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KING EDWARD VII SANATORIUM  
MIDHURST

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*TWENTY-FIFTH  
ANNUAL REPORT*

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JULY 1930 to JULY 1931



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KING EDWARD VII SANATORIUM  
MIDHURST

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*TWENTY-FIFTH  
ANNUAL REPORT*

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JULY 1930 to JULY 1931



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# KING EDWARD VII SANATORIUM MIDHURST

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## Twenty-fifth Annual Report

JULY 1930 to JULY 1931

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**D**URING the above period 318 patients were admitted to the Sanatorium; of these 47 were re-admissions, and 84 remained for a period of less than nine weeks, because in most cases they were too advanced for continued treatment, and they therefore are not followed up in the after-history records.

The 193 patients who were discharged between 1st July, 1930, and 30th June, 1931, were grouped according to condition on admission as follows:—

Group I ..	..	..	..	..	..	38
Group II ..	..	..	..	..	..	121
Group III ..	..	..	..	..	..	20
Group IV ..	..	..	..	..	..	14

The number of applications for admission to the Sanatorium were 559, and the average waiting list has been between 14 and 15 for men and 6 and 7 for women.

One hundred and nine of the applicants for admission were examined by the Medical Superintendent, and 93 (85·3 per cent.) were accepted, while 16 (14·6 per cent.) were rejected as unsuitable according to the rules for admission to the Sanatorium.



The 14 cases placed under Group IV as having no definite evidence of Pulmonary Tuberculosis were classified as follows :—

Nothing definite found	..	..	..	..	5
Thickened pleura	..	..	..	..	5
Bronchiectasis	..	..	..	..	2
Debility	..	..	..	..	1
Non-tuberculous Pulmonary Fibrosis	..	..	..	..	1

In this year's report more especial reference has been paid to special treatments, such as artificial pneumothorax, phrenic evulsion, thoracoplasty and Sanocrysin. The work of pneumothorax is becoming more interesting in that it is now possible to follow up after-history to seven years from the date of induction of 65 cases now re-expanded, and it is intended to make a special investigation, and to publish the results in one of the medical journals within the next few months. For the first time, the after-history of cases treated by Sanocrysin has been followed up, and it will be seen that there is every reason to continue this treatment in suitable cases. Reference to the cases will show that only a few have been submitted to thoracoplasty, but that all have gained very marked benefit.

More attention has been paid during the last year to the intellectual side of the Sanatorium, and while the wireless installation has been more and more appreciated, as have the cinema programmes given once a week during the winter months, the General Purposes Committee of the patients has been encouraged to do more in the way of arranging debates and keeping the library stocked with good, up-to-date literature, while the institution of a French class once a week has been a great boon to those interested in languages. It is therefore hoped to pay more attention to this side of the social life of the Sanatorium in the future.

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## GENERAL STATISTICS.

The following tables show an analysis of the 193 patients discharged during the year, with regard to :—

- (1) Place of Residence.
- (2) Occupation.
- (3) Age and Sex.
- (4) Married or Single.
- (5) Mode of Onset.
- (6) Duration of Disease.



TABLE I.—PLACE OF RESIDENCE.

Place of Residence	Number of Patients	Place of Residence	Number of Patients
London .. .. .	71	Cheshire .. .. .	3
Surrey .. .. .	17	Staffordshire.. .. .	3
Ireland .. .. .	11	Bedfordshire .. .. .	3
Essex .. .. .	10	Warwickshire .. .. .	3
Lancashire .. .. .	8	Wales.. .. .	3
Sussex .. .. .	7	Durham .. .. .	2
Kent .. .. .	7	Scotland .. .. .	2
Hertfordshire.. .. .	7	Norfolk .. .. .	2
Middlesex .. .. .	5	Worcestershire .. .. .	1
Lincolnshire .. .. .	4	Leicestershire .. .. .	1
Devonshire .. .. .	4	Derbyshire .. .. .	1
Hampshire .. .. .	4	Cumberland .. .. .	1
Yorkshire .. .. .	4	Suffolk .. .. .	1
Gloucestershire .. .. .	3	Berkshire .. .. .	1
Buckinghamshire .. .. .	3	Northumberland .. .. .	1
		193	

TABLE II.—OCCUPATION.

Occupation	Number of Patients	Occupation	Number of Patients
Clerks .. .. .	51	Apprentices .. .. .	2
Housewives .. .. .	24	Actresses .. .. .	2
Teachers .. .. .	12	Importers .. .. .	1
Nil .. .. .	9	Barristers .. .. .	1
Secretaries .. .. .	7	Clergymen .. .. .	1
Students .. .. .	7	School Boys .. .. .	1
Nurses.. .. .	7	Milliners .. .. .	1
Engineers .. .. .	7	Shop Owners .. .. .	1
Merchants .. .. .	6	Tea Planters .. .. .	1
Shop Assistants .. .. .	5	Farmers .. .. .	1
Travellers .. .. .	5	Dentists .. .. .	1
Managers .. .. .	4	Articled Pupils .. .. .	1
Medical Practitioners .. .. .	4	Journalists .. .. .	1
Accountants .. .. .	4	Navy .. .. .	1
Salesmen .. .. .	3	Mercantile Marines.. .. .	1
Buyers .. .. .	3	Rose Growers .. .. .	1
Royal Air Force .. .. .	3	Chemists .. .. .	1
Companions .. .. .	3	Sisters of Mercy .. .. .	1
School Girls .. .. .	3	Governesses .. .. .	1
Agents .. .. .	2	Actors .. .. .	1
Civil Servants .. .. .	2	193	







GROUPS.—As in previous Annual Reports, the Turban-Gerhardt classification has been used to indicate the clinical condition of patients on admission. This classification, based on physical signs, is as follows :—

Group I.—Disease of slight severity, limited to small areas of one lobe on either side, which, in the case of affection of both apices, does not extend beyond the spine of the scapula or the clavicle, or in the case of affection of the apex of one lung, does not extend below the second rib in front.

