations from your area were carried out during the year in the County Laboratory, Leicester:-

Milk examinations (bacteriological)	215
Sewage and water analyses	18
Sputa for T.B.	16
Swabs for diphtheria	14
Urine (General and Bacteriological)	13
Blood Counts	5
Milk for Phosphatase Test	4
Urine for T.B.	2
Films for gonococci	1
	<u>288</u>



SANITARY CIRCUMSTANCES OF THE AREA.

1. WATER.

During the year 16 samples were taken from wells and springs for bacteriological examination.

3 were found to be very poor, and the wells were closed. 10 were of doubtful quality, and the wells were cleansed; the users being advised to boil the water before drinking. The remaining samples were satisfactory.

In addition to the above, a sample was taken from the Leicester main supply in Thurnby. This proved to be satisfactory.

Number of Parishes with piped water supply	8
Number of Parishes with supply from private reservoir	9

No complaints of serious shortage of drinking water were received.

During 1946 a mains supply was laid on to 38 houses.

2. DRAINAGE AND SEWERAGE

The number of cesspools in the District at the end of 1946 was 448 and during the year 3,584 emptyings were carried out. During the year 87 inspections were made of sewers and outfall dykes and all the outfall ditches receiving effluent were cleansed. Where obstructions and fractures occurred in piped sewers, these were dealt with immediately.

In accordance with the requirements of the Ministry of Food, all sewers having manholes and the disposal tanks, were treated for rat infestation.

A short length of sewer at Great Glen was renewed.

When one considers that out of 33 parishes there are only eight with a satisfactory piped water supply, and that not one has satisfactory sewage disposal arrangements, it is obvious that an immense amount of work and expenditure will be necessary before the District is adequately watered and sewered. The Council is fully alive to its responsibilities in these matters of sanitation, and is giving careful consideration to the preparation of schemes which will be submitted in due course for the approval of the Ministry of Health.

3. CLOSET ACCOMMODATION.

Total number in the District at the end of 1946:-

Privies	117.
Pail Closets	1,410.
Water Closets	591.

Number of privies converted to water carriage system during the year. 11.

4. PUBLIC CLEANSING.

During the year there has been considerable improvement in this service. The improvised collecting vehicles were done away with and a proper mechanical cesspool emptier, which also deals with the contents of privy pails, was purchased. Furthermore, a new low loading ash collecting vehicle was obtained.

Two further villages, Great Glen and Burton Overy which have for some years been scavenged by Contract, were during the year included in the Council's direct labour scheme.

It is hoped that commencing October 1947 the remaining villages in the area, not already receiving this service, will be included in the scheme.

The nightsoil and contents of cesspools collected are disposed of on agricultural land, whilst ashes are dealt with by controlled tipping.

5. SANITARY INSPECTION OF THE AREA.

The particulars given under this Heading are for all purposes including those given elsewhere in this Report:-

Total number of complaints received ...	45.
Total number of defects or nuisances discovered	40.

Nature of inspections:-

	<u>Inspected.</u>	<u>Re-inspected.</u>
Bakehouses ...	5	-
Dairies & Cowsheds...	30	5
Drainage Works ...	62	11
Dwelling Houses ...	* 664	155
Food premises ...	7	3
Rats & Mice ...	14	5
Refuse Collection ...	6	-
Schools ...	9	2
Shops ...	2	-
Slaughterhouses ...	1	-
Tents, vans, sheds...	5	10
Verminous premises and scabies ...	31	10
Water supplies ...	8	9
Workshops, etc. ...	95	14
Visits re infectious diseases	25	-
	<u>964</u>	<u>224</u>

* This figure includes Rural Housing Survey figures.

N O T I C E S.

<u>Preliminary.</u>	<u>Housing</u>	<u>Other.</u>
Outstanding on 1st January, 1946	8	-
Issued during the year ...	32	9
Complied with during year ...	38	9
Statutory action necessary ...	-	-
Outstanding 31st December, 1946	2	-

(Continued)

(Notices - Continued)

<u>Statutory.</u>	<u>Housing</u>	<u>Other</u>
Outstanding 1st January, 1946..	5	-
Issued during year ...	-	-
Complied with during year ...	-	-
Outstanding 31st December, 1946	5	-

H O U S I N G

1. INSPECTION OF DWELLING HOUSES DURING THE YEAR.

(i)	(a)	Total number of dwelling houses inspected for housing defects (under Public Health or Housing Acts) ...	536	*
	(b)	Number of inspections made for the purpose.	751	*
(ii)	(a)	Number of dwelling houses included under sub-head (i) above which were inspected and recorded under the Housing Consolidated Regulations 1925 and 1932 ...	Nil.	
	(iii)	Number of dwelling houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation ...	25	*
	(iv)	Number of dwelling houses (exclusive of those referred to under the preceding sub-head) found not to be in all respects reasonably fit for human habitation ...	315	

* A proportion of these figures relate to the Rural Housing Survey.

2. REMEDY OF DEFECTS DURING THE YEAR WITHOUT SERVICE OF FORMAL NOTICE.

Number of dwelling houses rendered fit in consequence of informal action by the Local Authority or their Officers ...	30
Number rendered fit by Owners..	Approx. 153

