

1896.
NEW ZEALAND.

EDUCATION:

TEACHERS' AND CIVIL SERVICE EXAMINATIONS.

[In continuation of E.—1A, 1895.]

Presented to both Houses of the General Assembly by Command of His Excellency.

The INSPECTOR-GENERAL of SCHOOLS to the Hon. the MINISTER of EDUCATION.

SIR,—

Education Department, Wellington, 26th March, 1896.

I have the honour to report upon the annual examinations of candidates for teachers' certificates, and for admission to or promotion in the Civil Service. The examinations were held in January, between the 6th and the 15th days of the month, at the thirteen towns which are the seats of Education Boards, and also at Thames, Tauranga, Whakatane, Gisborne, Westport, Kumara, Oamaru, and Palmerston South.

The number of candidates was 1,297, made up as follows: For the Junior Civil Service examination, 494; for the Senior Civil Service examination, 102; for certificate examinations, 685; for drawing (pupil-teachers only), 16.

The expenses of the examinations amounted to £794 12s. 6d., and the fees paid by candidates to £1,052 15s. 6d.

The results of the Senior Civil Service examination were made known on the 19th of February, and the rest on the 20th of the same month.

Of the 102 Senior Civil Service candidates, two came up for shorthand only, and 32 came up to complete examinations in which they had been only partially successful: 47 passed the examination, and one of the shorthand candidates was successful. (See *Gazette*, 20th February, 1896.)

The names of 263 of the Junior Civil Service candidates were published, in the order of marks, in the *Gazette* of the 25th February; the remaining 231 failed to reach the minimum required, which is one-third of the possible total.

Of the 16 pupil-teachers who availed themselves of the regulation which allows them to come up for one branch of drawing at a time, 11 satisfied the examiner.

At the teachers' examination, 242 were candidates for Class D, and 124 others came up to complete a "partial pass" for Class D; 198 were candidates for Class E, and 121 came up to complete a "partial pass" for that class. Among these 685 candidates were 179 who had already passed for Class E and were seeking promotion to Class D: and of the remainder—506 in number—102 were teachers in the service of the Boards, 252 pupil-teachers, and 54 normal-school students in training; while 33 were persons who had ceased to be teachers, pupil-teachers, or normal students, and 65 had never sustained any such relation to the public schools.

Of the whole number of 685 candidates, 219 have "passed" (115 for D, and 104 for E), and 200 have obtained "partial pass" (72 for D, and 128 for E), while 266 have failed to improve their status. Only 37 have been added to the list of absolute failures, the rest of the 266 being either absent candidates or candidates who were unsuccessful in attempting to complete "partial pass." The names removed from the "failure" list by this examination number 27, and, as 37 names have been added to it, the list is increased by 10 (from 676 to 686). This list contains the accumulations of eighteen years, and 10 is a very small addition in comparison with the magnitude of the total. As the result of the examination, 158 new certificates will be issued (54 for Class D, and 104 for Class E), and 61 certificates of Class E will be raised to Class D.

The following table exhibits some of these statistics, and shows besides that normal students are the most successful class of candidates:—

1—E. 1A.

Status before Examination.	Number of Candidates.	Results of Examination.					
		Pass for D.	Pass for E.	Pass for E, and Partial Pass for D.	Partial Pass for D.	Partial Pass for E.	Total.
Passed before for E ...	179	61	...	...	35	...	96
Not passed before—							
Teachers ...	102	13*	20†	1*	3	5	42
Pupil-teachers ...	252	10	63	7	11	92	183
Normal students ...	54	23	1	6	16	5	51
Retired ...	33	4	4	...	1	6	15
Outside candidates ...	65	4	2	...	6	20	32
Totals ...	685	115	90	14	72	128	419

* Includes one for Class C. † Includes one who had "provisional" certificate.

The analysis of the results according to education districts is as follows:—

—					D Passes.	E Passes.	E Passes, with Partial Pass for D.	D Partial.	E Partial.
I. Candidates for promotion from E to D—179:—									
Auckland ..	..	..	..	62	26	..	..	10	..
Taranaki ..	..	..	..	3	2	..	..	..	..
Wanganui ..	..	..	..	21	2	..	..	5	..
Wellington ..	..	..	..	19	6	..	..	3	..
Hawke's Bay	..	..	..	4	2	..	..	2	..
Marlborough	..	..	..	1	..	..	..	..	..
Nelson ..	..	..	..	5	3	..	..	..	..
Grey ..	..	..	..	1	..	..	..	..	..
Westland ..	..	..	..	6	2	..	..	..	..
North Canterbury	..	..	..	17	4	..	..	4	..
South Canterbury	..	..	..	9	2	..	..	5	..
Otago ..	..	..	..	15	9	..	..	2	..
Southland ..	..	..	..	16	3	..	..	4	..
II. Candidates that had not passed before—506:—									
(a.) Teachers—102,—									
Auckland ..	..	..	..	17	2	4	..	..	1
Taranaki ..	..	..	..	7	..	2	..	..	..
Wanganui ..	..	..	..	9	..	3	1	..	..
Wellington ..	..	..	..	2	..	..	..	..	..
Hawke's Bay	..	..	..	6	..	1	..	..	..
Marlborough	..	..	..	1	..	..	..	..	..
Nelson ..	..	..	..	22	1	7	..	3	3
Grey ..	..	..	..	2	..	..	..	..	1
Westland ..	..	..	..	2	..	1	..	..	..
North Canterbury	..	..	..	19	8	1	..	..	..
South Canterbury	..	..	..	5	2	..	..	..	..
Otago ..	..	..	..	1	..	..	..	..	..
Southland ..	..	..	..	9	..	1	..	..	..
(b.) Pupil-teachers—252,—									
Auckland ..	..	..	..	108	3	36	1	2	46
Taranaki ..	..	..	..	2	..	1	..	..	..
Wanganui ..	..	..	..	26	..	5	1	1	6
Wellington ..	..	..	..	35	2	3	1	2	10
Hawke's Bay	..	..	..	11	1	2	..	1	5
Marlborough	..	..	..	2	..	..	..	..	2
Nelson ..	..	..	..	9	..	2	1	2	3
Grey ..	..	..	..	10	..	2	..	1	4
Westland ..	..	..	..	4	..	..	..	..	4
North Canterbury	..	..	..	8	1	3	1	..	3
South Canterbury	..	..	..	15	1	5	..	1	3
Otago ..	..	..	..	4	..	..	..	..	3
Southland ..	..	..	..	18	2	4	2	1	3
(c.) Normal-school students—54,—									
North Canterbury	..	..	..	36	18	..	5	9	4
Otago ..	..	..	..	17	5	1	1	6	1
Southland ..	..	..	..	1	..	..	..	1	..
(d.) Candidates that have retired from service—33:—									
Auckland ..	..	..	..	2	..	..	..	..	2
Taranaki ..	..	..	..	5	..	1	..	..	..
Wanganui ..	..	..	..	1	..	..	..	1	..
Wellington ..	..	..	..	2	..	..	..	..	..
Hawke's Bay	..	..	..	1	..	..	..	..	..
Marlborough	..	..	..	1	1	..	..	..	..
Nelson ..	..	..	..	6	1	1	..	..	2
Westland ..	..	..	..	1	..	1	..	..	..
North Canterbury	..	..	..	6	1	..	..	..	1
South Canterbury	..	..	..	5	1	..	..	..	1
Otago ..	..	..	..	2	..	1	..	..	..
Southland ..	..	..	..	1	..	..	..	..	..

	D Passes.	E Passes.	E Passes, with Partial Pass for D.	D Partial.	E Partial.
(e.) Candidates that have not been in the service—65,—					
Auckland	23	..	2	1	10
Wanganui	2	..	..	..	1
Wellington	5	1	..	2	..
Hawke's Bay	3	..	..	..	..
Nelson	7	1	..	1	1
Grey	1	..	..	..	..
Westland	2	..	..	..	2
North Canterbury	7	..	..	1	3
South Canterbury	3	..	..	..	1
Otago	10	2	..	1	2
Southland	2	..	..	..	..

I send with this the list of passes and partial passes at the teachers' examination, and a set of the examination papers.

I have, &c.,

WM. JAS. HABENS.

EXAMINATION LISTS.

I.—PASSED FOR CLASS C (University status being taken into account).

Nelson—

Malcolm, Thornton George

PASSED FOR CLASS D.

Auckland—

Andrew, Henry Paul
Bishoprick, Charles
Bowen, Rosanna
Brook, Ann Elizabeth
Brown, William
Colhoun, John Smith
Collis, William Francis
Darby, Isabella Mary Katherine
Davis, Albert William Bulmer
de Montalk, Marguerite
Dunlop, David Walter
Elliott, Joseph Ernest
Gatland, Alfred Hildyard
Gelling, William Mansfield
Gillett, Richard
Graham, James
Halliwell, Elizabeth Mary
Hammond, Thos. Wm. G. Howard
Hudson, John Holmes
Johnston, Violet Alexandra
Jones, Winifred Lucretia
Keaney, John Joseph
Litten, Alfred John
Metge, Daniel Dickinson
Murray, Donald Norman Watson
Newton, Edith Mary
Paterson, Robert Harry
Spence, Jane Catherine
Turner, Alfred Arbuthnot
Watkin, Gertrude Emily
Willerton, Florence

Taranaki—

Allan, Orlando Lincoln
Daveney, William Alfred James

Wanganui—

Innes, Thomas
Thurston, James Fisher

Wellington—

Benbow, Elizabeth Louise
Chapple, Emma Josephine
Haslam, Charles Nelson
Hayes, Lucy
Kirk, George William
McGrath, John Joseph
Meager, Ellen Ann
Meek, Ellen Mary
Nott, Emily Amelia
Slaten, Jemima

Hawke's Bay—

Magill, Annie
Murray, Ethel May
Stewart, Agnes Grigor

Marlborough—

McIntyre, Ruth Mary Dundas

Nelson—

Boyes, William Henry
Dykes, Rose Winifred
Hill, Annie
Maloney, John William
Riley, Eleanor Frances

Westland—

Crowley, Annie Mechtildes Jos.
Perry, Edith

North Canterbury—

Allen, George Frederick
Anderson, Caroline Violet
Andrews, Ernest Herbert
Banks, Ada Florence
Benjamin, Frank
Boyce, William James
Brown, Grace
Burley, William Edward
Callaghan, Margaret Magdalene
Chaplin, Wilfred Theodore
Christian, Amy Jane
Glanville, Elizabeth Maud
Gray, Alfred
Hall, Winter Amos
Hodgson, Adèle
Hurse, Mary Alice Upton
Irwin, James
Kerr, Matthew James
Ladbrooke, Charlotte Jane
Lynskey, James Henry
McIlrath, James Wordsworth
Morland, Charles James
Pickering, Lucy Ellen
Poppo, Mary Anne
Purchase, John Ernest
Reese, Jeanie
Riordan, Annie Winifred
Rosewarne, Elizabeth
Sayers, May
Smith, Mabel
Tipler, Gertrude May
Webster, Isabella

South Canterbury—

Campbell, Emma Gilmore
Collins, Charles Frederick
Crawshaw, George
Oxby, Frederick Henry
Talbot, Arthur Ernest
Werry, Alfred Ernest

Otago—

Baird, James Henderson
Bremner, Philip
Budd, Elizabeth
Burn, Alice Meredith
Falconer, Margaret Jane
Keam, Catherine Ballantyne
McKenzie, Ida Browne
Maxwell, William Stuart
Paterson, Elizabeth Smith
Pretsch, Maria Selina
Reid, John
Stenhouse, Christina

Otago—continued.

Thomson, Jane Hamilton
Thomson, Magnus
Turner, Lotta Meredith
Williamson, Alexander Hogg

Southland—

Bellamy, Elizabeth Wood
Cumming, Margaret
Featherstone, Arthur Eversfield
Fraser, Robert
Street, Emily

PASSED FOR CLASS E.

Auckland—

Brown, Sarah Elizabeth
Cleghorn, Marion Wilson
Dunn, Florence Beatrice
Eastgate, Mildred Mira
Egan, Mary Frances
French, Jessie Christina
Gibson, Henry Thomas
Gillman, Harriet Louisa
Gregory, Eva
Harper, Eva Mary
Harris, Florence Maria
Harris, Frederic
Harris, Mildred Wilson
Herrick, Edith Elizabeth
Hutchinson, Eliza
Jones, Sarah Grace
Jury, Ulla Alice Maud
Kelly, Kate Anna
Kerr, Agnes Graham
Lambourne, Nelson Thomas
Lusk, Harold Butler
McEnteer, Mary
McGregor, Margaretta
Mandeno, Sophia Adelaide
Mander, Mary Jane
Mill, John Chalmers
Miller, James
Muir, Minnie
Murray, Alice Maud
Nixon, Mary Hannah
Ockenden, Nettie Evelyn
Paterson, Chrissie Steele
Ponsford, Dora
Rae, Emily Elizabeth
Robertson, Evelyn Margaret
Souster, Bertha Agnes
Thorpe, Lydia Eva Gertrude
Vincent, Louisa
Vuglar, James
Wallace, May
Warn, Ellen
White, Caroline
Worth, Margaret Mary

Taranaki—

Reeve, Edith Mary
Richardson, Isabel Mary
Taylor, Minnie Isabel
Witherow, Eliz. Annie Josephine