Group II.—Disease of slight severity, more extensive than Group I, but affecting at most, the whole of one lobe ; or severe disease extending at most, to the half of one lobe.

Group III.—All cases of greater severity than Group II, and all those with considerable cavities.

By “disease of slight severity,” is to be understood, disseminated foci characterised by slight dullness, indefinite rough or weak vesicular, vesico-bronchial, or broncho-vesicular breathing, and fine and medium crepitations.

By “severe disease” : massive infiltration recognised by definite dullness, broncho-vesicular or bronchial breathing, with or without crepitations.

Cases with signs of considerable excavation, giving rise to tympanitic percussion with amphoric or cavernous breathing and numerous coarse consonating rales, come under Group III.

Pleuritic dullness, if only of slight extent, is to be left out of account ; if it is considerable, pleuritis should be specially mentioned under tuberculous complications.

The following terms are used to describe the condition of patients on discharge from the Sanatorium :—

“DISEASE ARRESTED.”—General health completely restored in every respect, without any sign of disease of the lungs except such as is compatible with a completely healed lesion. Sputum, if still present, free from tubercle bacilli.

“MUCH IMPROVED.”—General health good. Physical signs of disease in the lungs, though much diminished, not entirely cleared up, *e.g.*, limited to a few crepitations on cough only. Tubercle bacilli still to be detected in the sputum.

“IMPROVED.”—General health improved, but not restored. Physical signs of disease in the lungs still present, though less marked than on admission.

“STATIONARY.”—No appreciable improvement in the condition of the lungs or in the general health.

“WORSE.”—General or local condition worse.



TABLE VIII.—DEMONSTRATION OF T.B. IN SPUTUM

On Admission				On Discharge			
Positive	..	..	135	Positive	..	..	87
Negative	..	..	35	Negative	..	..	74
No Sputum	..	..	9	No Sputum	..	..	17
Group IV Cases	..		14	Group IV Cases	..		14
				Died in Sanatorium	..		1
All Cases .. .. 193				All Cases .. .. 193			
Number of Patients who lost T.B. in Sanatorium .. 48							

TABLE IX.—WEIGHT

Weight					Group I	Group II	Group III	Group IV
Gained	..	..	..	..	32	81	10	12
Lost	..	..	..	..	5	29	6	2
No Change	..	..	..	..	—	1	—	—
Not Weighed	..	..	..	..	1	10	3	—
Died in Sanatorium	..	..	..	..	—	—	1	—
All Cases .. ..					38	121	20	14

## REPORTS OF SPECIAL DEPARTMENTS.

### REPORT OF THE THROAT DEPARTMENT.

All the 193 patients discharged during the year ending 30th June, 1931, were examined laryngoscopically by Sir St. Clair Thomson. Of these, in 176 the larynx was found to be normal, while in 15 there was found to be definite tuberculous disease. The results of treatment are shown in Tables X, XI and XII.

TABLE X.—SHOWING THE RESULT ON DISCHARGE OF TREATMENT IN PATIENTS SUFFERING FROM TUBERCULOSIS OF THE LARYNX IN WHOSE SPUTUM TUBERCLE BACILLI *were* DEMONSTRATED IN THE SANATORIUM.

	Number of Cases	Cured	Much Improved	Improved	Stationary or Worse	Died in the Sanatorium.	Remarks
Group I..	—	—	—	—	—	—	For cases treated with Galvano-Cautery, <i>see</i> Table XII
Group II..	8	4	2	1	1	—	
Group III..	5	—	—	3	1	1	
All Cases ..	13	4	2	4	2	1	

TABLE XI.—SHOWING THE RESULT ON DISCHARGE OF TREATMENT IN PATIENTS SUFFERING FROM TUBERCULOSIS OF THE LARYNX IN WHOSE SPUTUM TUBERCLE BACILLI *were not* DEMONSTRATED IN THE SANATORIUM.

	Number of Cases	Cured	Much Improved	Improved	Stationary or Worse	Died in the Sanatorium	Remarks
Group I..	—	—	—	—	—	—	For cases treated with Galvano-Cautery, <i>see</i> Table XII
Group II..	1	—	—	1	—	—	
Group III..	1	—	—	1	—	—	
All cases ..	2	—	—	2	—	—	

TABLE XII.—SHOWING RESULT ON DISCHARGE OF TREATMENT WITH THE GALVANO-CAUTERY IN PATIENTS SUFFERING FROM TUBERCULOSIS OF THE LARYNX.

	Number of Cases	Cured	Much Improved	Improved	Stationary or Worse	Died in the Sanatorium	Remarks
Group I..	—	—	—	—	—	—	
Group II..	3	1	1	—	1	—	
Group III..	1	—	—	—	—	1	
All cases ..	4	1	1	—	1	1	

One case had suspicious granulations on admission, but was normal on discharge; one case developed laryngeal disease in the Sanatorium which did not improve during his stay.