3. ACTION UNDER STATUTORY POWERS DURING THE YEAR.

Number of Notices served ...	Nil.
------------------------------	------

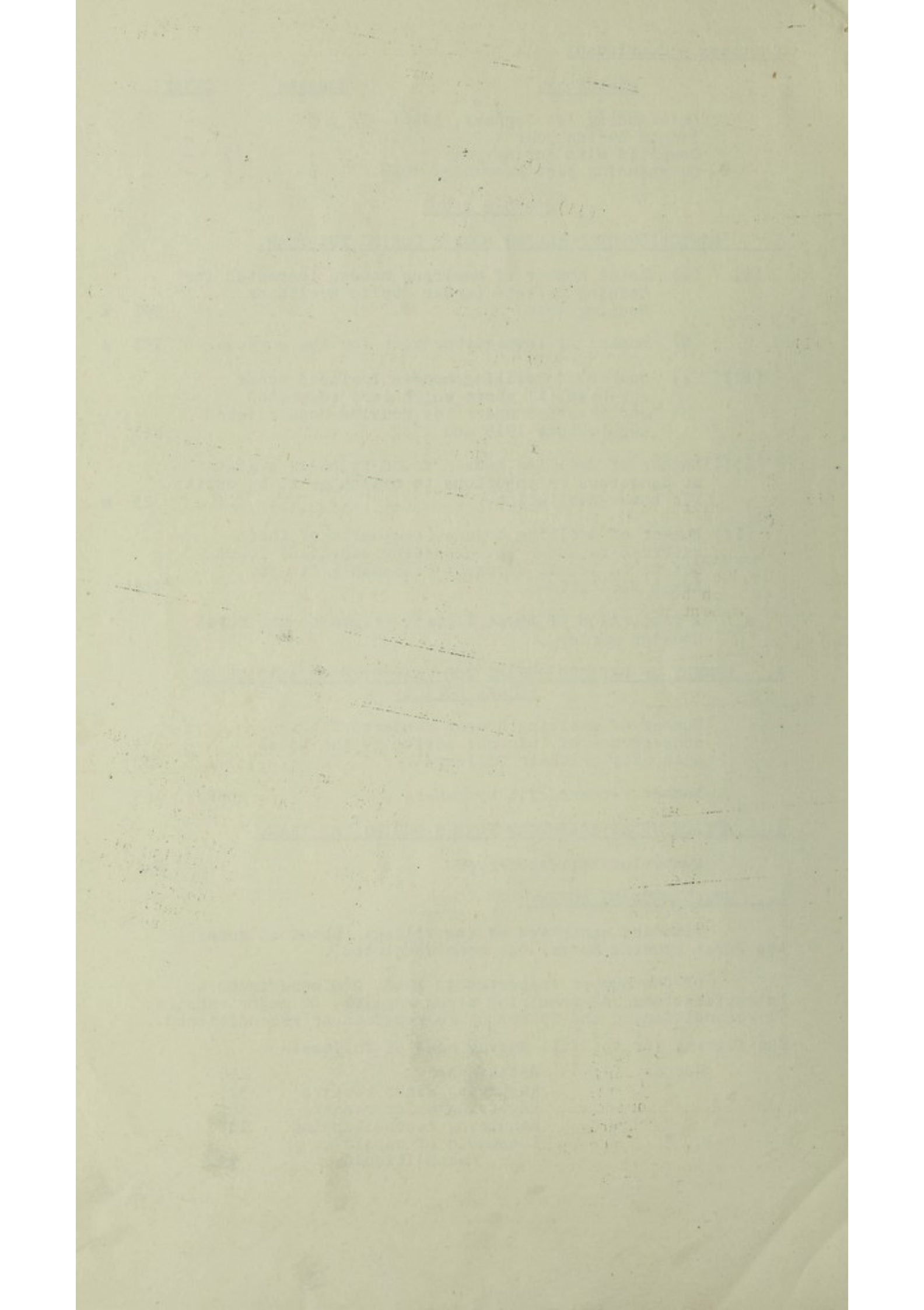
4. RURAL HOUSING SURVEY.

With the exception of one village (about 40 houses), the Rural Housing Survey has been completed.

Of the number inspected in 1946, 280 were found to be satisfactory, 82 requiring minor repairs, 80 major repairs, 71 reconditioning and 25 cannot be repaired or reconditioned.

The figures for the full Survey read as follows:-

Houses	-	Satisfactory	456.
"	-	Requiring minor repairs	325.
"	-	Requiring major repairs	382.
"	-	Requiring reconditioning	185.
"	-	Incapable of repair or reconditioning	99.



5. GENERAL STATEMENT ON HOUSING IN THE DISTRICT.

Owing to the present housing shortage, serious conditions arise from time to time in regard to houses which in normal times would have been condemned and demolished. All that I can do is to ask that urgent and necessary repairs should be carried out and even this may be impossible owing to the shortage of materials. It is only when a house becomes really dangerous that steps can be taken to have it condemned. The inevitable result is that many people in the District are living under deplorable housing conditions.

6. THURNBY CAMP.

In August 1946 "Squatters" took possession of an empty military camp at Stoughton.

The camp consists of about 50 huts, Nissen Type, and wooden, with stores, ablutions, lavatory blocks, etc.

A mains supply of water and electricity is laid on.

Furthermore, the drainage arrangements are adequate - the camp being provided with proper sewage disposal works.

45 families are in occupation, and whilst many are unsatisfactory others have made themselves comfortable.

In view of the poor condition of many of the huts, the Ministry of Health have asked the Council to prepare a scheme for general repairs, the laying on of a water supply to each hut, the provision of a slop sink, the fixing of permanent partitioning and the installation of a cooking range. This scheme is now in course of preparation.

INSPECTION AND SUPERVISION OF FOOD.

1. MILK SUPPLY.

	<u>Cowkeepers</u>	<u>Dairymen or Purveyors of Milk other than Cowkeepers</u>
Number on the Register ...	149	40
Number of contraventions..		
Outstanding from previous		
year ...	2	-
Number of contraventions		
found during the year...	-	-
Number of contraventions		
remedied during the year	2	-
Number of contraventions		
outstanding 31st December	-	-