Wanganui—
 Clapham, George Spencer
 Goldsbury, Hugh
 Hicks, Elizabeth Mary
 Holden, Claude
 Jackson, Percy George
 McEwen, Eliza May
 McGonagle, Letitia Georgina
 Purnell, George Proctor
 Silby, Annie
 Slattery, Julia Cecelia
 Wellington—
 Ballachey, Ernest Harold
 Evans, Ada Helen
 McKenny, Cecilia
 Rothenberg, Sara
 Hawke's Bay—
 Anderson, Ellen Andrea
 Brown, James Francis
 Reid, Elizabeth
 Nelson—
 Bisley, Frederick Arthur
 Bradley, Lydia Marie
 Coleman, Bernard Francis Peter
 Croucher, Minnie Jane
 Fittall, Florence Louisa
 Haycock, Ella Grace
 Leach, Elizabeth
 McLean, Catherine Mary
 Poole, William Elgar
 Smith, Florence
 Wilson, James Francis
 Grey—
 Bradshaw, Sarah Jane
 Wickes, Arthur John
 Westland—
 Crawford, Louisa Jean
 Moore, Joanna
 North Canterbury—
 Armstrong, Ella
 Brown, Edith May
 Edkins, Mary
 Flesher, Bertha Emily Louisa
 Harvey, Matilda Elizabeth
 Reid, Elspeth Grace
 Ross, Jeanie
 Smith, Rose Mabel
 Turner, Annie Jane
 Watson, Margaret Roger
 South Canterbury—
 Aimers, Amelia
 Evans, Amy Elizabeth
 Leslie, Annie
 McCaskill, Marion
 Shappere, Rachel Leah Maud
 Otago—
 Evans, Lily
 Law, Christina Morrison
 McDougall, Jemima
 Southland—
 Fallow, Ellen Brown
 Gilchrist, James Reid
 Hanning, Minnie Louisa
 Jamieson, Elizabeth
 Perrin, Margaret Collier
 Rout, Alice Bradford
 Wilson, Jessie
 II. — OBTAINED PARTIAL PASS FOR
 CLASS C
 (University status being taken into
 account).
 Nelson—
 Eves, Charles Arthur
 OBTAINED PARTIAL PASS FOR CLASS D.
 Auckland—
 Cameron, William Alfred
 Carr, Eva Helen
 Carse, Harry
 Clark, Isabella
 Johnston, Susanna
 Jones, Thomas Augustus
 Lambourne, Nelson Thomas
 McGibbon, Helen Margaret Stuart
 Maxwell, Margaret
 Phillips, John Stephens
 Pocock, George Harry
 Possenskie, Minna Annette
 Walker, Theodore Henry Adolphus
 Woods, Francis David
 Wanganui—
 Carson, Annie Margaret

Wanganui—*continued.*
 Hill, Reginald Walter
 Holden, Claude
 Jackson, Percy George
 Law, Henry
 Nairn, John Ralph
 Staffan, Mary McKay
 Strömbom, Frederick Duncombe
 Warne, Catherine Towler
 Wellington—
 Ballachey, Ernest Harold
 Cooper, Emily Margaret
 Craig, Maggie Helen
 Hall, Florence Mary
 Meek, Ethel Annie
 Ranwell, Annie Preston
 Shewbridge, Rimmie Lydia
 Whelan, May Gabrielle
 Hawke's Bay—
 Baker, Francis Elizabeth Eling
 McLennan, Duncan
 Westoby, Margaret Robertha
 Nelson—
 Coleman, Bernard Francis Peter
 Hughes, Frances
 Livesey, Ernest Millington
 Moore, Beryl
 Poole, William Elgar
 Riley, Laura Florence
 Grey—
 Bishop, Emma
 North Canterbury—
 Amos, William Henry Neville
 Bennett, Minnie
 Brown, Edith May
 Carpenter, Margaret Alice
 Chapman, Henry John
 Edwards, Alice
 Hudson, Edward Varley
 McMeekan, Kate
 Newton, Kate Evelyn
 O'Callaghan, Dora Sarah
 Pavitt, Norman Wilfred
 Reid, Elspeth Grace
 Ross, Jeanie
 Sheldon, James Christian
 Smith, Rose Mabel
 Taylor, Ada Margery
 Tulloch, Elizabeth
 Turner, Annie Jane
 Watson, Margaret Roger
 Withell, Charles William
 South Canterbury—
 Black, Flora Lucretia
 Cotter, Winifred Shaw
 Fyfe, Evelyn
 Fyfe, Jessie
 Scott, Annie
 Smart, Margaret Agnes Lang
 Otago—
 Apstein, Emily Bertha
 Baird, Annie Agnes
 Dunlop, Isabella
 Eagan, Victoria Winifred
 Evans, Lily
 Hayes, Emma
 McLeod, Allanetta Pauline
 Melville, John
 Niven, James
 Thomson, Lillias Isabella
 Southland—
 Gazzard, Thomas Edward
 Haydon, Kate Florence
 McKenzie, Mary Sime Hunter
 Perrin, Margaret Collier
 Pratt, Agness
 Rout, Alice Bradford
 Sutherland, Frederick R. Hughes
 Ward, Edward Harvey
 OBTAINED PARTIAL PASS FOR CLASS E.
 Auckland—
 Ashman, Eva May
 Barnes, Myra
 Broadfoot, Bessie Euribe
 Butcher, Margaret
 Carter, Hannah Edith
 Casey, Clara Emily
 Clarke, Frederic Arthur
 Clayton, Alice Jarvis
 Cooke, Violet May
 Corbett, Robert John
 Downard, Eliz. Charlotte Gower

Auckland—*continued.*
 Dunstan, Catherine
 Elliott, Henrietta Evelyn
 Eyes, Lily Antigone
 Fulton, Annie
 Graham, William George
 Gresham, Dorothy Isabel
 Guiniven, Margaret Josephine
 Hare, Frederick Wilmot
 Harper, Ethel Mary
 Hawkes, Louisa Adelaide
 Hodgson, Ada Blanche
 Holder, Marian Constance
 Hutchinson, Charlotte Susan
 Johnston, Margaret (ii.)
 Joll, William Albert
 Jones, Ruth Branscombe
 Kay, Agnes
 Koller, Frederick Robert
 Lamb, Edith Isabella
 Lane, Mary Jane
 Law, Norman Heyworth Sanger
 Lockington, Isabella
 McElroy, John
 McIlhone, Ethel Josephine
 Maxwell, Lydia Bell
 Miller, Alex. Tweedale Anderson
 Moon, Mark Henry
 Muir, Robert Henry
 Mullins, Francis James
 Murdoch, Alfred James
 Nutsford, Louisa Margaret
 Palmer, Gertrude
 Penholz, Augusta
 Philips, Maud
 Power, Ethel Augusta Wilson
 Power, Maurice Gilbert
 Priestley, Maurice
 Quaid, Margaret Anne
 Rae, Elizabeth
 Reynolds, Ethel May
 Roberts, Kate Eveline
 Scott, Kate Julia
 Stewart, Jane
 Totman, Leonard White
 Twiname, Grace Alexandra
 Vincent, Percy
 Wilson, Charles (ii.)
 Young, Margaret Catherine
 Wanganui—
 George, Ethel May
 Hird, William Edward
 McEwen, Agnes Henrietta Phoebe
 Stagpoole, Thomas
 Voltz, Mary
 Watt, Ivie Durie
 Watts, Ada Louise
 Wellington—
 Bairstow, Ada Louisa
 Dempsey, Kate
 Hutchen, Helen
 Johnston, William
 Kean, Helen Mary
 Mead, John Joseph
 Meager, Clara
 Moncrieff, Janet
 Townsend, Ethel Marion
 Weston, Constance Marion
 Hawke's Bay—
 Barkwith, Elizabeth Emma
 Gallien, Mabel Theresa
 King, Letitia Churtain
 Moore, Ella Mabel
 Roach, Grace Lilian
 Marlborough—
 Brewer, Lottie Maria
 Wanden, Elizabeth Win
 Nelson—
 Armstrong, Richard Edward
 Cossgrove, David Cecil Wallace
 Gilbert, Esther Ellen
 Kenyon, Isabella
 Mabin, Blanche Miriam
 Malcolm, Arthur (ii.)
 Moore, Euphemia Jane
 Shirliff, Elizabeth
 Street, Samuel William
 Grey—
 Algie, Emily Marion
 Barkley, Ethel Ida Maud
 Owen, Edith
 Skoglund, Wilhelmina Charlotta
 West, Annie Eliza

Westland—

Coady, Ellen
Crowley, Honora May
Foster, Robert
McCarty, Catherine Mary
McIntosh, Annie
O'Brien, Margaret

North Canterbury—

Barlow, Mary Page
Deakin, Eleanor May
Dickinson, Myra Felicia
Fear, Helen
Gilmour, Lily
McRae, Teresa
Perham, Theresa
Robson, Annie
Smith, Clara Alice Mabel
Wafer, Margaret
Wilson, Myra Lyster

South Canterbury—

Cullmann, Isabella
Jones, Lily
McLeod, Janet
Ritchie, Annie Murray
Sunaway, Edith Hester

Otago—

Campbell, Jessie
Cormack, Henrietta
Murray, Blanche Alice
Paul, Eliza Ferguson Mary Hume
Percy, Mary
West, Mary

Southland—

McLean, Margaret
Ward, Edward Harvey
Wilson, Elizabeth Martha

III.—PRIZES.

Class D.

Elementary Experimental Science—

Allen, George Frederick, North Canterbury, first prize
Baird, James Henderson, Otago, second prize
Niven, James, Otago, third prize

Classes D and E.

Drawing—

Mead, John Joseph, Wellington, first prize
Chaplin, Wilfred Theodore, North Canterbury, second prize
Nutsford, Louisa, Auckland, third prize

IV.—SPECIAL MENTION.

Class D.

English—

Andrew, Henry Paul, Auckland
Carse, Harry, Auckland
Halliwell, Elizabeth Mary, Auckland
McLennan, Duncan, Hawke's Bay
Meek, Ellen Mary, Wellington
Meek, Ethel Annie, Wellington
Paterson, Robert Harry, Auckland

English—continued.

Popple, Mary Ann, North Canterbury

Oxby, Frederick Henry, South Canterbury

Arithmetic—

Cameron, William Alfred, Auckland
Colhoun, John Smith, Auckland
Livesey, Ernest Millington, Nelson
McKenzie, Mary Sime Hunter, Southland
McLennan, Duncan, Hawke's Bay
Pocock, George Harry, Auckland

History—

Oxby, Frederick Henry, South Canterbury

Elementary Experimental Science—

Allen, George Frederick, North Canterbury
Baird, Annie Agnes, Otago
Baird, James Henderson, Otago
Chaplin, Wilfred Theodore, North Canterbury
Christian, Amy Jane, North Canterbury

Edwards, Alice, North Canterbury
Gray, Alfred, North Canterbury

Hayes, Lucy, Wellington
Innes, Thomas, Wanganui

Livesey, Ernest Millington, Nelson
Melville, John, Otago

Niven, James, Otago
Oxby, Frederick Henry, South Canterbury

Paterson, Robert Harry, Auckland
Pretsch, Maria Selina, Otago

Reid, John, Otago
Rosewarne, Elizabeth, North Canterbury

Talbot, Arthur Ernest, South Canterbury

Algebra—

Baird, James Henderson, Otago
Hill, Reginald Walter, Wanganui
Hughes, Frances, Nelson
McGrath, John Joseph, Wellington
Westoby, Margaret Robertha, Hawke's Bay

Euclid—

Baird, James Henderson, Otago
Dykes, Rose Winifred, Nelson
Halliwell, Elizabeth Mary, Auckland
Hill, Reginald Walter, Wanganui
McGrath, John Joseph, Wellington
Westoby, Margaret Robertha, Hawke's Bay

Class E.

Arithmetic—

Goldsbury, Hugh, Wanganui
Jones, Lily, South Canterbury
Jones, Sarah Grace, Auckland
McCarty, Catherine Mary, Westland
Miller, James, Auckland
Robson, Annie, North Canterbury
Ward, Edward Harvey, Southland

History—

Aimers, Amelia, South Canterbury

Mander, Mary Jane, Auckland
Smith, Florence, Nelson

Elementary Science—

Bisley, Frederick Arthur, Nelson
Brown, James Francis, Hawke's Bay
Goldsbury, Hugh, Wanganui
Lusk, Harold Butler, Auckland
Mabin, Blanche Miriam, Nelson
Mander, Mary Jane, Auckland
Street, Samuel Wilson, Nelson
Wilson, James Francis, Nelson

Domestic Economy—

Barkwith, Elizabeth Emma, Hawke's Bay
Edkins, Mary, North Canterbury
Gallien, Mabel Theresa, Hawke's Bay
Harvey, Matilda Elizabeth, North Canterbury
Haycock, Ella Grace, Nelson
Hutchen, Helen, Wellington
King, Letitia Churtain, Hawke's Bay
Ockenden, Nettie Evelyn, Auckland
Ponsford, Dora, Auckland
Robertson, Evelyn Margaret, Auckland
Smith, Florence, Nelson
Young, Margaret Catherine, Auckland

Classes D and E.

Drawing—

Chaplin, Wilfred Theodore, North Canterbury, geometrical
Clayton, Alice Jarvis, Auckland, freehand and model
Gallien, Mabel Theresa, Hawke's Bay, perspective
Goldsbury, Hugh, Wanganui, freehand
Livesey, Ernest Millington, Nelson, model
McGregor, Margaretta, Auckland, freehand
Mander, Mary Jane, Auckland, geometrical
Maxwell, Lydia Bell, Auckland, freehand
Mead, John Joseph, Wellington, geometrical, perspective
Miller, Alexander Tweedale Anderson, Auckland, freehand
Ritchie, Annie Murray, South Canterbury, perspective

School Management—

Benjamin, Frank, North Canterbury
Carpenter, Margaret Alice, North Canterbury
Irwin, James, North Canterbury
Reid, John, Otago
Wallace, May, Auckland

EXAMINATION PAPERS.

School Management and Art of Teaching.—For Classes D and E. Time allowed: 3 hours.

[Candidates must select one question in each section, and not more than one.]

SECTION I.

Complete the accompanying quarterly attendance return from the data supplied therein, and from the following additional particulars:—

The school was open 100 times during the quarter. The number of half-day attendances was—boys, 8,789; girls, 9,914. Three boys and 8 girls were admitted during the quarter, and 11 boys and 9 girls left before the end of the quarter. On three half-days the attendance was less than one-half the number on the roll, and the total attendance on these half-days was—boys, 182; girls, 137. Eleven boys and 15 girls were exempted from history.

(See Attendance Form attached.)

SECTION II.

1. What points should a teacher deem worthy of the fullest consideration (1) in drawing up a time-table, and (2) in using it?

2. Draw up a time-table for a country school the staff of which consists of a master, a pupil-teacher, and a sewing-mistress, the average attendance being 49, and no standard omitted.

3. Draw up a time-table for an infant school having classes P¹, P², P³, and Standard I., the staff consisting of a mistress and two pupil-teachers. In each case specify the teacher, and make notes on the work of the mistress.

SECTION III.

1. Draw up notes of lessons (with a column for blackboard illustration) showing how you would teach short division, and give examples of the preliminary oral work necessary. *Or*

2. Draw up notes of a first lesson on—

(a) The Adjective; *or*

(b) A Peninsula and an Isthmus; *or*

(c) The War of the Spanish Succession. (Standard VI.)

SECTION IV.

1. "To avoid as far as possible the inconsistencies of our notation, without the necessity of constructing a phonic alphabet, it has been suggested that reading should be taught by at first using words in which the letters have only one function."

Explain and illustrate this method of teaching reading.