## ARTIFICIAL PNEUMOTHORAX, PHRENIC EVULSION AND THORACOPLASTY CASES.

During the seven years ended 30th June, 1931, Artificial Pneumothorax has been attempted in 125 cases and successfully induced in 94; in the remaining 31 it was impossible to induce pneumothorax because either no pleural space or only a small initial pocket was found, or it was impossible to carry on refills because of the presence of many gross adhesions. Therefore, these 31 are followed up as "failures." All cases have been grouped according to "choice" at the time of attempted induction:—

Choice I.—Cases with involvement of one lung.

Choice II.—Cases with cavitation or much evident fibrosis of one lung, or with involvement of the better lung not beyond the upper third.

Choice III.—Cases *in extremis*, e.g., with hæmoptysis.

Cases with bilateral disease, but with a possibility of aid by limited pneumothorax on the more active side.

The 94 cases still on refills when discharged from the Sanatorium, and therefore with an after-history of from six months to 7 years from the date of induction, can be tabulated as follows:—

TABLE XIII.—AFTER-HISTORY OF CASES SUCCESSFULLY INDUCED.

				TOTAL 94.		
				ALIVE.	DEAD.	TOTALS.
Choice I	..	..	..	35	2	37
Choice II	..	..	..	41	8	49
Choice III	..	..	..	4	4	8
Totals				80	14	94

This table shows that 80 of the 94 cases are still alive; of these 63 (78·7 per cent.) have no sputum, or are T.B.—Of the 94 cases, 40 (42·5 per cent.) have developed fluid at some time during the course of the treatment.

The 80 cases still alive may be further sub-divided into 45 who are no longer carrying on refills, and 35 who are still on treatment.

Table XIV divides the 45 into various categories. Under the heading "Completed Treatment" are counted those cases who were able to continue refills until it was considered safe to re-expand the lung, that is, at least three years after the date of induction. Some cases re-expanded for no apparent reason, and these are tabulated under the heading "Re-Expanded"; others obliterated after fluid had developed, so that it was not possible to continue



refills, and the remainder have stopped because of the appearance of disease in the other lung, or for the development of a pyo-pneumothorax following a hydro-pneumothorax. Under the heading "Larynx" are counted all cases who had the complication of laryngeal tubercle, and it is hoped to make special reference to these cases in a later publication.

TABLE XIV.—CASES CEASED REFILLS AND STILL ALIVE.

	Choice.			Larynx.			T.B. +	T.B.—or No Sputum.	Total.
	I.	II.	III.	Fluid.	Healed.	Improved.			
Completed treatment .. .. .	13	12	—	10	4	—	—	25	25
Re-expanded .. .. .	2	1	—	—	—	—	—	3	3
Obliterated after fluid.. .. .	4	4	1	9	2	—	4	5	9
Stopped for disease on other side ..	1	4	—	2	2	1	3	2	5
Stopped for pyo-pneumothorax ..	—	1	2	3	—	1	3	—	3
	20	22	3	24	8	2	10	35	45

The results in those who completed treatment are interesting, in that all the 25 with an after-history now ranging from 3 to 7 years are either T.B.—or have no sputum. The three cases that have re-expanded are now free from tubercle; one has had thoracoplasty performed by Mr. Tudor Edwards with excellent result, and one had a course of Sanocrysin following re-expansion as the sputum returned positive, and has remained negative for two years. Two of the cases given up for disease on the other side had for some time a bilateral pneumothorax. One is still in good condition. The table also shows that of the 45, 10 had laryngeal tubercle and that 8 are healed.

TABLE XV.—CASES STILL ON REFILLS. TOTAL 35.

	General Condition.		Larynx.	T.B. +	T.B. — or no sputum.
	Good.	Poor.			
Choice I ..	14	1	1	2	13
Choice II ..	19	—	4	4	15
Choice III ..	1	—	—	1	—
Totals ..	34	1	5	7	28

Thirty-five cases were still on refills on 30th June, 1931, and the above table shows that 28 are at present T.B.—or have no sputum, and that five had laryngeal tubercle. All five are healed.



During the seven years, 14 of the 94 in whom induction was successful have died. Their "Choice" at the time of induction was as follows:—

Choice I	..	..	..	..	..	2
Choice II	..	..	..	..	..	8
Choice III	..	..	..	..	..	4

Five of these 14 had laryngeal tubercle at the time of induction. The immediate cause of death in after-history records may be tabulated thus:—

Extension of disease	..	..	..	..	9
Pyo-pneumothorax	..	..	..	..	2
Hæmoptysis	..	..	..	..	1
Influenzal pneumonia	..	..	..	..	1
Lymphadenoma	..	..	..	..	1

The after-history of the 31 cases under the heading of "failures" is given in Table XVI:—

TABLE XVI.—FAILURES. TOTAL 31.

		General Condition.			Totals.
		Good.	Poor.	Dead.	
Choice II.—No space	..	7	1	3	11
	Pocket	4	1	1	6
	Adhesions	1	—	3	4
Choice III.—No space	..	—	2	1	3
	Pocket	—	1	1	2
	Adhesions	—	—	5	5
Totals		12	5	14	31

Phrenic evulsion was performed in five of these cases; one has had thoracoplasty.

It is intended to publish a fuller account of these results in an early edition of one of the Medical Journals.

#### SURGICAL TREATMENT.

Mr. Tudor Edwards has performed phrenic evulsion in 27 cases. These were done for varied conditions, *e.g.*, threatened re-expansion of pneumothorax; discomfort and displacement of the mediastinum following re-expansion; cases with similar discomfort and displacement following pleural effusion, and in patients who were advised to have thoracoplasty following failure of induction of pneumothorax.

The results have been very satisfactory, and in only four cases have patients replied to our after-history enquiry to say that they have not received definite benefit from the operation.