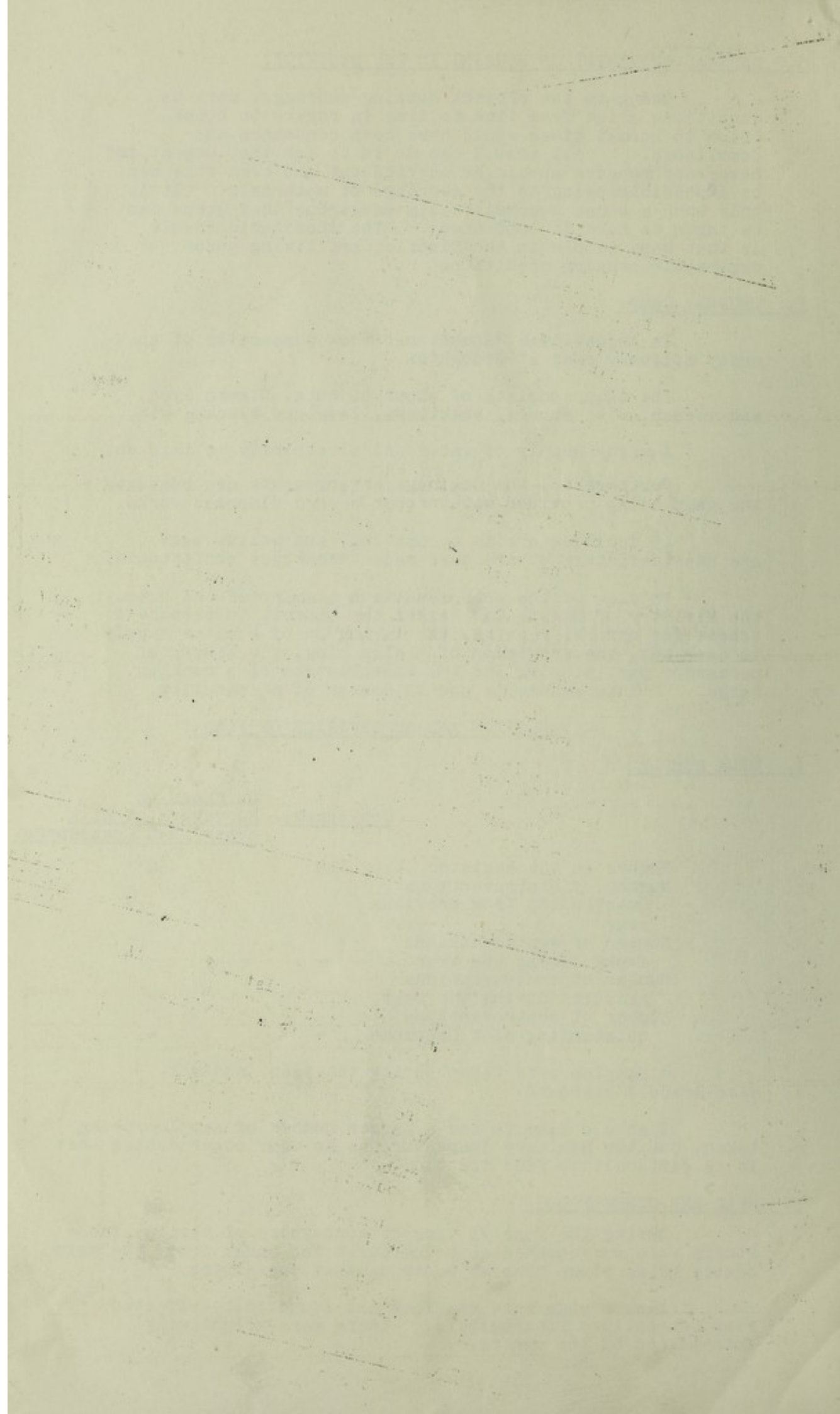
8 Samples were taken during the year, and all were Grade 1 standard.

I should like to see a larger number of samples being taken, but the Sanitary Inspector has so many other duties that it is difficult to find the time.

2. MEAT AND OTHER FOODS.

During the year 73 tins or containers of various food-stuffs were surrendered as being unfit for human food, the main causes being blown tins or badly damaged containers.

Also 2 pigs were examined and found to be affected with Generalised Tuberculosis. There were voluntarily surrendered by the owners.



PREVALENCE OF AND CONTROL OVER INFECTIOUS
AND OTHER DISEASES.

Notifiable Diseases (other than Tuberculosis) during the
Year.

<u>Disease</u>		<u>Total cases Notified</u>	<u>Cases admitted to Hospital</u>	<u>Total Deaths</u>
Lobar Pneumonia	...	1	-	1
Scarlet Fever	...	29	22	-
Whooping Cough	...	16	-	-
Measles	...	2	-	-
Erysipelas	...	1	1	-
Dysentery	... *	4	* 2	-
Diphtheria	...	1	1	-

A G E G R O U P S.

<u>Disease</u>	<u>Under One</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>35</u>	<u>45</u>	<u>65 & over</u>
		2	3	4	5	10	15	20	35	45	65	
Lobar Pneumonia	-	-	-	-	-	-	-	-	-	-	-	1
Scarlet Fever	-	3	-	1	4	9	7	2	1	1	1	-
Whooping Cough	-	1	1	2	4	7	1	-	-	-	-	-
Measles	-	-	1	-	1	-	-	-	-	-	-	-
Erysipelas	-	-	-	-	-	-	-	-	-	-	-	1
Dysentery	-	-	-	1	-	-	1	-	-	-	-	-
Diphtheria	-	-	-	-	-	-	1	-	-	-	-	-

* Two cases of dysentery occurred among Prisoners of War whose ages are not known.

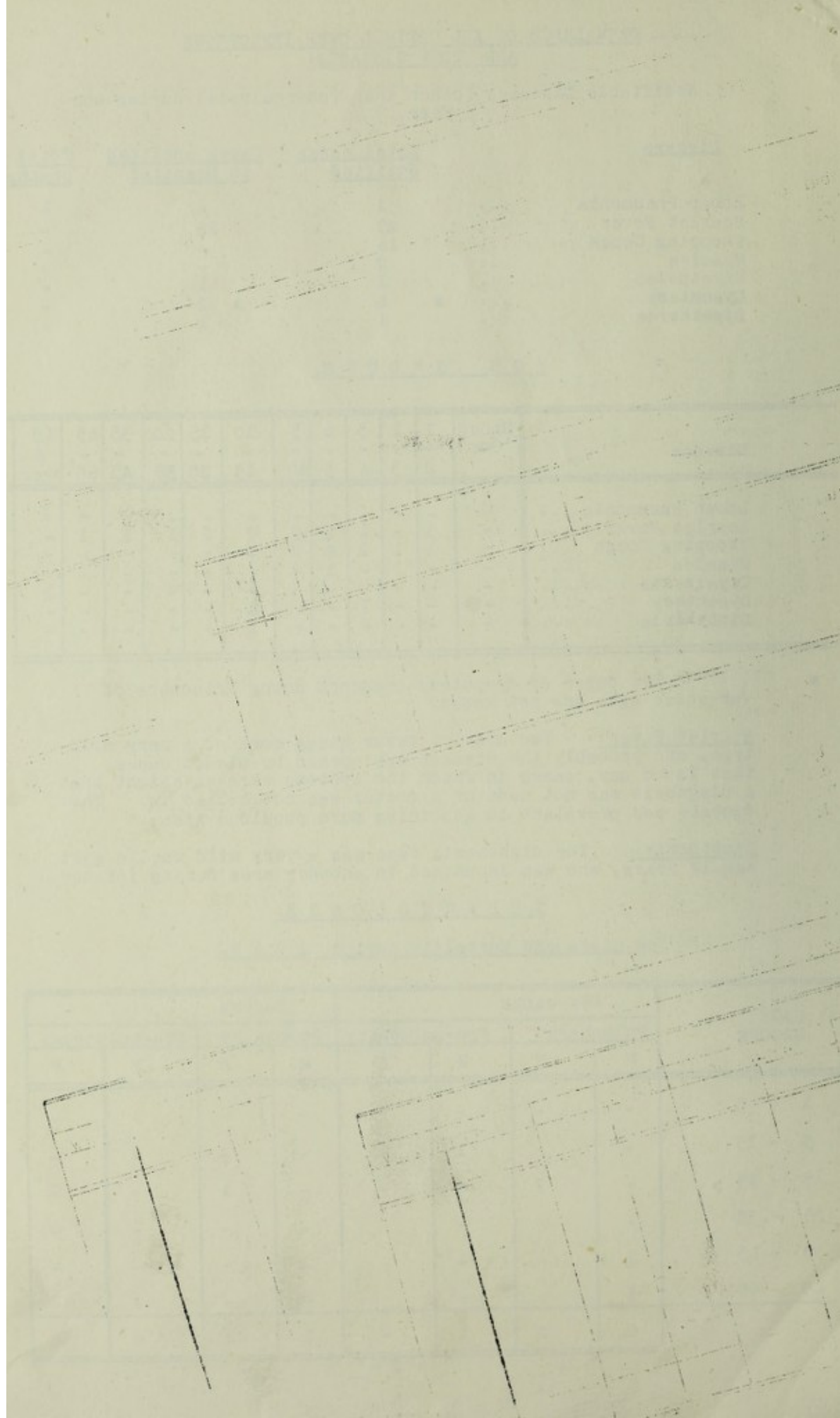
Scarlet Fever. The scarlet fever cases were of a very mild type, and probably the disease was spread by missed cases, that is to say, cases in which the symptoms were so slight that a diagnosis was not made or a doctor was not called in. The disease was prevalent in adjoining more populous areas.