2. "If the 'art of speaking and writing the English language with propriety' is the one thing contemplated in learning grammar, the ordinary means are very imperfectly adapted to the end; for the study of grammar from a scholastic textbook, even if the whole of it is learned from beginning to end, is very little helpful in improving the pupil's speech and writing."

Fully discuss this statement.

SECTION V.

1. Explain in detail what method you would employ in giving a geography lesson, or series of lessons, on "The district immediately surrounding the school," to a class in Standard III.

2. Draw up a syllabus of a year's work in history for Standard V., and state what principles you were guided by in selecting the events and dates.

3. Point out the incompleteness of the following definitions:—

A noun is the name of anything.

A bird is a vertebrate animal.

Gold is a malleable metal.

An adjective is a word that describes a noun.

What do you understand by a complete definition?

SECTION VI.

1. Explain the method you would adopt in giving a series of lessons on "Case."

2. In giving composition lessons to Standard III., what class of subject would you deal with? Draw up an outline of a composition lesson on "The Cat," and show what use you would make of it in giving a lesson on it to this standard.

3. What principles should be attended to in giving an object-lesson? Under what circumstances only should pupil-teachers be allowed to give object-lessons?

SECTION VII.

1. "There is sometimes a tendency to overrate the value of oral instruction, and to underrate that of books and home-work."

Discuss fully this statement, giving your own opinion of the relative values of oral instruction, textbooks, and home-work in a proper scheme of education.

2. Explain what principles should be kept in view in establishing and maintaining good discipline in a school.

3. Write an essay on one of the following requisites of a good lesson:—

(a) Adequate knowledge of the subject-matter.

(b) Judgment in selecting from the subject-matter.

(c) A good manner in dealing with the subject.

Part of School Management Paper.

RETURN of ATTENDANCE for Quarter ending 31st December, 1895.

	Half-days.	Boys.	Girls.	Total.
I. How many scholars were returned as belonging to the school at the end of last quarter?	...	112	130	
II. How many of these have left, not having attended at all this quarter?	...	0	0	
III. What, then, was the number really belonging to the school at beginning of quarter?	...			
IV. How many have been admitted during the quarter?	...			
V. How many, therefore, have belonged to the school this quarter?	...			
VI. How many of these (in V.) left before the end of the quarter?	...			
VII. What, then, is the number now belonging?	...			
VIII. What is the average weekly number on the roll during the quarter?	...	107	130	
IX. How many times has the school been open this quarter (mornings and afternoons to be reckoned separately)?	...			
X. What is the number of half-day attendances?	...			
XI. What, then, is the <i>average attendance</i> ?	...			
XII. What has been the largest attendance on any half-day this quarter?	...	98	114	
XIII. On how many half-days has the attendance been not less than one-half of the number on the roll?	...			
XIV. What was the number of attendances on those half-days?	...			
XV. What, then, is the <i>working average</i> ?	...			

Ages.	Boys.	Girls.	Total.	Standard Classes.	Boys.	Girls.	Total.
5 years and under 6 ...	6	15		Class P ...	23	37	
6 " 7 ...	14	19		" S1 ...	20	29	
7 " 8 ...	10	14		" S2 ...	21	19	
8 " 9 ...	18	13		" S3 ...	16	22	
9 " 10 ...	11	22		" S4 ...	5	13	
10 " 11 ...	15	11		" S5 ...	8	6	
11 " 12 ...	11	20		" S6 ...	8	3	
12 " 13 ...	11	7		" X ...	3	0	
13 " 14 ...	6	8					
14 " 15 ...	2	0					
15 years and above ...	0	0					
Total as in line VII.				Total as in line VII.			

NUMBERS receiving INSTRUCTION in each Subject prescribed by the Act.

Subjects.	Boys.	Girls.	Total.	Subjects.	Boys.	Girls.	Total.
Reading ...				Elementary Science ...			
Writing ...				Drawing ...			
Arithmetic ...				Object-lessons ...			
English Grammar and Composition ...				Vocal Music ...			
Geography ...				Needlework ...			
History ...				Domestic Economy ...	0	0	

NOTE.—The directions given on the form in actual use are here purposely omitted.

Elementary Experimental Science.—For Class D. Time allowed : 3 hours.

1. What meaning do you attach to the word "energy"? Write down a list of experiments illustrative of the transformation of energy.
2. Give a detailed account of the preparations which you would make before giving a lesson on the general properties of gases.
3. Describe the precautions which should be taken when filling a barometer-tube with mercury. How would you endeavour to convince a class that changes in the atmospheric pressure are accompanied by changes in the height of the barometer?
4. What general relation exists between the power and the weight in all systems of pulleys? Sketch the particular arrangements of pulleys upon which you would lay stress in elementary teaching.
5. Describe the apparatus which you would employ in explaining the expansion by heat of solids and of liquids.
6. What is meant by the "latent heat of steam"? How would you measure it approximately?
7. How would you show that some bodies are good conductors of electricity while others hardly conduct it at all? What difficulties have you met with in making these experiments?
8. How would you construct some simple apparatus for making electrically a visible signal at the other end of the schoolroom?
9. How would you illustrate chemical combination and decomposition? State exactly how you would carry out the experiments.
10. Give an account of any compounds of nitrogen with which you are acquainted, and state how you would prepare them.

Elementary Science.—For Class E. Time allowed : 3 hours.

1. Describe experiments to illustrate the indestructibility of matter and of energy.
2. What are the properties of a gas, of a liquid, and of a solid? Name and define some of the special properties of solids, such as toughness, &c.
3. Describe experiments to show that the pressure of water is proportional to its depth.
4. How can the barometer be used in determining the height of a mountain? Describe the construction of a barometer.
5. Compare sound and light. What phenomena of sound correspond to those of colour in light?
6. Describe experiments to illustrate latent heat. How would you determine the latent heat of liquid water?
7. How would you make an electro-magnet, and how illustrate the principles of magneto-electricity?
8. How would you show the composition of air? Describe the properties of its constituents.
9. Describe the process of preparing nitric acid, and mention some experiments you would make with nitric acid before an elementary class.
10. Give a general account of the nutrition of the human body, and show wherein the value of exercise consists.

Domestic Economy and Laws of Health.—For Class E. Time allowed : 3 hours.

1. What part do yeast, baking-powder, and carbonate of soda play in cookery? Explain the physical and chemical action of each.
2. Describe how to make a sponge-cake. Why do eggs make cakes light? Name and describe the various modes of using eggs.
3. Could you choose the site and aspect of your dwelling, describe what you would choose. What is your opinion of the desirability of having trees near dwellings? Would you make any distinction in this respect between deciduous trees and evergreen trees?
4. Describe the eye. What kind of light would you choose for a study-desk, and what kind for a schoolroom?
5. Describe and make a sketch of the heart. Contrast arteries and veins. Give your idea of the value of massage.
6. Describe the effect of exercise. Why is overtraining sometimes dangerous? Classify respectively outdoor and indoor exercises in the order of your estimation of their value, giving reasons for your judgment.
7. Give your idea of clothing suitable for exercise and recreation. What is your opinion of the effect of corsets on respiration and on health generally?
8. What steps would you take to prevent the spread of a contagious disease? What do you know about the micro-organisms of disease? What is the theory of the effect of vaccination?
9. In what ways may overstudy injuriously affect the health of children? Mention any conditions you know of that may be regarded as being possibly symptoms of mischief due to this cause.

Elementary Knowledge of Agriculture.—For Class D. Time allowed : 3 hours.

1. Trace the development of the roots in any plant from the seedling onwards. Describe the root-cap and root-hairs, and explain the uses of these structures. How would you demonstrate root-hairs to a class?
2. In what parts do plants store up materials for growth at a future time? Give examples of such reserve materials, describing their composition and mode of formation. How are these substances finally utilised in the plant?

3. Describe experiments which you would use to illustrate a lesson on the composition of the air. How does a knowledge of the composition of the air aid in the study of plant-life?
4. What experiments would you make use of to illustrate the composition of plants, and to make clear the meaning of the terms "organic" and "inorganic"?
5. Describe any soil you have examined, stating the district in which such soil is found. Give some account of the mechanical and physical properties of the soil you refer to, and show how they are related to (a) the fertility of the soil, (b) the mode of cultivation to be adopted.
6. How would you classify soils according to (a) their mechanical condition, (b) their mode of origin, (c) conspicuous features in their chemical composition?
7. By what principles would you be guided in choosing a manure for a particular soil and crop?
8. What are the advantages of allowing land to remain fallow? What objection is the system open to? By what other method can the same ultimate object be secured?
9. What is superphosphate, and how is it made? Give the chemical composition of materials used and the changes which take place in its manufacture. What is the real object in using superphosphate instead of any other phosphatic manure?

Elementary Knowledge of Agriculture.—For Class E. Time allowed: 3 hours.

1. Describe the roots of any plant you have examined, and show how they grow. What are the functions of roots?
2. How can it be shown that certain elements are essential to the growth of plants? How can you account for the occasional presence in the plant of other elements?
3. What is the composition of the air? Describe experiments illustrating your answer. What connection is there between the composition of the air and the nutrition of plants?
4. What is humus, and what is its value in the soil?
5. In what way does the mechanical condition of the soil influence the growth of a crop? Describe the condition of the soil in which it is best adapted for the growth of plants.
6. What are bacteria, and what useful changes do they produce in the soil?
7. What changes are promoted in the soil by free exposure to the atmosphere?
8. What advantages are secured by a rotation of crops, and upon what principles can these advantages be explained? How far may the growth of mixed grasses and clovers be described as equivalent to a rotation of crops?
9. Give some account of the general composition of farmyard manure. Distinguish between general and special manures. Under what conditions would you prefer to use some special artificial manure? Give examples.

English Grammar and Composition.—For Class D. Time allowed: 3 hours.

1. "A pronoun is a word that stands instead of a noun." Discuss this definition, and classify the pronouns in accordance with your conclusions.
2. Explain the grammatical construction of the words in italics in the following sentences:—
 - (a.) I walked twenty-five *miles* yesterday.
 - (b.) Let knowledge grow from *more* to more.
 - (c.) The boy was run *over* by a cab.
 - (d.) I saw them *go*.
 - (e.) My little boy is four *years* old.
 - (f.) Simon Peter saith, I go *a fishing*.
 - (g.) The lightning struck the man *dead*.
 - (h.) John was taught *music* by his mother.
3. Explain the various uses of *a* or *an* in the following sentences:—
 - (a.) Shall I weep if *a* Poland fall?
 - (b.) He had to retreat more than *a* dozen times.
 - (c.) Fowls of *a* feather flock together.
 - (d.) To be popt at like pigeons for sixpence *a* day.
 - (e.) I might *a* had husbands afore now, tho' I spake not of it.
 - (f.) And made him trot, barefooted, on before himself, who rode *a* horseback.
 - (g.) I thought he gave you something, because he called you *a* to-side.
 - (h.) Why did you not set out *a* Monday, like a true country parson?
 - (i.) It moves at the rate of between four and five miles *an* hour.
 - (k.) Why dost thou garter up thy arms *a* this fashion?
 - (l.) Whilst these things were *a* doing.
 - (m.) You'd have thought 'twas the Bishops or Judges *a* coming.
 - (n.) Coming into college at ten or eleven *a* clock at night.
 - (o.) We know what manner *a* one that is.
 - (p.) *A* Home! *A* Gordon! was the cry.
4. Punctuate the following, and put capital letters where they are required:—

Do you think my dear nieces pretty whispered their affectionate aunt to Mr. Tupman I should if their aunt wasn't here replied the ready Pickwickian with a passionate glance oh you naughty man but really if their complexions were a little better don't you think they would be nice-looking girls by candlelight yes I think they would said Mr. Tupman with an air of indifference oh you quiz I know what you were going to say what inquired Mr. Tupman who had not precisely made up his mind to say anything at all you were

going to say that Isabella stoops I know you were you men are such observers well so she does it can't be denied and certainly if there is one thing more than another that makes a girl look ugly it is stooping I often tell her that when she gets a little older she'll be quite frightful well you are a quiz.

5. Point out and correct anything you see wrong in the following passages :—
 - (a.) Not a person has since been admitted, try as hard as they might.
 - (b.) He had met nobody, or if he had, they had not accosted him.
 - (c.) It was one of those things that all depends upon its being taken in time.
 - (d.) Did I tell you who we came across?
 - (e.) Yes, but John isn't me.
 - (f.) Our manager knows as much, if not more, than we do.
 - (g.) I dare say it isn't either of our faults.
 - (h.) Cork boots made and other deformities of the feet rectified.
 - (i.) He objects to pay even a portion of the amount, much less the whole.

6. Re-write the following, so as to avoid the faults of style :—

But the Earl of Mountrose, after he had continued his journey two or three days in that equipage, which he knew could be no secret, and that it would draw the enemy's troops together for the guard of all passes to meet with him, was found missing one morning by his company; who, after some stay and inquiry, returned back to Oxford, whilst that noble person, with incredible address and fatigue, had not only quitted his company and his servants, but his horse also, and found a safe passage, for the most part, on foot, through all the enemy's quarters, till he came to the very borders: from whence, by the assistance of friends whom he trusted, he found himself secure in the Highlands, where he lay quiet, without undertaking any action, until the Marquis of Antrim, by the countenance and assistance of the Marquis of Ormond, did make good so much of his undertaking, that he sent over Alexander Macdonnell, a stout and an active officer, (whom they called by an Irish appellation Calkito,) with a regiment of fifteen hundred soldiers; who landed in the Highlands in Scotland, at or near the place that had been agreed on, and where the Earl of Mountrose was ready to receive them; which he did with great joy; and quickly published his commission of being general for the King over all that kingdom.

7. Write an essay on one of the following subjects :—

- (a.) The love of nature.
- (b.) Summer.
- (c.) The study of history.

8. As a test of spelling, write from the dictation of the Supervisor.

Spelling (Part of a Paper on English Grammar and Composition) for Class D.

The Supervisor will read over slowly and then dictate the following words :—

Halcyon, hypnotic, abattoir, disappointment, idyllic, habergeon, changeableness, prophylactic, manœuvre, pneumatic, bureaucracy, impugn, hieroglyphics, euphonious, hygiene, periphrasis, proselytism, vaticination, euphuism, hyperbole, neophyte, connoisseur, harassed, genuflexion, cynicism.

English Grammar and Composition.—For Class E, and for Junior Civil Service. Time allowed : 3 hours.