Thoracoplasty has been performed in four cases. In all four the result has been most satisfactory. The first three cases are well and at work; the fourth is still in the Sanatorium, but is in better condition than he has been for the past three years.



During the 12 months, four cases had to be operated on for ischio-rectal abscess, and one for the removal of a cervical polypus.

#### SANOCRYSIN TREATMENT.

The after-history of 40 cases who have been treated with Sanocrysin during the past four years has been followed up. Twenty-two (55 per cent.) are now T.B.—or have no sputum; 17 (42·5 per cent.) are still positive; one is dead.

This result is most encouraging. On the whole, they have been cases of chronic disease with recent exacerbation, and had been resident in the Sanatorium for about three months with definite improvement, but still T.B. positive when the injections were begun.

The method of treatment has been as follows: On the morning of the day of injection one ounce of 50 per cent. glucose has been given, and the usual routine for injections has been 0·25 gr., 0·5 gr., 0·75 gr., 1 gr., 1 gr., 1 gr.; the interval between each injection being one week. This has been considered a course. Fifty-five per cent. good results in after-histories in cases likely otherwise to remain positive seems to be sufficient warrant to continue the treatment in such picked cases.

### REPORT OF THE X-RAY DEPARTMENT.

The work shows once again a definite increase in the number of cases examined, the number for the year ending 30th June being 1,263. An increasing number of cases of artificial pneumothorax have been induced in the Sanatorium, and the arrangements for "refills" has meant no less than 755 screen examinations.

There has been during the year some little trouble caused by voltage drop and other causes, but these have now been remedied, and the X-ray service appears to be running well. For reasons of economy, it is not proposed to print any reproductions of cases, but it is hoped to return to this interesting record in due course.

### REPORT OF THE DENTAL DEPARTMENT.

The following dental treatment has been carried out during the period 1st July, 1930, to 30th June, 1931:—

Fillings	..	..	..	..	..	105
Extractions	..	..	..	..	..	97
Scalings	..	..	..	..	..	27
Repairs to Dentures	..	..	..	..	..	10
Dentures	..	..	..	..	..	7
X-rays	..	..	..	..	..	2
Root Treatment	..	..	..	..	..	1



## REPORT OF THE PATHOLOGICAL DEPARTMENT

The routine work of the Pathological Department has been continued on the same lines as before, and during the year ended 30th June, 1931, over 3,000 laboratory tests, apart from the fortnightly sputum tests, have been made.

The sedimentation test is carried out as a routine test on every case monthly, and weekly on patients with artificial pneumothorax for the first four weeks, and thereafter every two weeks. It has been found most useful as an adjunct to forming an opinion on prognosis, and is of great value in cases with obscure complications.

### RESEARCH.

Investigations concerning the sedimentation of red blood corpuscles in citrated blood have been undertaken, but so far have yielded chiefly negative results.

1. The sedimentation rate of a mixture of the red cells of one patient with the serum of another was observed by taking eight patients, two of each blood group, one of each pair having a low sedimentation rate, the other having a high rate. The blood in all cases was citrated and centrifuged, the serum being pipetted off and the red cells washed in normal saline; in almost all cases stasis was the outstanding phenomenon, the sedimentation rate being very low.

Controls with unwashed cells, the serum merely being pipetted off and the red cells dropped back into their own serum, also showed stasis. Cells allowed to sediment in their own serum will, however, if mixed in the same vessel twenty-four hours later, give the same sedimentation rate to within 1 or 2 per cent.

### CONCLUSION.

The factors governing the sedimentation of red blood cells are profoundly altered when any separation of cells and serum takes place by transference to another vessel.

2. The effect of different temperatures on the sedimentation rate has been observed, but the experiments are as yet incomplete. At blood heat the rate is in most cases considerably increased.

3. It has been noticed that the usual proportion of one volume of 3.8 per cent. sodium citrate to four volumes of fresh capillary blood produces the greatest drop in one hour, as compared with the higher dilutions.

4. The degree of anæmia, except in marked cases, appears to bear little, if any, relation to the sedimentation rate. The size of the red cells likewise appears to have no effect on the sedimentation rate.

5. The agglutinating litre of the blood appears to have no relation to the sedimentation rate.



6. In doubtful cases, or cases with suspected complications, leucocyte counts after the method of Von Bonsdorff with monocyte counts, as suggested by Professor Lyle Cummins, have been found extremely useful as an adjunct to forming an opinion as to the prognosis of the cases.

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## **REPORT OF THE STATISTICAL DEPARTMENT.**

The work of the Statistical Department has been carried out on the same lines as in previous years (*see* Annual Reports V, XI and XII). The number of patients discharged from the Sanatorium up to date is 5,680. This number does not include Group IV cases, re-admissions or patients who were in residence too short a time to be included in the records. Those about whom information could not be obtained number 138, or 2.42 per cent.