Diphtheria. The diphtheria case was a very mild one, a girl age 12 years, who was immunised in another area during infancy.

T U B E R C U L O S I S.

New cases and Mortality during 1946.

<u>AGE GROUPS</u>	<u>New cases</u>				<u>Deaths</u>			
	<u>Pulmonary</u>		<u>Non-pulmonary</u>		<u>Pulmonary</u>		<u>Non-pulmonary</u>	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
1 - 5	-	-	-	-	-	-	-	-
5 - 15	-	-	1	-	-	-	-	-
15 - 25	-	2	-	-	-	1	-	-
25 - 35	-	-	-	-	-	-	-	-
35 - 45	1	-	-	-	1	-	-	-
45 - 65	1	-	-	-	-	-	-	-
	2	2	1	-	1	1	-	-



D I P H T H E R I A I M M U N I S A T I O N .

During 1946 105 children under 5, and 9 children over 5 were immunised.

I estimate that in the district 80% of the under fives and over 90% of the over fives have had protective treatment, and am of the opinion that this is a very satisfactory position in a scattered Rural District where there are considerable distances to travel.

Continuous propaganda is kept up by your Health Department; when a child reaches its first birthday, the parents receive a birthday card reminding them that the time has come when the treatment should commence. There is no doubt that this personal message leads many parents to come into the scheme

Towards the end of the year the Council on my recommendation agreed to make arrangements for giving a third, or boosting dose, just before or soon after going to school. 4 children received this third injection during 1946.

S C A B I E S .

During the year 8 cases were treated at the Clinic under my supervision. With the end of war conditions we expect that this disease should practically disappear, especially in a district such as this.

I think the thanks of the Council are due to Mrs. Keay for the valuable services which she has so cheerfully and willingly given for some time in this rather unpleasant work.

I have the honour to be,

Your obedient Servant,

JOHN YOUNG,

Medical Officer of Health.

10, High Street,
MELTON MOWBRAY.

LEICESTERSHIRE COUNTY COUNCIL

National Health Service Act, 1946

Section 26 - Diphtheria Immunisation.

Billesdon Rural District

Number of children who were immunised during the period
1st January - 31st December, 1949.

Age at 31.12.49 i.e. born in year		Primary Immunisation	Booster Dose.
Under 1	1949	8	-
1	1948	70	-
2	1947	14	-
3	1946	1	2
4	1945	-	2
5	1944	5	16
6	1943	3	3
7	1942	1	3
8	1941	1	3
9	1940	1	1
10	1939	-	1
11	1938	-	-
12	1937	-	-
13	1936	-	-
14	1935	-	-
		----- 104 =====	----- 31 =====