1. What foreign elements are there in English? Give a few words from each language you mention.
2. Classify substantives, and explain and exemplify the classification you adopt.
3. Mention, with examples, the different ways in which English substantives form their plurals. Give instances (1) of double plurals, (2) of plurals used as singulars, (3) of plurals in appearance, (4) of substantives used only in the plural, and (5) of plurals of compound substantives.
4. Give a list of English defective and anomalous verbs, and write notes on the history of some of the forms.

5. Illustrate the following statement: "Many verbs are used, with a difference of meaning, sometimes as transitive verbs, sometimes as intransitive verbs."

6. Give the *general* analysis of the following passage, and parse in *full* the words in italics :—

"A *little onward* lend thy guiding hand
To these dark steps, a little further on;
For *yonder* bank hath choice of sun or shade.
There I am *wont* to sit, when any chance
Relieves me from my task of servile toil,
Daily in the common prison *else* enjoined me,
Where I, a *prisoner chained*, *scarce* freely draw
The air, imprisoned also, close and damp,
Unwholesome *draught*."

7. Re-write the following sentences in correct English :—

- (1.) Being a copyist of nature, his pictures always seem to be true.
- (2.) He is not one of those who interferes in matters which do not concern him.
- (3.) Shakespeare is greater than any dramatist.
- (4.) Loud above all other noises rose the piercing shrieks of a female.
- (5.) Mrs. Jones, presently a residenter in Christchurch, shall take in boarders during the present session, who she hopes to make mutual friends.

8. What is the difference between the period and the loose sentence? Give an example of a periodic sentence, and re-write it in loose form.

9. Write about two pages on *one* of the following subjects, attending carefully throughout to expression, punctuation, and neatness of form :—

- (1.) The war between Japan and China.
- (2.) The rise in the price of wool.
- (3.) Spring in New Zealand.

10. Punctuate the following passage, and put capitals where they are required: gentlemen i have had the honour to be appointed by your committee to the trying task of reading the williams lecture on murder considered as one of the fine arts a task which might be easy enough three or four centuries ago when the art was little understood and few great models had been exhibited but in this age when masterpieces of excellence have been executed by professional men it must be evident that in the style of criticism applied to them the public will look for something of a corresponding improvement practice and theory must advance *pari passu* people begin to see that something more goes to the composition of a fine murder than two blockheads to kill and be killed a knife a purse and a dark lane design gentlemen grouping light and shade poetry sentiment are now deemed indispensable to attempts of this nature

[Candidates are requested to write the punctuation exercise on a separate sheet of paper. No marks will be given for any point unless it is quite distinct.]

11. As a test of spelling, write the words dictated by the Supervisor.

[Candidates are requested to number the words, to write them in a column, and to use a separate sheet of paper for the spelling exercise. The words must be written distinctly. No marks will be given for any word that contains a doubtful letter.]

Spelling (Part of a Paper on English Grammar and Composition).—For Class E, and for Junior Civil Service.

The Supervisor will be so good as to read through and then slowly dictate the following words, afterwards reading the whole of them again to afford opportunity for correction :—

Indigenous, torsion, judgment, dyspeptic, antarctic, sieve, euphony, tricycle, orchestral, conversable, jeopardy, retrievable, marmalade, nocturnal, rickety, pageantry, rhetorician, supercilious, yeoman, monasticism.

English (Paper I., Composition and Précis).—For Senior Civil Service. Time allowed : 3 hours.

1. Correct anything that you see wrong in the following sentences :—

- (a.) The policeman is great friends with the cook.
- (b.) These kind of dogs are what I particularly like.
- (c.) A poor curate, or a rich picture-dealer, must not let their memories play tricks with them.
- (d.) Any one can make themselves do what they choose, if they try.
- (e.) He is one of those persons who contrives to get all sorts of men to help him.
- (f.) He is ten years older than her.
- (g.) It was neither required or expected.

2. Write an essay on one of the following subjects :—

- (a.) The character of Samson as depicted in "Samson Agonistes."
- (b.) The "Clothes-Philosophy" of Herr Diogenes Teufelsdröckh.
- (c.) Travel.
- (d.) The probable effect of the geographical position of New Zealand upon the future of the country.

3. Make an abstract of the following correspondence.

[An abstract serves as an index, and should give the date of each letter, the names of the writer and the person addressed, and, in as few words as possible, the subject-matter of each letter.]

4. Draw up a *précis* of the same correspondence.

[A *précis* is a brief and clear statement of what passed, not letter by letter, but in the form of a narrative. It should include everything material, and be expressed very clearly, and as briefly as is compatible with completeness and distinctness.]

26th June, 1895.

DEAR SIR,—

Re *Iron-ores of New Zealand.*

Herewith please find copy of letters from Messrs. Siemens, England; also, copy of letter from F. Lawry, Esq., M.H.R., to the Minister of Mines, New Zealand.

Mr. S. Hesketh (Messrs. Hesketh and Richmond) having previously had some conversation with you on the subject himself, and explained, desires me to write to you hoping you will strengthen and co-operate with Mr. Lawry on the lines of his letter to the Minister of Mines, requesting the Government to allow the use of the ironsand of New Zealand, or of some foreshore where it abounds, to be afterwards chosen by expert knowledge of the requirements of ironworks on a large or adequate scale to the colony.

The views of capitalists ready to proceed with this industry are that £200,000 may be employed, and is available if required. Their first questions are—What deposits of the ironsand are available and where? what Government proofs have we of such being open and available? and,

also, is the £1 per ton bonus to encourage this industry sanctioned by the authority of the Government? If so, will the Government extend the bonus to cover 20,000 tons of iron produced from New Zealand iron-ores? If so, we do not require any such bonus or any part of it until 2,000 tons have been produced, and not until it is satisfactorily proved the industry is established on a sound and profitable basis.

The weight of your influence and co-operation will oblige. Urging the matter to prompt reply from the Government,

W. F. Massey, Esq., M.H.R.

I am, &c.,

ALFRED S. MINETT.

SIR,—

Auckland, 14th June, 1895.

I have the honour to enclose with this a certified copy of a letter received from Mr. Frederick Siemens *re* the New Zealand ironsand, and I think you will agree with me in the belief that it is a most interesting and highly important document. I am informed by the recipient of Mr. Siemens's letter that a large sum of money is available for the development of the iron industry in New Zealand if encouragement and due facilities for its development are granted by the New Zealand Government.

So far as I can learn from conversation with the interested parties, they require a bonus of, say, £1 per ton on 20,000 tons of iron manufactured from the raw material in New Zealand, but would not require any such bonus or any part of it until 2,000 tons had been produced, and not until it was satisfactorily proved that they had established the industry of producing iron upon a sound and profitable basis.

I am further informed that it will be necessary to the success of the undertaking for the Government to set aside a large area of "some" foreshore where the ironsand abounds, for the sole use of those who undertake the works, and to grant an extended lease of the same for the purpose indicated.

I may say that the matter has been represented to me by Mr. S. Hesketh (Hesketh and Richmond), and he appears to be fully satisfied with the *bona fides* of the affair.

I have, &c.,

The Hon. the Minister of Mines, Wellington.

F. LAWRY.

10, Queen Anne's Gate, Westminster, London, S.W.,

10th January, 1895.

DEAR SIR,—

Following my letter of the 22nd November last, I have the pleasure to inform you that I have examined the samples of ironsand, artificial iron-ore, &c., you were good enough to send me. I am already well acquainted with the black ironsand you refer to, but yours, containing only 2 to 4 per cent. titanium, is better as an iron-ore than any I have yet seen.

Your artificial iron-ore, both mechanically and chemically, seems to me very well suited for the blast furnace, and the iron produced (sample of which you sent me) is excellent in quality, and, no doubt, very pure chemically.

The "direct process" of my own, and that of my brother, the late Sir William Siemens, are not yet sufficiently advanced to enable me to recommend their adoption on a commercial scale, as hitherto it has been found such "direct processes" are at some disadvantage as compared with the blast furnace and puddling furnace, or the blast furnace and the Siemens open-hearth steel melting furnace, as regards the cost of production. I think the combined processes of (1) smelting in the blast furnace, and (2) reducing the artificial iron-ore in my open-hearth steel furnace in contact with a bath of molten pig-iron made in process (1) would be the most economical.

The new form Siemens furnace, which costs less money to build (only about one-half) than the ordinary form Siemens furnace (with four regenerators and separate gas-producers), would be very suitable for this process, for which I should be glad to furnish you with a complete set of working drawings on terms to be arranged.

Enclosed you will find description circular on this furnace, which has been adopted in this country, and on the Continent of Europe, for making steel castings, steels of varying tempers, and soft steel or ingot iron. The same type of furnace has been very largely applied also for reheating ingots, blooms, billets, iron piles, &c., and I am doing a regular business at these offices in supplying drawings for such furnace, and setting them to work in England, Belgium, France, Spain, &c.

I should propose that the pig-iron made in the blast furnace from your artificial ore be melted with 30 per cent. of its weight in my open-hearth furnace for the production, in ingots, of soft steel, for bars of all sections, forgings, &c. The whole of the iron in that 30 per cent. of ore will be reduced to the metallic state very cheaply, and if carbon is also added to the ore-mixture it is probable as much as 50 per cent. of ore could be treated (in a 10-ton charge, 5 tons of pig-iron and 5 tons artificial iron-ore).

I could supply you at the most moderate prices with the materials for the Siemens open-hearth steel melting furnace, and of the mill for rolling the ingots so produced direct into merchantable bars. It is very probable also that I could arrange for expert workmen to go out to work the new plant.

If the combined processes of the blast furnace and the Siemens open-hearth furnace as suggested does not meet with your approval, perhaps I can recommend to you the best and most reliable "direct process," although in this country I do not think it would compete in cost of production with the blast furnace, and the well-known processes for treating the pig-iron produced. To enable me to do this, however, you should send me, say, $1\frac{1}{2}$ tons of ironsand, $\frac{3}{4}$ tons of the fluxing material, and a few hundredweights of the artificial iron-ore (if you have any in stock), freight paid to this address. I would get these materials treated by a direct process, and afterwards report to you upon the results; so that you could see if it would pay in your country or not.

You may rely upon my assisting you so far as I am able, and giving you the best advice I can in the matter, and I trust that some business of mutual advantage to us will result. Awaiting your reply,—

I am, &c.,

FREDERICK SIEMENS,
Per CON. W. HARVEY.

A. S. Minett, Esq., Britannia House, Vincent Street, Auckland.

10, Queen Anne's Gate, Westminster, London, S.W.,
22nd November, 1894.

SIR,—

I duly received and thank you very much for your interesting letter of the 28th September last, the contents of which are carefully noted. Up to now the samples you speak of have not arrived, and I await them with interest.

I expect to be able to write to you fully on the subject of your communication in course of a week or two.

I am, &c.,

FREDERICK SIEMENS,
Per CON. W. HARVEY.

A. S. Minett, Esq., Britannia House, Vincent Street, Auckland.

English (Paper II., Literature and Books).—For Senior Civil Service. Time allowed: 3 hours.

1. Discuss Milton's treatment of the dramatic form of literature as exemplified in "Samson Agonistes."

2. Give a brief account of the plot of "Samson Agonistes," and, if you can, quote what seem to you to be the most striking passages.

3. Explain the following passages:—

(a.) This only hope relieves me, that the strife
With me hath end: all the contest is now
'Twixt God and Dagon.

(b.) Ere I to thee, thou to thyself wast cruel.

(c.) Nor think me so unwary or accursed,
To bring my feet again into the snare
Where once I have been caught.

(d.) I know no spells, use no forbidden arts.

(e.) That self-begotten bird

In the Arabian woods embost,
That no second knows, nor third.

4. Give a brief account of Herr Teufelsdröckh's life, as told in his own autobiographical memorandum, and mention what incidents are really autobiographical as applied to Carlyle himself.

5. "I too could now say to myself: Be no longer a Chaos, but a World, or even a Worldkin. Produce! Produce!" Give a brief account of the mental processes that led Teufelsdröckh to this result.

6. What does Teufelsdröckh regard as "perhaps the most remarkable incident in modern history"? And why?

7. Give a list of the chief poets of the first half of the nineteenth century, with their most important works; and mention those in whom the influence of the French Revolution is most apparent.

8. Name the authors of the following works, and give such a description of any two of them (including not more than one novel) as to show that you have read them: "Essays of Elia," "Confessions of an English Opium-eater," "Vanity Fair," "The Cenci," "Past and Present," "Waverley," "Childe Harold's Pilgrimage," "The Excursion," "Sketches by Boz," "Sordello."

Arithmetic.—For Class D. Time allowed: 3 hours.

1. Explain the meaning of multiplication. Show by a diagram that 12 multiplied by 13 is equal to 13 multiplied by 12.

2. Multiply 2295 by 6789, and divide the product by 1377.

3. Divide £64,919 16s. 3d. by £5 14s. 9d. What is the meaning of your result?

4. Can you multiply £14 7s. 6d. by £10? Is there any case in which a meaning can be given to the product of two concrete numbers? If so, give an example.

5. The floor of a room is an exact square; the room contains 4,165 cubic feet 1,512 cubic inches, and its height is 14ft.: find its length and breadth.

6. The floor of the room in the last question is to be covered with carpet, leaving bare a margin of a foot and a half all round, which is to be stained and varnished; the carpet costs 5s. 4d. per yard, the width being 27in.; the cost of staining, &c., is 1d. per square foot: find the whole expense of covering the floor.

7. Define the least common multiple of two or more numbers. Find the least common multiple of 2295 and 1377; also that of 10, 12, 15, 18, 54, 72, 96, 108, and 288.

8. What is meant by the terms *interest*, *discount*, *rate per cent.*? Which is larger, the interest or discount on a given sum of money, the time and rate per cent. being the same?

9. Find the compound interest on £3,750 for 2 years at 4 per cent. per annum. Find also the present value of £327 16s. 4¾d. due three years hence, reckoning compound interest at 3 per cent.

10. A man has a sum of £2,000 to invest. He buys 100 shares in a gas company at £11 17s. 6d. each, receiving a dividend of 15s. per share yearly. He buys 200 shares in a

shipping company at £3 10s. per share, each share representing a nominal capital of £8. The rest of the money he puts into the Government Savings-bank, and receives interest at 4 per cent. If the shipping company declare a dividend of 4 per cent. on its nominal capital, what is the man's total income from his investments, and what rate per cent. does he get for the money put into each of the companies?

11. The velocity of a planet in its orbit varies inversely as its distance from the sun. The greatest distance of Mars from the sun is to its least distance as 16·658 to 13·816. Its greatest velocity is 703,230 miles per day. Find its least velocity.