The statistics of the ultimate results of the enquiry are shown in the following tables :—



TABLE AI.—STATISTICS OF ULTIMATE RESULTS  
*Cases in the Sputum of which T.B. were demonstrated in the Sanatorium*  
 All cases considered together

Year of Dis- charge	Number Discharged	Number reported " Well " or " Alive " in each successive year after Discharge																				Number Dead in 1931	Number lost sight of in 1931					
		1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927			1928	1929	1930	1931	
1906/07	125	94	82	73	65	56	42	38	47	46	42	42	38	39	34	36	34	34	33	31	30	30	30	29	29	28	93	4
1907/08	206	—	149	129	112	94	71	72	70	70	75	72	63	59	58	54	54	55	52	50	46	44	44	42	41	41	159	6
1908/09	205	—	—	154	110	93	70	64	55	64	67	62	60	56	55	52	48	48	47	45	45	43	42	41	41	36	161	3
1909/10	192	—	—	—	138	112	90	75	69	73	71	69	60	61	56	53	51	49	48	47	43	42	39	37	36	31	151	5
1910/11	197	—	—	—	—	133	92	88	74	73	72	69	61	56	48	47	47	44	39	38	36	35	32	31	29	29	161	7
1911/12	198	—	—	—	—	—	111	95	81	76	72	68	55	54	50	46	44	43	40	34	33	32	31	31	31	31	157	10
1912/13	160	—	—	—	—	—	—	113	94	78	75	167	49	52	49	48	45	42	40	35	35	33	33	33	33	32	127	1
1913/14	177	—	—	—	—	—	—	—	118	84	86	82	75	75	68	60	55	49	47	46	43	43	38	37	37	37	136	4
1914/15	193	—	—	—	—	—	—	—	—	123	117	104	83	83	75	71	68	61	61	55	53	49	45	44	42	42	148	3
1915/16	154	—	—	—	—	—	—	—	—	—	105	93	68	65	57	51	48	41	38	35	35	33	30	29	28	28	123	3
1916/17	212	—	—	—	—	—	105	93	—	—	—	166	127	116	105	99	89	79	79	74	73	69	67	65	64	64	145	3
1917/18	184	—	—	—	—	—	—	—	—	—	—	—	118	115	95	82	80	69	70	62	64	62	58	54	52	52	127	5
1918/19	198	—	—	—	—	—	—	—	—	—	—	—	—	165	136	121	112	102	99	92	86	84	81	79	78	78	113	7
1919/20	196	—	—	—	—	—	—	—	—	—	—	—	—	—	165	140	126	110	100	91	85	81	74	72	70	70	123	3
1920/21	197	—	—	—	—	—	—	—	—	—	—	—	—	—	—	156	141	116	96	89	81	74	73	73	70	70	123	4
1921/22	176	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	150	127	111	92	76	69	62	53	51	51	123	2
1922/23	165	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	135	114	100	89	80	74	67	63	63	102	—
1923/24	166	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	124	112	99	91	81	73	65	65	100	1
1924/25	128	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	106	90	79	72	66	60	60	67	1
1925/26	114	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	97	89	80	73	67	67	45	2
1926/27	127	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	109	101	96	96	96	29	2
1927/28	121	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	103	94	84	84	36	36	1
1928/29	118	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	104	90	90	27	1
1929/30	155	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	136	19	—



TABLE A2.—STATISTICS OF ULTIMATE RESULTS  
*Cases in the Sputum of which T.B. were demonstrated in the Sanatorium*  
 Group I considered separately

Year of Discharge	Number Discharged	Number reported "Well" or "Alive" in each successive year after Discharge																								Number Dead in 1931	Number lost sight of in 1931
		1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931		
1906/07	30	27	23	21	20	20	15	14	17	17	19	18	16	18	14	15	14	14	14	13	12	12	12	12	12	16	2
1907/08	45	—	43	40	35	31	27	28	30	29	32	32	27	28	27	25	26	26	24	24	24	23	23	22	22	21	2
1908/09	28	—	—	26	23	20	16	16	12	15	15	15	15	14	14	14	13	13	13	13	14	14	14	14	14	14	—
1909/10	43	—	—	—	39	37	34	27	25	29	30	30	25	27	25	25	23	22	22	21	19	17	17	16	24	3	
1910/11	45	—	—	—	—	41	47	31	28	30	29	30	28	25	22	22	20	20	17	17	17	15	13	12	31	2	
1911/12	33	—	—	—	—	—	27	21	20	20	20	19	15	16	13	13	12	12	12	10	10	10	10	10	21	2	
1912/13	15	—	—	—	—	—	—	14	14	12	11	10	9	7	8	8	8	8	8	6	6	6	6	6	9	—	
1913/14	19	—	—	—	—	—	—	—	17	14	16	17	14	15	13	10	11	10	10	10	10	9	8	8	10	1	
1914/15	20	—	—	—	—	—	—	—	—	16	17	16	12	13	11	12	12	12	12	10	10	9	9	8	10	2	
1915/16	16	—	—	—	—	—	—	—	—	—	15	14	11	13	12	11	11	11	11	11	11	11	10	9	6	2	
1916/17	24	—	—	—	—	—	—	—	—	—	—	24	22	23	22	22	22	20	20	19	18	17	16	16	7	1	
1917/18	15	—	—	—	—	—	—	—	—	—	—	—	12	14	12	11	11	11	12	12	12	11	10	8	6	1	
1918/19	10	—	—	—	—	—	—	—	—	—	—	—	—	10	10	10	9	9	9	9	9	9	9	9	—	1	
1919/20	29	—	—	—	—	—	—	—	—	—	—	—	—	—	29	27	25	26	24	22	20	20	20	20	9	—	
1920/21	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	42	30	38	34	34	32	29	29	29	15	1	
1921/22	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25	23	22	21	21	18	15	15	10	—	
1922/23	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28	28	27	25	22	22	21	10	—	
1923/24	22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	20	19	18	17	17	5	—	
1924/25	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15	13	12	11	10	4	1	
1925/26	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	10	10	8	2	1	
1926/27	22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	10	21	1	—	
1927/28	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22	22	15	1	—	
1928/29	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	1	—	
1929/30	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	



TABLE A3.—STATISTICS OF ULTIMATE RESULTS

*Cases in the Sputum of which T.B. were demonstrated in the Sanatorium*  
Group II considered separately