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RESEARCH REPORT

NO. 1000

BY
J. H. HARRIS
AND
J. E. HARRIS

CHICAGO, ILLINOIS
1950

Abstract
The reaction of
hydrogen
peroxide
with
certain
transition
metal
complexes
has been
studied.
The
products
are
characterized
by
elemental
analysis,
infrared
spectroscopy,
and
magnetic
measurements.
The
results
indicate
that
the
reaction
proceeds
via
a
concerted
mechanism.
The
rate
of
reaction
is
first
order
in
hydrogen
peroxide
and
zero
order
in
the
metal
complex.
The
activation
energy
for
the
reaction
is
14.5
kcal/mole.
The
transition
state
for
the
reaction
is
a
five-membered
ring
structure.
The
reaction
is
catalyzed
by
certain
metal
ions.
The
catalytic
activity
is
in
the
order
Fe²⁺ > Cu²⁺ > Ni²⁺ > Co²⁺ > Mn²⁺ > Zn²⁺ > Cd²⁺ > Pb²⁺ > Sn²⁺ > Sb³⁺ > Bi³⁺ > As³⁺ > Se⁴⁺ > Te⁴⁺ > Mo⁶⁺ > W⁶⁺ > Cr⁶⁺ > V⁵⁺ > Nb⁵⁺ > Ta⁵⁺ > UO₂²⁺ > Th⁴⁺ > Zr⁴⁺ > Hf⁴⁺ > Ti⁴⁺ > Sn⁴⁺ > Pb⁴⁺ > Bi⁵⁺ > Sb⁵⁺ > As⁵⁺ > Se⁶⁺ > Te⁶⁺ > Mo⁷⁺ > W⁷⁺ > Cr⁷⁺ > V⁶⁺ > Nb⁶⁺ > Ta⁶⁺ > UO₂³⁺ > Th⁵⁺ > Zr⁵⁺ > Hf⁵⁺ > Ti⁵⁺ > Sn⁵⁺ > Pb⁵⁺ > Bi⁶⁺ > Sb⁶⁺ > As⁶⁺ > Se⁷⁺ > Te⁷⁺ > Mo⁸⁺ > W⁸⁺ > Cr⁸⁺ > V⁷⁺ > Nb⁷⁺ > Ta⁷⁺ > UO₂⁴⁺ > Th⁶⁺ > Zr⁶⁺ > Hf⁶⁺ > Ti⁶⁺ > Sn⁶⁺ > Pb⁶⁺ > Bi⁷⁺ > Sb⁷⁺ > As⁷⁺ > Se⁸⁺ > Te⁸⁺ > Mo⁹⁺ > W⁹⁺ > Cr⁹⁺ > V⁸⁺ > Nb⁸⁺ > Ta⁸⁺ > UO₂⁵⁺ > Th⁷⁺ > Zr⁷⁺ > Hf⁷⁺ > Ti⁷⁺ > Sn⁷⁺ > Pb⁷⁺ > Bi⁸⁺ > Sb⁸⁺ > As⁸⁺ > Se⁹⁺ > Te⁹⁺ > Mo¹⁰⁺ > W¹⁰⁺ > Cr¹⁰⁺ > V⁹⁺ > Nb⁹⁺ > Ta⁹⁺ > UO₂⁶⁺ > Th⁸⁺ > Zr⁸⁺ > Hf⁸⁺ > Ti⁸⁺ > Sn⁸⁺ > Pb⁸⁺ > Bi⁹⁺ > Sb⁹⁺ > As⁹⁺ > Se¹⁰⁺ > Te¹⁰⁺ > Mo¹¹⁺ > W¹¹⁺ > Cr¹¹⁺ > V¹⁰⁺ > Nb¹⁰⁺ > Ta¹⁰⁺ > UO₂⁷⁺ > Th⁹⁺ > Zr⁹⁺ > Hf⁹⁺ > Ti⁹⁺ > Sn⁹⁺ > Pb⁹⁺ > Bi¹⁰⁺ > Sb¹⁰⁺ > As¹⁰⁺ > Se¹¹⁺ > Te¹¹⁺ > Mo¹²⁺ > W¹²⁺ > Cr¹²⁺ > V¹¹⁺ > Nb¹¹⁺ > Ta¹¹⁺ > UO₂⁸⁺ > Th¹⁰⁺ > Zr¹⁰⁺ > Hf¹⁰⁺ > Ti¹⁰⁺ > Sn¹⁰⁺ > Pb¹⁰⁺ > Bi¹¹⁺ > Sb¹¹⁺ > As¹¹⁺ > Se¹²⁺ > Te¹²⁺ > Mo¹³⁺ > W¹³⁺ > Cr¹³⁺ > V¹²⁺ > Nb¹²⁺ > Ta¹²⁺ > UO₂⁹⁺ > Th¹¹⁺ > Zr¹¹⁺ > Hf¹¹⁺ > Ti¹¹⁺ > Sn¹¹⁺ > Pb¹¹⁺ > Bi¹²⁺ > Sb¹²⁺ > As¹²⁺ > Se¹³⁺ > Te¹³⁺ > Mo¹⁴⁺ > W¹⁴⁺ > Cr¹⁴⁺ > V¹³⁺ > Nb¹³⁺ > Ta¹³⁺ > UO₂¹⁰⁺ > Th¹²⁺ > Zr¹²⁺ > Hf¹²⁺ > Ti¹²⁺ > Sn¹²⁺ > Pb¹²⁺ > Bi¹³⁺ > Sb¹³⁺ > As¹³⁺ > Se¹⁴⁺ > Te¹⁴⁺ > Mo¹⁵⁺ > W¹⁵⁺ > Cr¹⁵⁺ > V¹⁴⁺ > Nb¹⁴⁺ > Ta¹⁴⁺ > UO₂¹¹⁺ > Th¹³⁺ > Zr¹³⁺ > Hf¹³⁺ > Ti¹³⁺ > Sn¹³⁺ > Pb¹³⁺ > Bi¹⁴⁺ > Sb¹⁴⁺ > As¹⁴⁺ > Se¹⁵⁺ > Te¹⁵⁺ > Mo¹⁶⁺ > W¹⁶⁺ > Cr¹⁶⁺ > V¹⁵⁺ > Nb¹⁵⁺ > Ta¹⁵⁺ > UO₂¹²⁺ > Th¹⁴⁺ > Zr¹⁴⁺ > Hf¹⁴⁺ > Ti¹⁴⁺ > Sn¹⁴⁺ > Pb¹⁴⁺ > Bi¹⁵⁺ > Sb¹⁵⁺ > As¹⁵⁺ > Se¹⁶⁺ > Te¹⁶⁺ > Mo¹⁷⁺ > W¹⁷⁺ > Cr¹⁷⁺ > V¹⁶⁺ > Nb¹⁶⁺ > Ta¹⁶⁺ > UO₂¹³⁺ > Th¹⁵⁺ > Zr¹⁵⁺ > Hf¹⁵⁺ > Ti¹⁵⁺ > Sn¹⁵⁺ > Pb¹⁵⁺ > Bi¹⁶⁺ > Sb¹⁶⁺ > As¹⁶⁺ > Se¹⁷⁺ > Te¹⁷⁺ > Mo¹⁸⁺ > W¹⁸⁺ > Cr¹⁸⁺ > V¹⁷⁺ > Nb¹⁷⁺ > Ta¹⁷⁺ > UO₂¹⁴⁺ > Th¹⁶⁺ > Zr¹⁶⁺ > Hf¹⁶⁺ > Ti¹⁶⁺ > Sn¹⁶⁺ > Pb¹⁶⁺ > Bi¹⁷⁺ > Sb¹⁷⁺ > As¹⁷⁺ > Se¹⁸⁺ > Te¹⁸⁺ > Mo¹⁹⁺ > W¹⁹⁺ > Cr¹⁹⁺ > V¹⁸⁺ > Nb¹⁸⁺ > Ta¹⁸⁺ > UO₂¹⁵⁺ > Th¹⁷⁺ > Zr¹⁷⁺ > Hf¹⁷⁺ > Ti¹⁷⁺ > Sn¹⁷⁺ > Pb¹⁷⁺ > Bi¹⁸⁺ > Sb¹⁸⁺ > As¹⁸⁺ > Se¹⁹⁺ > Te¹⁹⁺ > Mo²⁰⁺ > W²⁰⁺ > Cr²⁰⁺ > V¹⁹⁺ > Nb¹⁹⁺ > Ta¹⁹⁺ > UO₂¹⁶⁺ > Th¹⁸⁺ > Zr¹⁸⁺ > Hf¹⁸⁺ > Ti¹⁸⁺ > Sn¹⁸⁺ > Pb¹⁸⁺ > Bi¹⁹⁺ > Sb¹⁹⁺ > As¹⁹⁺ > Se²⁰⁺ > Te²⁰⁺ > Mo²¹⁺ > W²¹⁺ > Cr²¹⁺ > V²⁰⁺ > Nb²⁰⁺ > Ta²⁰⁺ > UO₂¹⁷⁺ > Th¹⁹⁺ > Zr¹⁹⁺ > Hf¹⁹⁺ > Ti¹⁹⁺ > Sn¹⁹⁺ > Pb¹⁹⁺ > Bi²⁰⁺ > Sb²⁰⁺ > As²⁰⁺ > Se²¹⁺ > Te²¹⁺ > Mo²²⁺ > W²²⁺ > Cr²²⁺ > V²¹⁺ > Nb²¹⁺ > Ta²¹⁺ > UO₂¹⁸⁺ > Th²⁰⁺ > Zr²⁰⁺ > Hf²⁰⁺ > Ti²⁰⁺ > Sn²⁰⁺ > Pb²⁰⁺ > Bi²¹⁺ > Sb²¹⁺ > As²¹⁺ > Se²²⁺ > Te²²⁺ > Mo²³⁺ > W²³⁺ > Cr²³⁺ > V²²⁺ > Nb²²⁺ > Ta²²⁺ > UO₂¹⁹⁺ > Th²¹⁺ > Zr²¹⁺ > Hf²¹⁺ > Ti²¹⁺ > Sn²¹⁺ > Pb²¹⁺ > Bi²²⁺ > Sb²²⁺ > As²²⁺ > Se²³⁺ > Te²³⁺ > Mo²⁴⁺ > W²⁴⁺ > Cr²⁴⁺ > V²³⁺ > Nb²³⁺ > Ta²³⁺ > UO₂²⁰⁺ > Th²²⁺ > Zr²²⁺ > Hf²²⁺ > Ti²²⁺ > Sn²²⁺ > Pb²²⁺ > Bi²³⁺ > Sb²³⁺ > As²³⁺ > Se²⁴⁺ > Te²⁴⁺ > Mo²⁵⁺ > W²⁵⁺ > Cr²⁵⁺ > V²⁴⁺ > Nb²⁴⁺ > Ta²⁴⁺ > UO₂²¹⁺ > Th²³⁺ > Zr²³⁺ > Hf²³⁺ > Ti²³⁺ > Sn²³⁺ > Pb²³⁺ > Bi²⁴⁺ > Sb²⁴⁺ > As²⁴⁺ > Se²⁵⁺ > Te²⁵⁺ > Mo²⁶⁺ > W²⁶⁺ > Cr²⁶⁺ > V²⁵⁺ > Nb²⁵⁺ > Ta²⁵⁺ > UO₂²²⁺ > Th²⁴⁺ > Zr²⁴⁺ > Hf²⁴⁺ > Ti²⁴⁺ > Sn²⁴⁺ > Pb²⁴⁺ > Bi²⁵⁺ > Sb²⁵⁺ > As²⁵⁺ > Se²⁶⁺ > Te²⁶⁺ > Mo²⁷⁺ > W²⁷⁺ > Cr²⁷⁺ > V²⁶⁺ > Nb²⁶⁺ > Ta²⁶⁺ > UO₂²³⁺ > Th²⁵⁺ > Zr²⁵⁺ > Hf²⁵⁺ > Ti²⁵⁺ > Sn²⁵⁺ > Pb²⁵⁺ > Bi²⁶⁺ > Sb²⁶⁺ > As²⁶⁺ > Se²⁷⁺ > Te²⁷⁺ > Mo²⁸⁺ > W²⁸⁺ > Cr²⁸⁺ > V²⁷⁺ > Nb²⁷⁺ > Ta²⁷⁺ > UO₂²⁴⁺ > Th²⁶⁺ > Zr²⁶⁺ > Hf²⁶⁺ > Ti²⁶⁺ > Sn²⁶⁺ > Pb²⁶⁺ > Bi²⁷⁺ > Sb²⁷⁺ > As²⁷⁺ > Se²⁸⁺ > Te²⁸⁺ > Mo²⁹⁺ > W²⁹⁺ > Cr²⁹⁺ > V²⁸⁺ > Nb²⁸⁺ > Ta²⁸⁺ > UO₂²⁵⁺ > Th²⁷⁺ > Zr²⁷⁺ > Hf²⁷⁺ > Ti²⁷⁺ > Sn²⁷⁺ > Pb²⁷⁺ > Bi²⁸⁺ > Sb²⁸⁺ > As²⁸⁺ > Se²⁹⁺ > Te²⁹⁺ > Mo³⁰⁺ > W³⁰⁺ > Cr³⁰⁺ > V²⁹⁺ > Nb²⁹⁺ > Ta²⁹⁺ > UO₂²⁶⁺ > Th²⁸⁺ > Zr²⁸⁺ > Hf²⁸⁺ > Ti²⁸⁺ > Sn²⁸⁺ > Pb²⁸⁺ > Bi²⁹⁺ > Sb²⁹⁺ > As²⁹⁺ > Se³⁰⁺ > Te³⁰⁺ > Mo³¹⁺ > W³¹⁺ > Cr³¹⁺ > V³⁰⁺ > Nb³⁰⁺ > Ta³⁰⁺ > UO₂²⁷⁺ > Th²⁹⁺ > Zr²⁹⁺ > Hf²⁹⁺ > Ti²⁹⁺ > Sn²⁹⁺ > Pb²⁹⁺ > Bi³⁰⁺ > Sb³⁰⁺ > As³⁰⁺ > Se³¹⁺ > Te³¹⁺ > Mo³²⁺ > W³²⁺ > Cr³²⁺ > V³¹⁺ > Nb³¹⁺ > Ta³¹⁺ > UO₂²⁸⁺ > Th³⁰⁺ > Zr³⁰⁺ > Hf³⁰⁺ > Ti³⁰⁺ > Sn³⁰⁺ > Pb³⁰⁺ > Bi³¹⁺ > Sb³¹⁺ > As³¹⁺ > Se³²⁺ > Te³²⁺ > Mo³³⁺ > W³³⁺ > Cr³³⁺ > V³²⁺ > Nb³²⁺ > Ta³²⁺ > UO₂²⁹⁺ > Th³¹⁺ > Zr³¹⁺ > Hf³¹⁺ > Ti³¹⁺ > Sn³¹⁺ > Pb³¹⁺ > Bi³²⁺ > Sb³²⁺ > As³²⁺ > Se³³⁺ > Te³³⁺ > Mo³⁴⁺ > W³⁴⁺ > Cr³⁴⁺ > V³³⁺ > Nb³³⁺ > Ta³³⁺ > UO₂³⁰⁺ > Th³²⁺ > Zr³²⁺ > Hf³²⁺ > Ti³²⁺ > Sn³²⁺ > Pb³²⁺ > Bi³³⁺ > Sb³³⁺ > As³³⁺ > Se³⁴⁺ > Te³⁴⁺ > Mo³⁵⁺ > W³⁵⁺ > Cr³⁵⁺ > V³⁴⁺ > Nb³⁴⁺ > Ta³⁴⁺ > UO₂³¹⁺ > Th³³⁺ > Zr³³⁺ > Hf³³⁺ > Ti³³⁺ > Sn³³⁺ > Pb³³⁺ > Bi³⁴⁺ > Sb³⁴⁺ > As³⁴⁺ > Se³⁵⁺ > Te³⁵⁺ > Mo³⁶⁺ > W³⁶⁺ > Cr³⁶⁺ > V³⁵⁺ > Nb³⁵⁺ > Ta³⁵⁺ > UO₂³²⁺ > Th³⁴⁺ > Zr³⁴⁺ > Hf³⁴⁺ > Ti³⁴⁺ > Sn³⁴⁺ > Pb³⁴⁺ > Bi³⁵⁺ > Sb³⁵⁺ > As³⁵⁺ > Se³⁶⁺ > Te³⁶⁺ > Mo³⁷⁺ > W³⁷⁺ > Cr³⁷⁺ > V³⁶⁺ > Nb³⁶⁺ > Ta³⁶⁺ > UO₂³³⁺ > Th³⁵⁺ > Zr³⁵⁺ > Hf³⁵⁺ > Ti³⁵⁺ > Sn³⁵⁺ > Pb³⁵⁺ > Bi³⁶⁺ > Sb³⁶⁺ > As³⁶⁺ > Se³⁷⁺ > Te³⁷⁺ > Mo³⁸⁺ > W³⁸⁺ > Cr³⁸⁺ > V³⁷⁺ > Nb³⁷⁺ > Ta³⁷⁺ > UO₂³⁴⁺ > Th³⁶⁺ > Zr³⁶⁺ > Hf³⁶⁺ > Ti³⁶⁺ > Sn³⁶⁺ > Pb³⁶⁺ > Bi³⁷⁺ > Sb³⁷⁺ > As³⁷⁺ > Se³⁸⁺ > Te³⁸⁺ > Mo³⁹⁺ > W³⁹⁺ > Cr³⁹⁺ > V³⁸⁺ > Nb³⁸⁺ > Ta³⁸⁺ > UO₂³⁵⁺ > Th³⁷⁺ > Zr³⁷⁺ > Hf³⁷⁺ > Ti³⁷⁺ > Sn³⁷⁺ > Pb³⁷⁺ > Bi³⁸⁺ > Sb³⁸⁺ > As³⁸⁺ > Se³⁹⁺ > Te³⁹⁺ > Mo⁴⁰⁺ > W⁴⁰⁺ > Cr⁴⁰⁺ > V³⁹⁺ > Nb³⁹⁺ > Ta³⁹⁺ > UO₂³⁶⁺ > Th³⁸⁺ > Zr³⁸⁺ > Hf³⁸⁺ > Ti³⁸⁺ > Sn³⁸⁺ > Pb³⁸⁺ > Bi³⁹⁺ > Sb³⁹⁺ > As³⁹⁺ > Se⁴⁰⁺ > Te⁴⁰⁺ > Mo⁴¹⁺ > W⁴¹⁺ > Cr⁴¹⁺ > V⁴⁰⁺ > Nb⁴⁰⁺ > Ta⁴⁰⁺ > UO₂³⁷⁺ > Th³⁹⁺ > Zr³⁹⁺ > Hf³⁹⁺ > Ti³⁹⁺ > Sn³⁹⁺ > Pb³⁹⁺ > Bi⁴⁰⁺ > Sb⁴⁰⁺ > As⁴⁰⁺ > Se⁴¹⁺ > Te⁴¹⁺ > Mo⁴²⁺ > W⁴²⁺ > Cr⁴²⁺ > V⁴¹⁺ > Nb⁴¹⁺ > Ta⁴¹⁺ > UO₂³⁸⁺ > Th⁴⁰⁺ > Zr⁴⁰⁺ > Hf⁴⁰⁺ > Ti⁴⁰⁺ > Sn⁴⁰⁺ > Pb⁴⁰⁺ > Bi⁴¹⁺ > Sb⁴¹⁺ > As⁴¹⁺ > Se⁴²⁺ > Te⁴²⁺ > Mo⁴³⁺ > W⁴³⁺ > Cr⁴³⁺ > V⁴²⁺ > Nb⁴²⁺ > Ta⁴²⁺ > UO₂³⁹⁺ > Th⁴¹⁺ > Zr⁴¹⁺ > Hf⁴¹⁺ > Ti⁴¹⁺ > Sn⁴¹⁺ > Pb⁴¹⁺ > Bi⁴²⁺ > Sb⁴²⁺ > As⁴²⁺ > Se⁴³⁺ > Te⁴³⁺ > Mo⁴⁴⁺ > W⁴⁴⁺ > Cr⁴⁴⁺ > V⁴³⁺ > Nb⁴³⁺ > Ta⁴³⁺ > UO₂⁴⁰⁺ > Th⁴²⁺ > Zr⁴²⁺ > Hf⁴²⁺ > Ti⁴²⁺ > Sn⁴²⁺ > Pb⁴²⁺ > Bi⁴³⁺ > Sb⁴³⁺ > As⁴³⁺ > Se⁴⁴⁺ > Te⁴⁴⁺ > Mo⁴⁵⁺ > W⁴⁵⁺ > Cr⁴⁵⁺ > V⁴⁴⁺ > Nb⁴⁴⁺ > Ta⁴⁴⁺ > UO₂⁴¹⁺ > Th⁴³⁺ > Zr⁴³⁺ > Hf⁴³⁺ > Ti⁴³⁺ > Sn⁴³⁺ > Pb⁴³⁺ > Bi⁴⁴⁺ > Sb⁴⁴⁺ > As⁴⁴⁺ > Se⁴⁵⁺ > Te⁴⁵⁺ > Mo⁴⁶⁺ > W⁴⁶⁺ > Cr⁴⁶⁺ > V⁴⁵⁺ > Nb⁴⁵⁺ > Ta⁴⁵⁺ > UO₂⁴²⁺ > Th⁴⁴⁺ > Zr⁴⁴⁺ > Hf⁴⁴⁺ > Ti⁴⁴⁺ > Sn⁴⁴⁺ > Pb⁴⁴⁺ > Bi⁴⁵⁺ > Sb⁴⁵⁺ > As⁴⁵⁺ > Se⁴⁶⁺ > Te⁴⁶⁺ > Mo⁴⁷⁺ > W⁴⁷⁺ > Cr⁴⁷⁺ > V⁴⁶⁺ > Nb⁴⁶⁺ > Ta⁴⁶⁺ > UO₂⁴³⁺ > Th⁴⁵⁺ > Zr⁴⁵⁺ > Hf⁴⁵⁺ > Ti⁴⁵⁺ > Sn⁴⁵⁺ > Pb⁴⁵⁺ > Bi⁴⁶⁺ > Sb⁴⁶⁺ > As⁴⁶⁺ > Se⁴⁷⁺ > Te⁴⁷⁺ > Mo⁴⁸⁺ > W⁴⁸⁺ > Cr⁴⁸⁺ > V⁴⁷⁺ > Nb⁴⁷⁺ > Ta⁴⁷⁺ > UO₂⁴⁴⁺ > Th⁴⁶⁺ > Zr⁴⁶⁺ > Hf⁴⁶⁺ > Ti⁴⁶⁺ > Sn⁴⁶⁺ > Pb⁴⁶⁺ > Bi⁴⁷⁺ > Sb⁴⁷⁺ > As⁴⁷⁺ > Se⁴⁸⁺ > Te⁴⁸⁺ > Mo⁴⁹⁺ > W⁴⁹⁺ > Cr⁴⁹⁺ > V⁴⁸⁺ > Nb⁴⁸⁺ > Ta⁴⁸⁺ > UO₂⁴⁵⁺ > Th⁴⁷⁺ > Zr⁴⁷⁺ > Hf⁴⁷⁺ > Ti⁴⁷⁺ > Sn⁴⁷⁺ > Pb⁴⁷⁺ > Bi⁴⁸⁺ > Sb⁴⁸⁺ > As⁴⁸⁺ > Se⁴⁹⁺ > Te⁴⁹⁺ > Mo⁵⁰⁺ > W⁵⁰⁺ > Cr⁵⁰⁺ > V⁴⁹⁺ > Nb⁴⁹⁺ > Ta⁴⁹⁺ > UO₂⁴⁶⁺ > Th⁴⁸⁺ > Zr⁴⁸⁺ > Hf⁴⁸⁺ > Ti⁴⁸⁺ > Sn⁴⁸⁺ > Pb⁴⁸⁺ > Bi⁴⁹⁺ > Sb⁴⁹⁺ > As⁴⁹⁺ > Se⁵⁰⁺ > Te⁵⁰⁺ > Mo⁵¹⁺ > W⁵¹⁺ > Cr⁵¹⁺ > V⁵⁰⁺ > Nb⁵⁰⁺ > Ta⁵⁰⁺ > UO₂⁴⁷⁺ > Th⁴⁹⁺ > Zr⁴⁹⁺ > Hf⁴⁹⁺ > Ti⁴⁹⁺ > Sn⁴⁹⁺ > Pb⁴⁹⁺ > Bi⁵⁰⁺ > Sb⁵⁰⁺ > As⁵⁰⁺ > Se⁵¹⁺ > Te⁵¹⁺ > Mo⁵²⁺ > W⁵²⁺ > Cr⁵²⁺ > V⁵¹⁺ > Nb⁵¹⁺ > Ta⁵¹⁺ > UO₂⁴⁸⁺ > Th⁵⁰⁺ > Zr⁵⁰⁺ > Hf⁵⁰⁺ > Ti⁵⁰⁺ > Sn⁵⁰⁺ > Pb⁵⁰⁺ > Bi⁵¹⁺ > Sb⁵¹⁺ > As⁵¹⁺ > Se⁵²⁺ > Te⁵²⁺ > Mo⁵³⁺ > W⁵³⁺ > Cr⁵³⁺ > V⁵²⁺ > Nb⁵²⁺ > Ta⁵²⁺ > UO₂⁴⁹⁺ > Th⁵¹⁺ > Zr⁵¹⁺ > Hf⁵¹⁺ > Ti⁵¹⁺ > Sn⁵¹⁺ > Pb⁵¹⁺ > Bi⁵²⁺ > Sb⁵²⁺ > As⁵²⁺ > Se⁵³⁺ > Te⁵³⁺ > Mo⁵⁴⁺ > W⁵⁴⁺ > Cr⁵⁴⁺ > V⁵³⁺ > Nb⁵³⁺ > Ta⁵³⁺ > UO₂⁵⁰⁺ > Th⁵²⁺ > Zr⁵²⁺ > Hf⁵²⁺ > Ti⁵²⁺ > Sn⁵²⁺ > Pb⁵²⁺ > Bi⁵³⁺ > Sb⁵³⁺ > As⁵³⁺ > Se⁵⁴⁺ > Te⁵⁴⁺ > Mo⁵⁵⁺ > W⁵⁵⁺ > Cr⁵⁵⁺ > V⁵⁴⁺ > Nb⁵⁴⁺ > Ta⁵⁴⁺ > UO₂⁵¹⁺ > Th⁵³⁺ > Zr⁵³⁺ > Hf⁵³⁺ > Ti⁵³⁺ > Sn⁵³⁺ > Pb⁵³⁺ > Bi⁵⁴⁺ > Sb⁵⁴⁺ > As⁵⁴⁺ > Se⁵⁵⁺ > Te⁵⁵⁺ > Mo⁵⁶⁺ > W⁵⁶⁺ > Cr⁵⁶⁺ > V⁵⁵⁺ > Nb⁵⁵⁺ > Ta⁵⁵⁺ > UO₂⁵²⁺ > Th⁵⁴⁺ > Zr⁵⁴⁺ > Hf⁵⁴⁺ > Ti⁵⁴⁺ > Sn⁵⁴⁺ > Pb⁵⁴⁺ > Bi⁵⁵⁺ > Sb⁵⁵⁺ > As⁵⁵⁺ > Se⁵⁶⁺ > Te⁵⁶⁺ > Mo⁵⁷⁺ > W⁵⁷⁺ > Cr⁵⁷⁺ > V⁵⁶⁺ > Nb⁵⁶⁺ > Ta⁵⁶⁺ > UO₂⁵³⁺ > Th⁵⁵⁺ > Zr⁵⁵⁺ > Hf⁵⁵⁺ > Ti⁵⁵⁺ > Sn⁵⁵⁺ > Pb⁵⁵⁺ > Bi⁵⁶⁺ > Sb⁵⁶⁺ > As⁵⁶⁺ > Se⁵⁷⁺ > Te⁵⁷⁺ > Mo⁵⁸⁺ > W⁵⁸⁺ > Cr⁵⁸⁺ > V⁵⁷