12. Two men, A and B, walk to meet one another, starting at the same time. The distance between their starting-points is 25 miles 897 yards, and A goes 9 yards for every 8 that B walks. Find how much each will have walked when they meet.

Arithmetic.—For Class E, and for Junior Civil Service. Time allowed: 3 hours.

1. How can you determine by inspection whether a fraction, in its lowest terms, will have for equivalent a recurring or a terminating decimal fraction?

Reduce 2cwt. 45lb. to the decimal fraction of a ton.

2. Reduce $3\frac{7}{8}$ lb. av. to troy weight.

Find the sum of 3·261, 6·3, and ·0432.

3. What relation does true discount bear to true present worth?

What is the true present worth of £845 15s., due 3 years hence, at $5\frac{1}{2}$ per cent. simple interest?

4. If goods worth £1,473 be insured at the rate of £1 16s. per cent., on what amount must insurance be paid so that, in the event of loss, the value of the goods and of the premium may be recovered?

5. A room is 23ft. 8in. long, 15ft. 7 $\frac{1}{2}$ in. wide, and 11ft. 3in. high. After deducting $\frac{1}{4}$ of the area for the space occupied by the door and windows, what will be the cost of painting the walls at 10 $\frac{1}{2}$ d. per square yard?

6. A grocer buys 16lb. of tea at 2s. 2d., 20lb. at 2s. 5d., and 28lb. at 2s. 9d. At what price per pound must he sell the tea, when mixed, so as to get a profit of 10 per cent.?

7. The number of passengers in a train was 175. The first-, second-, and third-class passengers were in the proportion of 3, 5, and 17. The miles travelled by each class averaged 48, 32, and 15, and the fares were 3 $\frac{1}{2}$ d., 2 $\frac{1}{2}$ d., and 1 $\frac{1}{2}$ d. per mile. What was the whole amount of the fares?

8. A man invests a certain sum of money in the $3\frac{1}{2}$ -per-cents at 96; his friend invests an equal sum in the 4-per-cents; and they get the same amount of interest. At what price are the 4-per-cents?

9. What is the value in English money of a bill for 5,000 marks when the course of exchange is 20·38 marks?

What was the course of exchange in London when a sight draft on New York for 900 dollars sold for £181 17s. 6d.?

10. If one man can mow a quarter of an acre of grass in $1\frac{1}{2}$ hours, and another can do it in 1 hour 12 minutes, what, when working together, could they mow in an hour?

11. A man rows 6 miles in 2 hours 15 minutes against a stream, the rate of which is 3 miles an hour. How long will he be rowing 13 miles with the stream?

12. Divide 496 into 4 parts so that 3 times the first, 5 times the second, 7 times the third, and 9 times the fourth may be equal.

Arithmetic.—For Senior Civil Service. Time allowed: 3 hours.

1. Multiply 7356421 by 28814412, using only three lines of multiplication. Do the same thing, taking 289452 as the multiplier. Verify the last result by the ordinary method.

2. Find the Greatest Common Measure of 23024545 and 5852845. Find also their Least Common Multiple.

3. State the rule for the multiplication of decimals. Obtain, accurately, to seven places of decimals, the product of 0·69314718 and 0·43429448. Also, to the same degree of accuracy, find the product of the second number and 2·30258509.

4. Given that the diameter of the earth is 7,926 miles, and that a kilometre is a length such that 10,000 kilometres make a quarter of the circumference of the earth, find, to four places of decimals, the number of kilometres in five miles. (Assume that the circumference of a circle is $\frac{22}{7}$ of the diameter.)

5. What is meant by the term "rate per cent."? A company has a paid-up capital of £430,600. At the end of the financial year there is a profit of £33,326. What is the largest rate per cent. that can be declared as a dividend so as to leave at least £4,000 to be carried forward to a reserve fund? Assuming a rate of 5 per cent. declared, how much will go to the reserve fund?

6. Simplify—

$$\left(\frac{1}{2} + \frac{\frac{1}{8} + \frac{1}{8}}{\frac{1}{8} - \frac{1}{8}}\right) \times 142857 \times \frac{3 + \frac{1}{5 + \frac{1}{7}}}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2 + \frac{1}{14}}}}}$$

7. Find, by Practice, the cost of 34 yards 2ft. of carpet at 6s. 3d. per yard.

8. Find the interest on £4,350 from February 1st, 1896, to June 26th, 1896, at $7\frac{1}{2}$ per cent. per annum.

9. The length of a room exceeds its breadth by one-third of the latter. The area of the floor is $216\frac{2}{3}$ square feet. Find its length and breadth.

10. A sum of £204 7s. is to be divided between four persons, A, B, C, D, so that, for every 5s. that A receives, B has 4s. 6d.; for every 6s. B has, C gets 5s.; and for every 7s. 6d. C receives, D has 7s. Find how much is paid to each.

11. What do you understand by the prime factors of a number? Give rules for ascertaining when a number is divisible by 2, 3, 4, 5, 6, 9, and 11 respectively. Resolve into its prime factors 63063.

Geography.—For Class D. Time allowed: 3 hours.

1. Why do degrees of latitude vary in length? State the difference between the longest and the shortest degrees.

2. Suppose two pendulums to be set in motion, one tracing its path upon the earth's surface at the Equator, the other at the North Pole: what form would the tracings respectively take in twenty-four hours?

3. Why is the summer within the Northern Hemisphere longer than that in the Southern? What is the extent of the difference?

4. In what parts of the earth are there tracts destitute of rainfall? State the cause in each case.

5. What do you know about geographical discovery within the Arctic Circle?

6. State the chief physical obstacles to the connection of Nelson with the general railway system of the South Island, and of Gisborne with that of the North Island.

7. Write a descriptive essay on each of the following places: The Taupo Plains, Banks Peninsula, and the Waitemata Harbour.

8. Give a descriptive account of British Guiana.

9. Contrast New Zealand and Japan with regard to position, area, physical characteristics, inhabitants, natural products, and exports.

10. Describe the course of the River Thames, indicating the principal places of historical interest on its banks.

Geography.—For Class E, and for Junior Civil Service. Time allowed: 3 hours.

1. Draw a diagram to illustrate the phases of the moon, and show how they are caused. What time is required to complete the cycle?

2. If twenty meridians divide the surface of a globe into twenty equal parts, how many degrees are the meridians apart? If it is 12 o'clock on one of these meridians what time is it on the next to the west and on the next to the east?

3. Draw a sketch-map of England and Wales, showing the course of the most important rivers, the position of the chief ports, and the principal manufacturing towns.

4. Name the chief natural and manufactured products imported into Great Britain from China, Switzerland, United States of North America, Chili, India, Russia, and Italy respectively.

5. State what you know about Armenia. Describe its boundaries, chief rivers, and most important towns.

6. What countries or districts are separated by the following straits: Straits of Bab-el-Mandeb, Foveaux Strait, Magellan Straits, Strait of Kertch, Menai Strait, Palk Strait, Strait of Ormuz?

7. Write a short note on each of the following places: Berlin, Geelong, Toulon, Dresden, New York, Port Arthur, Caracas, Coolgardie, New Westminster, Tornea, Edinburgh.

8. Name the countries intersected by the Tropic of Cancer and the Tropic of Capricorn respectively.

9. Give a detailed account of the journey from New Plymouth to Milford Sound, *via* the Bluff, by land and sea, availing yourself of a railway whenever possible.

10. State the position of the following places: Mercury Bay, Dusky Sound, Bay of Islands, Queen Charlotte's Sound, Akaroa. What incidents in the history of New Zealand are associated with each?

History.—For Class D. Time allowed: 3 hours.

1. Give a brief sketch of the history of the Anglo-Saxons, or Early English, between 449 and 1066 A.D.

2. Mention the chief events in the reign of Edward III.

3. What do you know of the Roman Catholic plots in the reign of Queen Elizabeth?

4. Tell what you know of the following in the reign of James I.: Plantation of Ulster; colonies and voyages; translation of the Bible.

5. Compare the foreign policy of Cromwell with that of Charles II.

6. Give some notion of the social condition of England in the reign of Queen Anne.

7. Describe the foreign policy of the Pitt Administration of 1757–61, and point out its important results.

8. Indicate the progress made in the growth of religious toleration between 1603 and 1837.

9. What do you know of Peterborough, Perceval, Peel, Huskisson, Grey?

History.—For Class E, and for Junior Civil Service. Time allowed: 3 hours.

1. What was the state of Ireland in the beginning of James the First's reign? Give an account of the settlement of Ulster.
2. Name the principal battles and sieges in the Civil War, with the result of each.
3. Relate particulars of great events in the fifth and sixth years of Charles the Second's reign.
4. Describe the character and policy of William III., and sketch the leading events of the first two years of his reign.
5. Name the most eminent men of letters in the reign of Queen Anne, and give a short account of their works.
6. Sketch the careers of Clive and Warren Hastings in India.
7. Recount the proceedings of Parliament which led to the American War. What statesman opposed them? Mention some of his arguments.
8. Of the reigns of the eight Henries, which do you consider to have been most beneficial to the kingdom? State your reasons.
9. What part of France belonged to the English Crown in the reign of Edward I.? Relate the events which brought on the war with France in his reign.
10. Write short notes on any four of the following subjects: Petition of Right, Instrument of Government, Board of Control, Indirect Tax, Consolidated Fund, Excise, Tariff, Terminable Annuities.

History.—For Senior Civil Service. Time allowed: 3 hours.

1. Macaulay admired the English Revolution of 1688, whereas Carlyle did not. How do you account for the different attitudes of these two great historians towards the same political movement?
2. Describe the character of William III. At what battles and sieges was he present after he became King of England; and what were the results of these battles and sieges?
3. Give an account of the negotiations for the Parliamentary Union of England and Scotland; and state clearly the conditions on which the Union was finally consummated.
4. What do you know of the following in the reign of George I.?—*The Jacobite Rebellion; the Septennial Act; the Quadruple Alliance; the South Sea Scheme; the Treaty of Hanover.*
5. Give a careful description of the policy of Robert Walpole.
6. Give an account of the events that led to the war with America in the reign of George III.; and indicate, with results, the chief actions in the war. What were Burke's and Lord Chatham's views on the American question?
7. Trace the history of India since 1750.
8. What did England do as a great colonising Power between 1688 and 1837?
9. Write two paragraphs on the improvements in the social condition of the people between 1688 and 1837.

Latin.—For Class D, and for Senior and Junior Civil Service. Time allowed: 3 hours.

1. Decline—(1) *iste senex*; (2) *utraque pars*; (3) *triste omen*.
Give the comparatives and superlatives of *liber*; *humilis*; *beneficus*. Express in Latin—"more diligence"; "little wisdom."
Give the Latin for—"three million sesterces"; "the two hundred and twenty-fourth year"; "forty-eight times"; "he gave the soldiers twelve acres apiece."
2. Give the parts of *video*; *reperio*; *ēdo*; *ādo*; *spargo*; *effero*; *pasco*; *tondeo*.
To what verbs do the following participles belong respectively?—*illitus*; *arreptus*; *consuetus*; *insitus*; *confertus*; *excitus*; *peremptus*.
What words are used as the passives of *vendo*; *perdo*; *facio*?
3. What are the restrictions to the use of the ablative after comparatives?
Express in Latin—"No Roman ever was more eloquent than Tullius." "Cæsar led much more faithful soldiers than Pompey." "The light of the sun is far brighter than that of many moons."
4. Translate into Latin—
(1.) We must carefully obey the laws.
(2.) He reports that a council will be summoned.
(3.) Tell me what crime he committed and when he committed it.
(4.) He was stabbed by the Gaul with a sword.
(5.) I am afraid he will not return before I have set out from Rome.
(6.) He is worthy to obtain the highest honour among his countrymen.
(7.) The more numerous his enemies were the more bravely he resisted them.
(8.) They said that it had not been their fault that the forces of the enemy were not crushed.

[NOTE.—To stab, *confodere*; countryman, *civis*; to crush, *opprimere*.]

5. Translate—Cum cohortes ex acie procucurrissent, Numidae integri celeritate impetum nostrorum effugiebant, rursusque ad ordines suos se recipientes circumibant et ab acie excludebant. Sic neque in loco manere ordinesque servare neque procurrere et casum subire tutum videbatur. Hostium copiae summissis ab rege auxiliis crebro augebantur; nostros vires lassitudine deficiebant; simul ii qui vulnera acceperant neque acie excedere neque in locum tutum referri poterant, quod tota acies equitatu hostium circumdata tenebatur. Hi de sua salute desperantes, ut extremo vitæ tempore homines facere consuerunt, aut suam mortem miserabantur aut parentes suos commendabant, si quos ex eo periculo fortuna servare potuisset. Plena erant omnia timoris et luctus.

Curio, ubi perterritis omnibus neque cohortationes suas neque preces audiri intelligit, unam, ut in miseris rebus, spem reliquam salutis esse arbitratus, próximos colles capere universos atque eo signa inferri jubet.

[NOTE.—*Integer*, fresh; *crebro* (adv.), frequently; *deficere* (*aliquem*), to fail, or desert a person; *Curio*, a proper name.]

French.—For Class D, and for Senior and Junior Civil Service. Time allowed: 3 hours.

1. (a.) Give the gender of, and the English for—Dieu, soleil, lune, printemps, août, vendredi, est, acier, Belgique, Mexique, Danemark, Rhin, Danube, chêne, sagesse, silence, prudence.

(b.) Translate:—Courage is indispensable in a general. I intend to visit Italy. I know French, German, and Spanish.

2. (a.) Correct and translate into English:—

Les haut montagnes sont couvert de neiges éternel.

La soie naturel est toujours blanc ou jaune.

Les étoffes bleu sont sujet à pâlir à l'air.

J'ai fait une bon affaire; le tien est mauvais.

(b.) Give the feminine of—franc, doux, bref, général, tiers, fou.

3. State the rules concerning *tout* (adjective and adverb), and illustrate them by translating:—

(a.) Into English: "Nous sommes tous prêts à partir." "Mes frères sont tout prêts à sortir." "La vanité est sortie (issued) toute parée (adorned) de la tête des femmes, comme Minerve est sortie tout armée de la tête de Jupiter."

(b.) Into French: "That little girl was quite frightened." "That young lady was quite ashamed." "That gentleman's daughter is quite affable."

4. How do you render into French the English auxiliary verbs—to have, to be, to get, to do, ought, must, will, should, would, in the following sentences?—

(a.) Had you studied better you would have succeeded.

(b.) What are we to do?

(c.) We have to do what we are told.

(d.) Get your clothes cleaned.

(e.) You ought to do your work.

(f.) She must be home before twelve o'clock (noon).