Year of Discharge.	Number Discharged.	Number reported "Well" or "Alive" in each successive year after Discharge.																								Number Dead in 1931.	Number lost sight of in 1931.	
		1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931			
1906/07	57	50	45	40	37	31	22	18	24	23	18	19	18	17	17	17	17	17	16	15	15	15	14	14	13	42	2	
1907/08	85	—	69	51	56	47	32	32	31	33	35	32	28	24	25	24	23	24	23	22	19	18	17	17	16	66	3	
1908/09	94	—	—	82	59	48	34	37	32	38	40	36	34	34	33	31	31	31	31	29	28	26	25	24	24	67	3	
1909/10	99	—	—	—	69	59	44	38	36	36	33	32	28	26	26	24	25	25	24	25	23	22	21	21	20	77	2	
1910/11	100	—	—	—	—	68	43	49	40	37	37	35	29	28	23	22	22	21	19	18	16	16	15	15	14	81	5	
1911/12	110	—	—	—	—	—	65	59	49	43	41	38	34	33	32	29	29	28	25	22	21	21	20	20	20	84	6	
1912/13	101	—	—	—	—	—	—	77	68	53	51	45	33	38	35	35	32	29	28	25	25	25	25	25	24	76	1	
1913/14	95	—	—	—	—	—	—	—	74	54	55	54	51	50	47	42	40	34	32	31	28	29	26	24	24	68	3	
1914/15	99	—	—	—	—	—	—	—	—	74	74	69	57	57	51	46	43	38	39	36	36	33	30	29	28	70	1	
1915/16	71	—	—	—	—	—	—	—	—	—	54	49	35	33	28	24	22	17	14	12	12	12	10	10	10	61	—	
1916/17	99	—	—	—	—	—	—	—	—	—	—	89	72	65	62	56	50	44	46	43	43	42	40	39	39	59	1	
1917/18	86	—	—	—	—	—	—	—	—	—	—	—	63	65	54	50	48	40	41	36	38	38	36	34	34	49	3	
1918/19	98	—	—	—	—	—	—	—	—	—	—	—	—	86	72	69	64	60	59	56	55	53	50	48	47	48	3	
1919/20	69	—	—	—	—	—	—	—	—	—	—	—	—	—	63	55	48	46	43	42	39	35	31	30	30	38	1	
1920/21	62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	56	47	38	31	28	26	24	24	24	24	36	2	
1921/22	48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43	35	31	27	23	23	19	17	15	33	—	
1922/23	28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27	24	23	21	21	18	17	17	11	—	
1923/24	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26	25	22	21	17	15	14	14	—	1
1924/25	59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	52	50	43	39	35	33	26	—	—
1925/26	46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	42	40	38	35	33	13	—	—
1926/27	69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	66	63	61	59	10	—	—
1927/28	69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1928/29	86	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1929/30	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—







TABLE A5.—STATISTICS OF ULTIMATE RESULTS

Cases in the Sputum of which T.B. were not demonstrated in the Sanatorium

All cases considered together

Year of Discharge	Number Discharged	Number reported "Well" or "Alive" in each successive year after Discharge																							Number Dead in 1931	Number lost sight of in 1931		
		1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930			1931	
1906/07	24	23	20	19	19	18	15	14	16	18	19	21	21	19	18	18	18	18	16	17	18	18	16	14	15	5	4	
1907/08	51	—	49	47	45	40	33	34	35	37	40	39	38	37	35	36	34	34	33	33	32	32	31	30	29	16	6	
1908/09	66	—	—	57	45	41	33	47	40	38	40	44	43	44	44	42	43	43	43	39	37	39	40	39	38	23	5	
1909/10	59	—	—	—	54	49	44	48	42	47	49	49	43	43	42	42	42	41	40	39	38	37	36	36	35	17	7	
1910/11	48	—	—	—	—	42	32	38	37	40	38	37	34	34	33	31	30	32	31	31	30	30	30	30	30	16	2	
1911/12	48	—	—	—	—	—	36	32	36	34	36	36	29	31	27	27	27	27	27	27	27	27	25	25	25	20	3	
1912/13	31	—	—	—	—	—	—	29	28	25	28	28	24	26	25	24	25	24	23	23	23	23	22	22	22	22	7	2
1913/14	41	—	—	—	—	—	—	—	37	31	37	36	33	35	33	32	33	33	34	34	34	32	32	33	32	7	2	
1914/15	35	—	—	—	—	—	—	—	—	28	30	29	31	24	23	20	22	22	21	20	20	21	20	20	20	20	13	2
1915/16	59	—	—	—	—	—	—	—	—	—	53	51	47	47	44	45	44	43	44	43	42	41	40	37	37	18	4	
1916/17	58	—	—	—	—	—	—	—	—	—	—	56	53	53	47	50	47	48	48	50	49	49	47	47	47	10	1	
1917/18	117	—	—	—	—	—	—	—	—	—	—	—	108	105	102	95	98	97	97	98	95	92	89	89	89	23	5	
1918/19	119	—	—	—	—	—	—	—	—	—	—	—	—	115	112	109	107	104	103	102	101	99	99	96	96	17	6	
1919/20	78	—	—	—	—	—	—	—	—	—	—	—	—	—	75	74	72	71	68	68	66	65	63	62	61	16	1	
1920/21	66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	66	66	64	64	63	61	60	62	63	63	2	1	
1921/22	93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	92	84	82	81	79	78	75	73	73	17	3	
1922/23	51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46	44	44	43	40	38	36	35	16	—	—
1923/24	68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	65	63	60	59	58	56	55	12	1	—
1924/25	72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	71	68	66	62	62	60	8	4	—
1925/26	70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67	65	63	61	61	9	—	—
1926/27	41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39	39	39	39	2	—	—
1927/28	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	54	54	50	4	—	—
1928/29	53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—
1929/30	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	50	2	—



TABLE A6.—STATISTICS OF ULTIMATE RESULTS  
*Cases in the Sputum of which T.B. were not demonstrated in the Sanatorium*  
Group I considered separately

Year of Discharge	Number reported " Well " or " Alive " in each successive year after Discharge																								Number Discharged	
	Number reported " Well " or " Alive " in each successive year after Discharge																									
	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931		
1906/07	16	14	14	14	13	10	10	11	13	13	13	15	14	13	13	14	14	13	14	14	14	14	12	11	12	2
1907/08	31	30	29	29	25	23	23	22	24	26	25	24	24	22	23	23	23	23	23	23	23	22	22	21	6	4
1908/09	39	—	36	39	27	19	31	25	23	25	28	27	28	29	27	28	28	28	26	26	25	27	26	25	10	4
1909/10	42	—	—	—	36	32	36	30	34	35	32	33	33	32	32	32	31	31	30	30	30	28	27	25	9	6
1910/11	37	—	—	—	33	25	30	29	31	29	27	27	26	26	24	24	25	24	24	23	23	24	24	24	11	2
1911/12	26	—	—	—	—	22	22	23	20	21	21	20	20	18	18	18	18	18	18	18	19	19	19	19	7	—
1912/13	19	—	—	—	—	—	18	17	16	18	17	14	15	14	15	15	14	14	14	14	13	13	13	13	4	2
1913/14	28	—	—	—	—	—	—	26	21	28	27	25	26	25	24	25	25	26	26	26	24	24	25	25	2	1
1914/15	17	—	—	—	—	—	—	—	13	15	14	9	13	11	11	12	12	12	11	11	12	12	12	12	5	—
1915/16	32	—	—	—	—	—	—	—	—	31	32	29	27	28	28	27	27	28	29	29	29	28	26	26	5	1
1916/17	34	—	—	—	—	—	—	—	—	—	33	31	33	28	31	29	31	30	32	32	32	29	30	30	4	—
1917/18	51	—	—	—	—	—	—	—	—	—	—	47	48	46	42	44	45	45	46	46	45	44	44	44	5	2
1918/19	35	—	—	—	—	—	—	—	—	—	—	—	34	34	33	33	32	34	33	34	32	32	30	31	2	2
1919/20	50	—	—	—	—	—	—	—	—	—	—	—	—	47	48	47	45	44	43	42	41	41	41	41	8	1
1920/21	48	—	—	—	—	—	—	—	—	—	—	—	—	—	48	48	47	47	46	44	45	45	47	47	1	—
1921/22	51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	50	49	48	47	46	46	46	45	45	5	—
1922/23	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33	32	32	31	29	28	27	38	—	—
1923/24	43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43	42	40	39	39	39	40	5	—
1924/25	49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	48	46	45	42	42	40	5	4
1925/26	44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43	43	43	43	42	2	—
1926/27	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24	24	24	24	1	—
1927/28	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	35	35	33	1	—
1928/29	32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32	32	32	—	—
1929/30	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	—	—











TABLE BI.—STATISTICS OF ULTIMATE RESULTS

Cases in the Sputum of which T.B. were demonstrated in the Sanatorium

Condition on Admission	Discharge	Discharged during the Year																	Condition in 1931						
		1906/07	1907/08	1908/09	1909/10	1910/11	1911/12	1912/13	1913/14	1914/15	1915/16	1916/17	1917/18	1918/19	1919/20	1920/21	1921/22	1922/23		1923/24	1924/25	1925/26	1926/27	1927/28	1928/29
Group I	Disease Arrested	8 6 2	9 12 2	12 2 —	4 8 1	5 6 —	5 8 1	3 5 —	3 4 —	3 5 1	5 3 —	8 4 —	— 2 1	3 — —	10 1 —	22 1 1	9 4 —	11 6 —	11 — —	7 2 1	7 1 1	10 — —	10 — —	8 1 —	29 — —
	Much Improved	4 9 —	11 6 —	2 9 —	11 11 1	7 20 1	4 12 1	3 3 —	4 4 1	4 4 1	1 4 1	8 1 —	6 3 —	5 — 1	8 7 —	7 12 —	6 5 —	8 4 —	4 4 —	2 — —	— 1 —	— — —	7 — —	2 — —	3 — —
	Improved	— — —	2 1 —	— 1 —	— 3 1	— 1 1	— — —	— — —	— 1 —	— 1 —	— — —	— — —	— 1 —	1 — —	1 — —	2 1 —	— 1 —	— 1 —	— — —	1 1 —	1 1 —	— — —	— — —	1 — —	2 — —
Group II	Stationary or Worse	— 1 —	— 2 —	— 2 —	1 2 —	— 4 —	1 1 —	— 1 —	1 1 —	1 — —	2 — —	— 1 —	1 1 —	— — —	— — —	— 1 —	— — —	— — —	1 — —	— 1 —	— — —	— — —	— — —	1 — —	— — —
	Disease Arrested	3 3 —	— 3 —	8 4 1	7 6 1	6 9 2	9 11 1	8 15 —	5 9 1	5 8 1	2 5 —	5 5 —	2 3 —	8 — —	8 1 —	9 3 —	4 4 —	7 3 —	8 2 —	7 3 —	5 — —	15 1 —	14 2 —	17 4 —	19 — —
	Much Improved	9 22 1	15 30 3	13 23 1	10 34 —	6 42 3	7 37 1	12 24 1	15 33 2	18 36 —	6 30 —	29 35 1	23 30 2	34 29 2	18 29 1	14 27 2	11 21 —	9 8 —	6 11 1	18 9 —	12 1 —	18 1 —	18 4 —	16 2 —	24 2 —