(g.) Do you understand what I mean?

(h.) I shall be drowned; nobody will help me!

(i.) Should my friends come, tell them to wait for me.

5. Why does *aimant* remain invariable in the first of the following sentences, and why does it vary in the second?—

(a.) Il n'y a que les natures aimantes qui soient propres à l'étude de la nature.

(b.) Les natures aimant la solitude aiment généralement l'étude.

6. Translate:—

(a.) Do you remember my friend, Madame L.—?

I do not remember her at all. (Use the verb *se rappeler*.)

(b.) Do you remember that affair?

I do not remember it. (Use the verb *se souvenir*.)

(c.) Do you think of that man?

(d.) What do you think of that lady?

7. Translate:—

(a.) Can you lend me your book?

I will lend it to you if you will take care of it.

(b.) Will you send your brother to Hastings every day?

I will send him there every Monday, if he wishes it.

8. (a.) Give the second and third persons singular and plural (1) of the present and future (indicative mood), (2) of the present and imperfect (subjunctive mood), of the following verbs: Nager, jeter, annoncer, céder, requérir, and vêtir.

(b.) Translate:—

(1.) What do you mean?

(2.) We are sometimes mistaken.

(3.) That iron is warm. That man is warm.

(4.) I beg to inform you.

(5.) I take this opportunity.

(6.) My kind love (or regards) to your mother.

(7.) Speak to me without reserve.

9. Translate into English:—

GEORGE I., ROI D'ANGLETERRE.

Ce roi se trouvait masqué à un bal, et causait avec une dame masquée aussi, et qu'il ne connaissait pas. Cette dame lui proposa d'aller avec elle se rafraîchir au buffet; le roi y consentit. On leur versa à boire. "A la santé du Prétendant," dit la dame. "De tout mon cœur," répondit ce généreux monarque; "je bois volontiers à la santé des princes malheureux."

LE DUC DE CUMBERLAND.

Après la bataille de Dettingen, un mousquetaire français, dangereusement blessé, avait été porté près de la tente du duc de Cumberland, fils du Roi d'Angleterre. On manquait de chirurgiens dans ce moment, parce qu'ils étaient occupés ailleurs, et l'on allait panser le prince, à qui une balle avait

percé les chairs de la jambe. “Commencez,” dit-il, “par cet officier français: il est plus blessé que moi; il manquerait de secours, et je n'en manquerai pas.” Cette belle action ne fit pas moins d'honneur à ce prince que la victoire qu'il venait de remporter.

10. Translate into French:—

(a.) Queen Elizabeth, when on a visit to the famous Lord Chancellor Bacon, at a small country seat which he had built for himself before his preferment, asked him how it came to pass that he had built himself such a small house. “It is not I, madam,” he replied, “who have made my house too small; it is your Majesty that has made me too big for my house.”

(b.) TRUE GREATNESS.—Philip of Valois used to say that the greatest treasure of a king should be in the hearts of his subjects, and that he would rather be King of the French than of France.

German.—For Class D, and for Senior and Junior Civil Service. Time allowed: 3 hours.

1. Translate:—Give me *some* money. *Some* are good, others are bad. *Some* men are always contented. *Some* one or other has bought that house. Have you any paper? Yes, I have *some*. *Some* one has taken my pen.

2. Write out in full, with meaning, the pres. ind. of *sich trauen*.

3. Form adverbs from *best-, blind-, treu-, Nacht-, Kopf-*.

4. State what case each of the following prepositions governs, and give meaning: *Gegen, trotz, gegenüber, wegen, ohne, binnen, wider, kraft, oberhalb, gemäß*.

5. Give the meaning of the following verbs, and put the appropriate preposition after each of them: *Zweifeln, streben, bestehen, sich mischen, sorgen, sterben, warten, Mitleid haben, einwilligen, übersetzen*.

6. Translate: A pound of sugar, half a pound of good sugar, three-quarters of a pound of this sugar, a drop of oil, a small barrel of vinegar.

7. Decline the adjective *deutsch* used substantively—first, as “the German”; secondly, as “a German.”

8. Give the various meanings of *dürfen*, with example to each meaning.

9. Translate:—(a.) *When* do you go to Vienna? (b.) *When* I was at Munich. (c.) *When* I am thirsty I drink a little water. (d.) Since the time *when* you were a little child.

10. State when the relative pronoun *der, die, das* must be used instead of *welcher, welche, welches*.

11. Translate: Half an hour; such a noise; both the girls; too broad a hat; double the height.

12. How is the present participle to be rendered after the verbs *kommen* and *stehen*? Exemplify by translating:—He came *running*. She stood *leaning* against the window.

13. Translate into German:—

(a.) How old are you, Mary?

(b.) I was fifteen years old on my last birthday, the 3rd of March.

(c.) And how long have you been learning German?

(d.) I began a year and a half ago.

(e.) I hope you read it as much as you can.

(f.) Yes, I do, because I am very fond of that language.

(g.) Learn a bit of poetry by heart every day.

(h.) That is just what I do. I learn at least from twelve to sixteen lines every morning.

(i.) You are so industrious that you will soon be able to understand all you read.

(j.) I shall want that in any case, as I am going to Germany next year to study music.

(k.) I suppose you have not made as much progress in speaking as in reading?

(l.) That goes without saying, but I never lose any opportunities.

14. Translate into English: Bist du, sagte er, indem er mich mit einer Dreistigkeit, die bei den gemeinen Leuten Unverschämtheit genannt wird, mit den Augen mass,—bist du dieser Diogenes, von dessen Character und Launen man in ganz Griechenland so viel zu erzählen hat?—Wer bist du denn, antwortete ich ihm ganz kaltsinnig, dass du ein Recht zu haben glaubst mich so zu fragen? Ich bin nur Alexander, Philipps Sohn, von Macedonien, versetzte der Jüngling lächelnd; ich gestehe, es ist dermalen nicht viel, aber was es ist, steht dem Diogenes zu Dienste.—Da ich wusste dass du nicht zu mir kommen würdest, so komme ich zu dir, um dir zu sagen, dass ich mir ein Vergnügen daraus machen würde deine Philosophie auf einen gemächlichen Fuss zu setzen. Verlange von mir, was du willst, es soll dir unverzüglich gewährt werden, oder es musste mehr sein, als in meinen Mächten steht.—Versprichst du mir's bei deinem königlichen Worte? sagte ich.—Bei meinem Worte, versetzte er.—Nun, sagte ich, so ersuche ich den Alexander, Philipps Sohn, von Macedonien, so gut zu sein, und mir aus der Sonne zu gehen.—Ist das Alles? sagte Alexander.—Alles, was ich jetzt bedarf, antwortete ich.—*Wieland*.

Italian.—For Senior Civil Service. Time allowed: 3 hours.

1. Translate into English:—

“Malgrado il numero straordinario di persone accorse in Roma da ogni parte d'Italia, esse non hanno dato luogo nemmeno al piu lieve disordine, e tutti hanno dovuto ammirare il contegno dei cittadini. Durante i primi due o tre giorni gli ecclesiastici si astennero dal mostrarsi in pubblico, temendo chi sa che cosa.”

“Siamo prossimi all' anniversario il piu grande che possa festeggiare l'Italia risorta, e le associazioni militari che non si occupano di questioni politiche sentono invece il bisogno d'interessarsi di gran cuore a tutte quelle solenni manifestazioni che affermano il sacrosanto principio della nostra indipendenza.”

2. Translate also—

Le auguro buona salute.
 Tacete uomo vile.
 Là veramente si deciderà il conflitto.
 Glielo domandai ma ricusò.
 La prego di venire a trovarmi.
 Farò il possibile per compiacervi.
 Sono suonate le tre.

3. Translate into Italian—

“A country vexed with domestic troubles cannot be much alive to foreign questions, even if interested in them. There is, for instance, the Anglo-Italian frontier question in Africa. You know that the negotiations were broken off owing to the dispute about Kassala. The Italian Government wished to have that Soudan town, but to this the British Government was opposed. It has been repeatedly affirmed that the negotiations have been reopened, but I am not sure that the statement is correct. What I am sure of is that the country cares nothing about Kassala, and very little about Africa itself, which cost Italy last year more than a million sterling.”

4. Translate also—

Write me a long letter.
 It is raining hard.
 When I return we will see her again.
 Give me that German parchment.
 Do you prefer milk or water?
 The clouds are black.
 I love a white rose.

5. Give the Italian for—

Can you rest during the day?
 Of what am I thinking?
 Men are mortals.
 I shall go to America in January.
 The armies fought bravely.
 Do you use my carriage?
 I got rid of it.
 Have you paid the carpenter?
 Are you a Swede?
 Shall I be able to see him?
 Thank you for your congratulations.

6. Give the feminine of—Cane, gatto, vedovo, vecchio, amico, fanciullo, figlio, zio, Ebreo, compagno.

7. Give the Italian for—Richard the Third, eleventh, twenty-first, one thousand seven hundred and ninety-five, two-thirds, three-fifths, eighteenth, thirty-one, seven-eighths.

8. Give examples of the three ways of addressing a person in the Italian language.

9. Give examples of some of the augmentatives and diminutives used in Italian.

10. Place the appropriate article before the following words: Casa, scorza, vino, panca, stornello, zucchero, vestito, penna, Ungherese, cavalli, gatti, uomini, zecchino.

11. Place the required accent on the following words: Virtù, beltà, costa, così, carità, maesta, darò, terro, vedro.

12. Give the preterite definite of the following verbs: Parlare, credere, avere, essere, sentire, rompere, sapere, scrivere, percuotere, esprimere, persuadere, chiedere, fondere, vincere, mordere.

13. Write some sentences bringing in the following words: Tuttavia, intanto, quando, come, comunque, mentre, onde.

Algebra.—For Class D, and Junior Civil Service. Time allowed: 3 hours.

1. Define the terms *factor*, *coefficient*, *index*, *irrational quantity*. Find the value of $\frac{a}{b} - \sqrt{\frac{1+a}{1-b}}$, when $a = \frac{1}{4}$, $b = \frac{1}{5}$.

2. Find the algebraical expression which, when divided by $x^2 - x - 1$, gives $3x^2 + 2x - 1$ for the quotient and $x - 1$ for the remainder; and prove that—

$$(a-b)^3 + (b-c)^3 + (c-a)^3 = 3(a-b)(b-c)(c-a).$$

3. Divide $a^6 - x^6$ by $x^3 - 2ax^2 + 2a^2x - a^3$.

4. Show that the product of the G.C.M. and the L.C.M. of two quantities is equal to the product of the quantities themselves.

Resolve the following expressions into their simplest factors, and write down their G.C.M. and L.C.M.: $x^4 - xy^3$, $(x^3 - xy^2)^2$, $(x^2 - xy)^3$.

5. Simplify the expressions—

$$(a) \frac{1}{12(3x+2)} + \frac{1}{4(3x-2)} - \frac{1}{3(3x-1)};$$

$$(b) (ab + bc + ca)\left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right) - abc\left(\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2}\right).$$

6. Substitute $\frac{y-a}{y+a}$ for x in $y^2 + 2axy - a^2x^2$, and simplify the expression so obtained.

7. Extract the square root of $9(x^4 + 1) - 12x(x^3 - 1) - 14x^2$.

8. Solve the equations—

$$(a) \frac{x-3}{x-1} + \frac{x-2}{x-5} = 2;$$

$$(b) \frac{a}{b+x} + \frac{a}{b-x} = b;$$

$$(c) \frac{x+1}{y} = \frac{a}{b} = \frac{y-1}{x}.$$

9. At a mayoral election one of the candidates polled fifteen votes less than half the constituency, beating his opponent, who polled one-third of the constituency, by 100 votes: find the whole number of electors, and the number that abstained from voting.

10. A debt, which might have been paid exactly with $2x$ sovereigns and $4y$ half-crowns, or with $8y$ sovereigns and x half-crowns, was paid with a £10 note, and y sovereigns and x half-crowns were received as change: what was the debt?

Algebra.—For Senior Civil Service. Time allowed: 3 hours.

- ✓ 1. If $a=3$, $b=2$, $c=1$, find the values of—

(1.) $a^3 - b^3 - c^3 - 3abc$.

(2.) $\sqrt{\frac{1}{2}(a^3 + b^3 + c^3 - 3abc)} - \sqrt[3]{a^3 + b^3 + c^3 - a^2c}$.

- ✓ 2. Multiply $x^3 - 2x^2 + 4x - 8$ by $x^3 - 2x^2 - 4x + 8$, and divide the product by $x^3 + 2x^2 + 4x + 8$.

- ✓ 3. Find the Highest Common Divisor of $x^4 + 2x^2 + 9$ and $x^4 + 5x^3 + 13x^2 + 17x + 12$.

- ✓ 4. Multiply $x+y$ by $x^2 - xy + y^2$, and resolve into its factors $(2a+3b)^3 + (2a-3b)^3$.

5. Simplify—

✓ (1.) $\frac{\frac{x+y}{x-y} + \frac{x-y}{x+y}}{\frac{x-y}{x+y} - \frac{x+y}{x-y}} \times \frac{\frac{1}{x-y} - \frac{1}{x+y}}{\frac{1}{(x-y)^2} + \frac{1}{(x+y)^2}} \div \frac{\left(1 + \frac{y}{x}\right)\left(1 - \frac{y}{x}\right)}{x - \frac{y^2}{x}}$.

✓ (2.) $\frac{x^4 + 5x^3 + 13x^2 + 17x + 12}{x^4 + 2x^2 + 9}$.

- ✓ 6. Prove that $(x+a)(x+b) = x^2 + (a+b)x + ab$.

Resolve into their factors—

- (1.) $x^2 - 7x + 6$; (2.) $x^2 - 6x - 7$; (3.) $6x^2 - 7x + 1$; (4.) $(a+b+c)(bc+ca+ab) - abc$.

- ✓ 7. Find the continued product of $x^2 - xy + y^2$, $x^4 - x^2y^2 + y^4$, and $x^8 - x^4y^4 + y^8$.

Reduce to its simplest form—

$$\frac{x^3 + y^3}{2(x^3 - y^3)} + \frac{x^2 - xy + y^2}{x^2 + xy + y^2} + \frac{xy\{2(x^2 + y^2) - xy\}}{x^4 + x^2y^2 + y^4} + \frac{x^3 - y^3}{2(x^3 + y^3)}.$$

8. Solve the equations—

(1.) $\frac{2x+5}{6x+4} = \frac{x+4}{3x+7}$;

(2.) $\frac{\frac{3x+5}{4} - \frac{3x-y}{5}}{\frac{2x+5}{6y+4}} = \frac{y+1}{3} + \frac{4}{5}$;

$\frac{2x+5}{6y+4} = \frac{x+6}{3y+10}$.

- ✓ 9. Divide the number 100 into four parts such that, if the second be increased by 10, the third by 8, and the fourth by 2, they each become equal to the first.

10. A passenger steamer, going up a certain river, travels from A to B in $8\frac{3}{4}$ hours. Coming down, it can go from C, a place further up the river than B, to A in the same time. There are eleven stopping-places between A and B, and, including B, nineteen between A and C. The distances between consecutive stopping-places are all equal, and the time occupied by each stoppage is a quarter of an hour. The stream flows at the rate of $4\frac{1}{2}$ miles per hour. Find the rate of the steamer in still water, and the distances between A, B, and C.

11. The number of candidates in a certain examination is a number of three digits, the first of which is equal to the sum of the other two. The number of failures is $\frac{2}{5}$ of the whole number diminished by unity. The last digit in the number of failures is zero, the middle digit is half the middle digit in the total number, and the first digit the same as the last in the total. If the digits in the total number be reversed, we obtain a number exceeding the number of failures by 25. Find the number of candidates.

12. Prove that—

$$4(a^2 + ab + b^2)^3 - 27(a^2b + ab^2)^2 = (a-b)^2(2a^2 + 5ab + 2b^2)^2.$$

Euclid.—For Class D, and for Junior Civil Service.

1. State Euclid's postulates.

From a given point draw a straight line equal to a given straight line.

How is the construction in this problem rendered necessary by the limitations of the postulates?

2. On the same base and on the same side of it there cannot be two triangles having their sides which are terminated at one extremity of the base equal to one another, and likewise those which are terminated at the other extremity equal to one another.

What use does Euclid make of this theorem?

3. The side opposite an angle of a triangle is greater than the side opposite a smaller angle.

Show that the perimeter of an isosceles triangle is greater than that of a rectangle of equal area.

4. If a straight line falling on two other straight lines makes the alternate angles equal to one another, then the straight lines are parallel; and, conversely, if these lines are parallel then the alternate angles are equal to one another.

5. Describe a parallelogram equal to a given rectilineal figure, and having an angle equal to a given angle.

6. On the diagonal AC produced of a square ABCD a point K is taken such that AK is double of AB; KF is drawn from K parallel to CD to meet AD produced in F. Show that the triangle AKF is equal to the square ABCD.

7. If a straight line be divided equally and also unequally, the rectangle contained by the unequal parts, and the square on the line between the points of section, are together equal to the square on half the line.

8. In every triangle the square on the side subtending an acute angle is less than the squares on the sides containing that angle, by twice the rectangle contained by either of these sides, and the straight line intercepted between the perpendicular let fall on it from the opposite angle, and the acute angle.

Euclid (Books I.—IV.).—For Senior Civil Service. Time allowed: 3 hours.

1. Define a straight line, an angle, a rectilineal angle, a right angle, a triangle, a rectangle.

What property of straight lines does Euclid really use as a basis of reasoning, and in what proposition does he first use it?

2. Prove that the angles at the base of an isosceles triangle are equal.

3. Define a parallelogram. Prove that the diagonals of a parallelogram bisect one another.

4. Prove that equal triangles on equal bases and on the same side of them, the bases being in one straight line, are between the same parallels.

Hence show that the straight line joining the middle points of two sides of a triangle is parallel to, and equal to half of, the third side.

5. Prove that, if a straight line be bisected and also unequally divided, the squares on the two unequal parts are together double of the squares on the half-line and the line between the points of section.

Show that, if the sum of the two sides of a right-angled triangle which contain the right angle is given, the hypotenuse is least when the two sides are equal.

6. Describe a square equal to a given triangle.

7. Define a circle, a chord of a circle. Prove that every chord of a circle lies entirely within the circle, and that, if the chord be produced, all points in the produced part lie without the circle.

8. Prove that in equal circles equal chords cut off equal arcs, the greater equal to the greater and the less equal to the less.

If the extremities of two equal chords be joined towards the same parts, prove that the joining lines are parallel.

9. Prove that the opposite angles of a quadrilateral inscribed in a circle are together equal to two right angles.

10. If a straight line touch a circle, and, from the point of contact, a straight line be drawn to cut the circle, the angles which it makes with the touching line are equal to the angles in the alternate segments.

11. Show how to inscribe a circle in a given triangle. Prove that the three bisectors of the angles of a triangle meet in one point.

12. Describe an isosceles triangle having each angle at the base double of the vertical angle.

Show that you have obtained two such triangles, and that the centre of the large circle and the two points of intersection of the two circles are the angular points of another.

Mechanics.—For Class D, and for Senior and Junior Civil Service. Time allowed: 3 hours.

1. Explain the terms—resultant velocity, foot-pound, specific gravity, metacentre.

A body is projected with a velocity of 1,000ft. per second at an inclination of 45° to the horizon: find the horizontal and vertical components of this velocity.

2. State and prove the formulæ for the motion of a particle starting from rest under the action of a uniform accelerating force.

3. Find the force which, acting upon a mass of 100lb. for 5 seconds, generates a velocity of 80ft. per second. Find also the acceleration, and the work in foot-pounds which has been done by the force.

4. Show how to obtain by a graphical construction the resultant of three given forces which act at a point.

Four forces, 3, 5, 7, 9, acting at a point, are represented in direction by the sides of a square taken in order: find their resultant.

5. What is meant by the moment of a force?

A rod, 6ft. long and weighing 3lb., has masses of 6lb. and 9lb. attached one to each end: find the position of the point about which it will balance.

6. Find the relation of the power to the weight in the First System of Pulleys.

7. Show that if two liquids that do not mix with one another meet in a bent tube open at the ends, the heights of their upper surfaces above their common surface will be inversely proportional to their densities. Does this proposition hold good if the two branches of the tube have different diameters?

8. A piece of wood floats in sea-water, of specific gravity 1.025, with one-fifth of its volume above the surface: find the specific gravity of the wood.

9. Describe the siphon, and explain its action.

10. Define centre of pressure. Does the centre of pressure on a surface necessarily coincide with the centre of gravity of the surface, or does it ever do so? Give reasons for your answer.

A cylindrical vessel, $3\frac{1}{2}$ in. in diameter and 8 in. high, is filled with mercury. Taking the weight of a cubic inch of mercury as $\frac{1}{2}$ lb., find the whole pressure (1) on the base of the vessel, (2) on the curved surface.

Physics.—For Class D, and for Senior and Junior Civil Service. Time allowed: 3 hours.

1. Give an account of the chief physical changes produced in bodies by heat.

2. What is meant by "latent heat"? Explain the cause of the change of temperature when common salt is mixed with snow. How much heat would be required to convert a kilogramme of ice at 0° C. into steam at 100° C.?

3. Define "specific heat." How would you show that the specific heat varies for different substances?

A quantity of mercury at 0° C. is stirred up with an equal volume of water at 50° C. Find the resulting temperature, having given that the density of mercury is 13.6, and its specific heat 0.033.

4. What is meant by the "dew-point"? Explain the principle of some kind of dew-point hygrometer.

5. Explain the causes of the following phenomena: Echo, resonance, beats, overtones.

6. Explain the term "conjugate foci," as applied in the case of a spherical concave mirror. Can the conjugate foci both be real? Can they both be virtual? Under what circumstances will one be real and the other virtual?

An object is placed 4 ft. from a wall, and an image of the object magnified five times is thrown by a concave mirror upon the wall: where is the mirror placed and what is its focal length?

7. What is a Leyden jar? How is it charged? Obtain an expression for the energy of the charge. Describe an experiment which proves that the energy of the charge is stored up in the glass.

8. What is the cause of polarisation in a voltaic cell, and what is its effect on the action of the cell? Explain how polarisation is avoided in the Daniell cell.

9. A telegraph-line is 70 miles in length, and has a resistance of 14 ohms per mile. How many Daniell's cells joined in series, each cell having an E.M.F. of 1.08 volt and an internal resistance of 5 ohms, will be required to send a current of 0.02 ampere through the line?

Chemistry.—For Class D, and for Senior and Junior Civil Service. Time allowed: 3 hours.

1. Describe, giving the equations, three processes for making oxygen gas.

2. In what respects do the allotropic forms of phosphorus differ from each other?

3. Explain (giving full details, also giving equations) how bromine is got from sea-water.

4. How many grams of hydrogen gas can be got by the action of sulphuric acid on 1,000 grams of zinc? (At. wt. of Z = 65.)

5. Explain (giving also the equations) three processes for making carbonic-oxide gas.

6. Explain as fully as you can (giving equations) how sulphuric acid is made on the large scale.

7. Give the names and formulæ of all acids that contain (a) chlorine, (b) sulphur, (c) phosphorus.

8. Explain (with equations) how to make each of the oxides of nitrogen.

9. How can sulphuretted hydrogen be best made for laboratory experiments?

Elementary Biology.—For Class D, and for Senior and Junior Civil Service. Time allowed: 3 hours.

Animal Physiology.

1. Describe fully the structure of the heart of any mammal, and explain the functions of the various parts.

2. Describe the microscopical structure of a long bone, as seen in transverse and longitudinal sections.

3. How do we become sensible of vibrations of the air? Describe the structure of any special sense-organ concerned in their perception.

4. What are waste products? Enumerate the principal waste products of the human body, and explain how they are got rid of.

5. Explain fully the mechanism of respiration in man.

6. What is the scurf of the hair? Explain as fully as possible how it is formed. Draw and describe a vertical section through the roots of the hair.

7. What is an egg? How does an egg become an animal?

8. State what you know of the structure of the small intestine in man, and describe the functions of the various parts.

Botany.

1. Refer the following plants to their proper natural orders, and give the principal characters of each order: *Veronica*, *aster*, *trifolium* (clover), *cordyline* (cabbage-tree).

2. Explain the meaning of the terms *open*, *closed*, *collateral*, and *concentric*, as applied to vascular bundles, and describe the bundles of any plants which exhibit these characters.

3. From what sources do green terrestrial plants obtain their supplies of oxygen, nitrogen, carbon, and water respectively? Why is oxygen required by plants?

4. What is starch? State what you know of its chemical composition, microscopical structure, mode of formation, and distribution in the plant.
5. If the flower of a white iris be placed with the freshly-cut skin in a glass of red ink, a beautiful veining of fine red lines will soon become evident in the petals. Explain as fully as you can the meaning and cause of this phenomenon.
6. What is a seed? Describe fully the structure and mode of formation of a bean-seed.
7. Draw and describe a transverse vertical section of a leaf.
8. Explain, with the aid of diagrams, the difference between *epigynous*, *perigynous*, and *hypogynous* flowers, and give an example of each.

Shorthand (Senior).—For Senior Civil Service. Time allowed: 3 hours.

INSTRUCTIONS TO SUPERVISORS.

1. Inform candidates before the time for taking up this subject that they may use pen or pencil as they please for taking notes, which should be written on ruled paper, but that they must transcribe those notes into longhand with pen and ink.
 2. Inform candidates that when once you have commenced to dictate you cannot stop until the passage is finished.
 3. Dictate the passages at the following rates of speed:—
 - (a.) 50 words per minute.
 - (b.) 80 " "
 - (c.) 100 " "
- N.B.—It will be well to practise reading these aloud some time beforehand, looking at a watch or clock, so as to accustom yourself to reading at the exact rate indicated.*
4. Candidates are at liberty to take down one, two, or three passages, as they choose. All the passages required by candidates are to be dictated before any one begins to transcribe; and there should be as little delay as possible between the readings.
 5. Inform candidates that rapidity in transcribing notes into longhand is essential, and note carefully on the transcribed copy the exact time taken in transcription. Candidates must not look at their notes while a passage that does not concern them is being read.
 6. Inform them also that the clearness and accuracy of the shorthand notes (which must in every case be sent in attached to the transcript) will be taken account of by the examiner; and that they must not alter the shorthand notes after the dictation is finished.

(a.) At the rate of 80 words per minute. Take 10 minutes.

The whole crew would take to the water like so many tritons and nereids attending the progress of some ancient sea-god. Or they would slip nooses of line over their shoulders, and be gently drawn through the limpid, tepid wavelets without effort, and attended by every sensation of languorous bliss. During one of these periods of boyish enjoyment we suddenly opened up a bay whose shores seemed unfamiliar. The cliffs were very precipitous, but, as usual, heavily wooded. Feeling that | we might be approaching some new hiding-place of the whales, all hands climbed on board and threw on each the two garments that completed his dress. Every nook was eagerly scanned for spouts, and hardly a glance was wasted upon the marvellous scene below. For here, indeed, was one of the loveliest of nature's pictures spread out in all that extravagance of beauty and dazzling radiance of colour found in such lonely spots, as if intended for the pleasure of | the Creator alone. Fish like living jewels darted about in myriads through those subaqueous groves whose every branch was a miracle, over which a reverent soul might wonder for a lifetime without exhausting its marvels.

- 2 Suddenly a low semicircular opening in the cliff wall opened up. We were sailing close in shore with so light a breeze that the water was as smooth as a mirror, and as we slowly neared the doorway it proved high enough and broad enough | to admit a much bigger craft. Without waiting to think we unstepped the mast and paddled gently in. As we entered, the swell, imperceptible before, lifted us unpleasantly near the top of the natural arch, but we glided swiftly through without touching. There appeared to be a natural channel below corresponding to the doorway above the water, for the sea was here of an intense blue, and we could with difficulty see the bottom. Once within, great was our amazement. | The cavern widened out enormously, and the roof rose as near as we could guess to a pitch of about 60ft. We gently paddled on, guided by a soft suffused light that entered we knew not where, but made it possible for us, as our eyes got accustomed to the gloom, to see the configuration of the cave. Its walls were perpendicular, nowhere that we could see affording the slightest foothold. After a little paddling around we concluded that | we had been inside long enough and headed for the entrance, but it had disappeared. Then it dawned upon us that we had been here much longer than we supposed, and that possibly the tide had risen. For a few moments we sat and stared at each other in silence, each brain busy with its own view of the question. Then our cogitations were brought to an abrupt termination by a most hideous deafening roar, which reverberated through that mighty | hall, as if it would never cease. To say we were scared sounds weak. I simply wilted, and for a moment felt as if all my faculties were dead except consciousness of existence. Then it came again, but the repetition restored us all to sanity and life. We recognised the sound, but having never heard it before under such conditions no wonder it took us by surprise. It was a whale spouting. He had come in after us, and

* The matter to be read is marked off into sections, each of which is to occupy a minute. The Supervisor will perhaps find it advisable to mark it off into smaller sections, each containing the number of words to be read in fifteen seconds, and to read one section in every quarter of a minute. As the candidates hear the passage read only once, the reader's articulation ought to be very clear, and the candidates ought to be so placed as to be able to hear well.