Group	Improved	Group III.															Alive Dead Lost sight of
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Stationary or Worse	Improved	11	15	3	22	21	1	3	3	17	3	1	12	1	8	4	33
	Stationary or Worse	6	18	1	18	16	1	1	1	19	2	4	4	4	18	7	14
Disease Arrested	Improved	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Stationary or Worse	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Much Improved	Improved	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Stationary or Worse	8	18	9	9	11	1	1	1	1	1	1	1	1	1	1	1
Improved	Improved	1	2	2	27	18	1	1	1	1	1	1	1	1	1	1	1
	Stationary or Worse	10	21	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Stationary or Worse	Improved	17	33	42	42	21	1	1	1	1	1	1	1	1	1	1	1
	Stationary or Worse	17	33	42	42	21	1	1	1	1	1	1	1	1	1	1	1
Summary	Improved	28	41	41	161	151	36	29	31	33	31	29	161	151	36	29	136
	Stationary or Worse	93	159	161	161	151	151	161	157	126	107	107	161	157	126	107	19
TOTAL		125	206	205	192	192	197	198	160	177	193	154	212	184	198	196	155



TABLE B2.—STATISTICS OF ULTIMATE RESULTS

Cases in the Sputum of which T.B. were not demonstrated in the Sanatorium

Condition on Admission	Discharged during the Year																				Condition in 1931				
	1906/07	1907/08	1908/09	1909/10	1910/11	1911/12	1912/13	1913/14	1914/15	1915/16	1916/17	1917/18	1918/19	1919/20	1920/21	1921/22	1922/23	1923/24	1924/25	1925/26		1926/27	1927/28	1928/29	1929/30
Group I	Disease Arrested	11 2 1	17 4 4	20 9 4	24 8 6	23 11 1	18 7 —	10 2 2	6 — —	6 1 —	25 5 —	18 2 —	35 5 1	23 2 1	34 5 —	44 1 —	42 5 —	21 6 —	31 5 —	32 3 3	33 2 —	22 1 —	25 1 1	24 — —	18 — —
	Much Improved	1 — 1	4 1 —	2 1 —	2 — —	1 — —	— — —	— 2 —	17 2 —	4 4 1	1 1 1	12 2 —	8 — —	7 — 1	2 3 1	1 — —	1 — 1	4 2 —	5 — —	7 2 1	4 — —	— — —	4 — —	5 — —	1 — —
	Improved	— — —	— 1 —	2 — —	— 1 —	— — —	1 — —	— — —	2 — 1	2 — —	— — —	— — —	— — 1	— — —	— — —	4 — —	2 — —	2 — —	1 1 —	1 — —	4 — —	1 — —	3 — —	2 — —	1 — —
	Stationary or Worse	— — —	— — —	1 — —	1 — —	— — 1	— — —	3 — —	— — —	— — —	— — —	— — —	— — —	1 — —	1 — —	1 — —	— — —	— — —	— — —	1 — —	1 — —	1 — —	1 — —	1 — —	— — —
Group II	Disease Arrested	2 2 1	5 3 —	5 2 1	4 2 —	4 2 —	2 4 3	3 1 —	1 1 —	1 — —	6 5 1	7 2 —	11 6 2	23 3 1	9 3 —	9 1 1	18 3 4	3 4 —	8 — 1	9 — —	7 4 —	4 1 —	9 1 —	7 1 —	5 1 —
	Much Improved	1 — 1	2 5 1	3 6 —	3 4 1	1 2 —	4 5 —	1 1 —	1 2 1	7 3 1	1 3 1	7 3 1	24 3 1	29 2 2	3 — —	1 1 —	2 1 —	— — —	3 — —	5 — —	3 — —	3 — —	4 — —	3 — —	2 — —



Group	Improved	—	I	3	—	—	—	—	—	I	3	—	I	3	—	—	3	4	5	5	I	2	I	2	3	3	2	5	4	Alive Dead	Lost sight of
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Group III	Stationary or Worse	—	—	I	2	—	I	—	—	—	I	3	—	I	—	—	3	2	4	—	—	—	—	I	—	—	2	I	I	—	
	Disease Arrested	—	—	—	—	—	—	—	—	—	I	—	—	—	—	—	—	I	I	—	—	—	—	3	I	—	—	—	—	—	
	Much Improved	—	I	I	I	—	—	I	—	—	I	I	—	—	—	—	I	2	3	4	—	—	—	3	I	2	—	—	—	—	
	Improved	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	I	2	I	—	—	—	I	3	—	—	I	I	—	
Group III	Stationary or Worse	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Summary	15	29	38	35	30	25	20	30	22	32	20	37	47	89	96	61	63	73	35	55	60	61	39	50	50	39	50	33	—	
		5	16	23	17	16	20	13	18	7	7	13	18	10	23	17	16	2	17	16	12	8	9	2	4	4	2	4	3	2	—
		4	6	5	7	2	3	2	4	2	2	2	2	4	5	6	I	I	I	I	I	I	4	—	I	I	—	I	—	—	—
	TOTAL	24	51	66	59	48	48	48	48	31	41	35	59	58	117	119	78	66	93	51	68	72	70	41	55	55	41	55	53	35	—

