7 was | now doubtless trying to find his way out again. Suddenly he rose near us, and to my horror our half savage harpooner actually seized a lance and pierced his broad side.

I am not going to attempt any description of the scene that ensued. All I know about it is that after what seemed a very long time, during which I was being tossed about in a cylinder half full of water to the accompaniment of a few earthquakes and | volcanic eruptions, I found myself suddenly and unaccountably at peace again. I know somebody said, "Oh, go on with the circus, I'm just beginning to like it," and I know that I smiled mechanically, but really all I could do for at least an hour was wonder at being alive. It was much darker than before, that is, above water, but below the water was ablaze with light. I said to myself, "That whale's dead or gone out, and these are | sharks. If he's dead and down beneath us, there'll be enough sharks here in an hour or two to fill the cave." Well, all that night they kept coming, showing that the whale *was* there and dead, and if ever six poor men sat in such a den of darkness for ten mortal hours, over such a tangle of writhing cannibals, and came out of it with all their change, I should like to know them and sympathise with them. |

(b.) At the rate of 120 words per minute. Takes 10 minutes.

We have called you together on this occasion to take into consideration an agreement entered into with the Bank of New Zealand for the sale of this bank's business to that institution, which agreement has received the sanction of Parliament. I will, later on, propose a resolution to the effect that it be ratified and given effect to. The contract is one that does not give unmixed satisfaction to your directors; but it is the result of long, anxious, and tedious negotiations, and embodies the best terms they could procure for you. It only remains for you now to say whether you will accept or reject it. One of the main conditions that your
1 directors had in view throughout the | negotiations was that shareholders should be released from all further liability on their shares. On reference to the agreement you will see that, with the exception of the "C" list of accounts, which have very liberal reserves by way of security placed against them—consequently no great liability should attach to them—and the ordinary drafts and remittances, which have to run off, and on which the risk of any liability is remote, the purchasing bank guarantees to pay all deposits and other liabilities, so that practically shareholders are released from further liability. The agreement embodying the terms of the sale of this bank has been open for inspection at the several branches for some
2 time, and has also been | published in full in the principal newspapers throughout the colony, so that most of you have doubtless become acquainted with its terms. For the benefit of those who have not had an opportunity of doing so I shall here briefly state the leading features. The sale is to be based upon our balance-sheet as at 31st August last, and is to date from that period. As you are aware, that balance-sheet shows the assets to be £3,001,236, while the liabilities amount to £2,516,256, the difference being £484,980, representing capital, reserve
3 fund, and undivided profits. The Bank of New Zealand is to | take over the assets comprised in the first six items in the balance-sheet as they stand in our books, subject to a reduction in the value of furniture and stationery, the amount of which has been agreed upon. The general advances have been subjected to the most searching investigation possible. Every advance account in our books has been thoroughly overhauled, from the largest to the smallest, first by the inspecting officers of the Bank of New Zealand, subsequently by the directors of that bank, and finally by the Government Auditor. The result of this investigation was that the accounts were classified under four headings. Those in the "A" schedule, amounting to
4 £927,197, were | taken over unreservedly. Those in "B" and "C" schedules, amounting to £703,077, the directors of the Bank of New Zealand wished to further investigate, and, pending more experience of their working, insist upon retaining the sum of £327,305 in reserve by way of security. Here I may say that many of these accounts have not given us anxiety, while some of them are as operative and profitable as any in the books of the bank. The assets comprised in the "D" schedule include certain inoperative accounts, and amount nominally to
5 £102,274, which assets are retained by this bank for realisation. It will be seen, therefore, | that the Bank of New Zealand is to take over as good, inclusive of the "A" schedule, assets amounting to £2,195,884, less allowance on furniture and stationery, and, further, has agreed to take over those in "B" and "C" schedules, amounting to £703,077, subject to realisation, against which it is to hold in hand £327,305 of the purchase-money. The total amount to be paid to you in the meantime by the Bank of New Zealand will be £2,643,190, less liabilities
6 which they take over amounting to £2,509,284, the difference between these | amounts (£133,906) being available in cash. In due course we shall also receive such portion of the £327,305 as may not be required for deficiencies in accounts in the "B" and "C" schedules; and we shall also receive whatever amount is realised from the assets comprised in the "D" schedule. From these several sources we hope for a substantial sum per share yet to be realised for distribution amongst shareholders, the amount of which will depend on the realisation of these accounts and the state of business in the colony until this has been done. During the investigation, while we cannot complain of the Bank of New Zealand directors exercising
7 | every care to protect their own institution, yet from our point of view we think that they have kept in hand more money than is necessary. They said, in effect, if you insist on freeing your shareholders from all liability, we must make ourselves absolutely safe. Doubtless you will all realise what a wide divergence of opinion there usually exists in the valuation of securities pending an investigation as between buyer and seller; in fact, it is often impossible to say, short of realisation, what the values of certain securities are. After discussion and very close investigation of some of these securities, it may be that our officers have taken a too sanguine
8 view of the value of such securities, | considering the protracted depression and the general shrinkage which consequently has taken place in values of all properties. On the other hand,

we think the views held by the other side were to a large extent extreme in the opposite direction. As to the acquisition of our business, we have no doubt that its value to the Bank of New Zealand will be more than its directors estimate. They secure, next to their own, the largest exchange business in the colony, and the excellent advance business, which they much require, and which in no other manner could they obtain in the present condition of the money market, except by cutting rates and taking accounts from other banks. This, for them, | would have been a suicidal policy, for, in lowering rates to customers of other banks, they would be bound to lower their own also, consequently their earning power would be considerably lessened—and this would lead to a very undesirable state of things, good for no institution in the end; lastly, they get their most formidable rival out of the way. With the acquisition of this bank's business and the assistance they have received from the colony, the position of the Bank of New Zealand will thus be remarkably advantageous. There are obvious reasons which have influenced your directors in adopting the course which they have. As indicating the radical changes which have recently taken place in banking in the colonies, |

(c.) At the rate of 150 words per minute. Takes 5 minutes.

That statement *re* interest was wrong, and it was proved to be wrong. In reporting extracts from that speech the London financial paper stated that we "must borrow or burst." It also said, "And all the present Ministry is doing is to conceal as artfully as it can the source from whence it is drawing its surplus of money spent beyond current income." That was the statement which was made then. Similar statements about borrowing or bursting have been regularly kept up in England ever since that time; many people believe there now that we are plunderers and robbers, and that the colony is bankrupt. What was the statement made not very long before my arrival in London—said to emanate from a colonist of high standing? Honourable members must recognise that I must only briefly refer to this. However, I shall do so, because it is essential. He said | this:—

1 "Our rugged mountains must be tunnelled and scarred with the useless lines, our engineers rivalling each other as to which one should produce the most fantastic line after the Mont Cenis or South Andes pattern. Truly the whole thing has been pitiable—very pitiable—and we are all bankrupt. Nearly every wholesale house in the colony has gone to the wall."

That is a statement said to have been written by an old New Zealand settler of position and high character. I ask honourable members to say whether or not that does not imply that every one in this country is bankrupt.

An Hon. MEMBER.—Who wrote it?

Mr. WARD.—It is written by an old New-Zealander. Honourable members ask, "Who wrote it?" Let them refer to some of their own speeches if they want to know. A further statement was published at the same time to the | effect that—

2 "The borrowers all round are bankrupt, and most of the lenders would soon be so likewise, but the Government, which cannot live except by borrowing, and the farmers, who cannot pay because they make no money, and the corporate mortgagees, who know not where to turn for a spare shilling, are all to be made gloriously fat and to be put in funds by a systematic use of the 'splendid credit of the colony on the London market.'"

A further statement is made in the same paper, dated shortly before I arrived in London. It is as follows:—

3 "The position of the inhabitants of New Zealand is too utterly sad for mockery. They have allowed their freedom to be trafficked away to the usurer; debt haunts them in all their transactions—steals the bread out of their mouths, the clothes from their backs; and still the charlatan political | adventurer befools them with gabble about prosperity—about a colony 'impregnable' in its strength. The mind turns from such a spectacle with loathing and pity. But if the age of miracles returns New Zealand may yet be saved."

That is another statement which was published; and yet honourable members upon that side of the House say they have never seen anything published against the credit or position of this country. Here is a statement which was also published by another old settler—it is a statement written from this colony.

Captain RUSSELL: In what paper?

Mr. WARD: The *Investors' Review*.

Hon. MEMBERS: Ha! ha!

Mr. WARD: Honourable members may say, "Ha! ha! ha!" but the old settler who sent this statement to the Old Country—did he say, "Ha! ha! ha!"? It is "Ha! ha! ha!" when one reads these statements. Does not that sound like an echo of | the "Ha! ha! ha!" of those who sent it? These damaging statements that are being made there are paralysing our efforts, and yet members laugh when they are read out. What does that show? Does it not show that they care very little that these aspersions on the credit of the country are made? That is the logical conclusion when one hears such laughter when these damaging things are read out:—

4 "Meanwhile our Ministers live modestly in lodgings in the Wellington publichouses. The Ministerial residences of the old extravagant Vogel days do not suit them. They are careful men, who do not care to entertain and live expensively; it is wiser to keep their possessions in a carpet-bag, so that when the crash comes they have only to step on board the first steamer. 5 In all the years I have lived in the colony I never saw things so bad. |

Shorthand (Junior).—For Junior Civil Service. Time allowed : 3 hours.

INSTRUCTIONS TO SUPERVISORS.

1. Inform candidates before the time for taking up this subject that they may use pen or pencil as they please for taking notes, which should be written on ruled paper, but that they must transcribe those notes into longhand with pen and ink.

2. Inform candidates that when once you have commenced to dictate you cannot stop until the passage is finished.

3. Dictate the passages at the following rates of speed :—

(a.) 50 words per minute.

(b.) 80 " "

(c.) 100 " "

N.B.—It will be well to practise reading these aloud some time beforehand, looking at a watch or clock, so as to accustom yourself to reading at the exact rate indicated.*

4. Candidates are at liberty to take down one, two, or three passages, as they choose. All the passages required by candidates are to be dictated before any one begins to transcribe; and there should be as little delay as possible between the readings.

5. Inform candidates that rapidity in transcribing notes into longhand is essential, and note carefully on the transcribed copy the exact time taken in transcription. Candidates must not look at their notes while a passage that does not concern them is being read.

6. Inform them also that the clearness and accuracy of the shorthand notes (which must in every case be sent in attached to the transcript) will be taken account of by the examiner; and that they must not alter the shorthand notes after the dictation is finished.

(a.) At the rate of 50 words per minute. Takes 10 minutes.

The town of St. Andrews, in the Province of Ontario (Canada), was exercised very greatly during August over the action of its Borough Council. There was great opposition to the granting of a publican's license in the locality, and a deputation of women, armed with a monster petition against the hotel, waited on the Council, who have the power of granting licenses. Their urgency and protestations were the means of delaying action for several weeks, but, watching their opportunity, the liquor party pushed the matter to a decision and obtained the license by the casting vote of the Mayor. Then there was trouble at St. Andrews. The indignation of the people was voiced by the Rev. Mr. Ashdown (Congregational), who from his pulpit publicly pronounced the curse of Heaven on the traffic and all engaged in it. In the course of a truly eloquent discourse he said: "The day will come—is coming—when men will look down on the millionaire manufacturer with as much disgust and loathing as they now look down upon the bar-tender, and will not allow the one into respectable society any more than they do the other. In that day State institutions will not longer be accepted if they are built by men who have acquired their wealth by ruining the most precious thing that there is in any State—its pure and noble manhood; in that day universities and public libraries will refuse to be endowed by men who have made their money by brewing beer and distilling whiskey; and in that day a cleaned and purified and awakened Church will strike from its membership roll all those who are engaged in, or who sanction or wink at, this grave evil, this colossal death business. What we want is not the Dunkin Act, nor the Scott Act, nor local option, nor the license system, nor prohibition, but abolition. The liquor traffic is doomed to die; it must die, and it will. God is marching on. Men may say that this is only the wild chimera of a frenzied enthusiast. Yes, that is what they said a hundred years ago about the slaves' freedom in the Southern States; but the year came, and the day came, and the hour came when, after many reverses and defeats, the call echoed from Washington for one more last effort, and the nation awoke and gave again of her best and her bravest, and the immense army marched on singing gloriously—

We are coming, Father Abraham,
Three hundred thousand more.

And that day such a blow was struck for freedom that the shackles were smitten from the hands of four millions of slaves, and they leaped forth from their bondage freed men. Even so shall the day come, and its glorious dawning is drawing nearer, when there shall be overcome and cast down, and utterly abolished, the last liquor shop in America, the last opium den in China, the last harem in Turkey, the last slave fetter in Africa. |

(b.) At the rate of 80 words per minute. Takes 10 minutes.

The first thing that strikes you about Mark Twain is his wonderful head of hair—now alas! turning grey, though he is not yet sixty years of age. Some people say that he has no time to get it cut, but these are men who do not speak charitably of their fellow-men but with envy and malice aforethought, and—they are mostly bald.

1 The second thing that strikes you is that he has wonderfully keen eyes. They are stuck a long way back from the bushy eyebrows, and look as though they could reckon you up in a twinkle. There could be no doubt in any one's mind, even if he had not read his works, that Mark Twain is a shrewd fellow, and a keen observer. Thirdly, you note his measured utterance—a slow Yankee drawl, with neither too much nor too little of the Yankee in it, but just

* The matter to be read is marked off into sections, each of which is to occupy a minute. The Supervisor will perhaps find it advisable to mark it off into smaller sections, each containing the number of words to be read in fifteen seconds, and to read one section in every quarter of a minute. As the candidates hear the passage read only once, the reader's articulation ought to be very clear, and the candidates ought to be so placed as to be able to hear well.

2 enough to give a distinct individuality and the | necessary American flavour to the man's conversation, and to make you long to hear him tell his own story of the "Jumping Frog" in his own inimitable way.

And right here, as the Americans say, it may be interesting to note that Mark Twain did not steal his "Jumping Frog" from the Ancient Greek, as has been stated recently in some colonial papers, the real facts of the case being that a learned modern professor had it done
3 into Greek | of his own accord, only with this difference that, lead shot being unknown to the ancient Greeks, he took the liberty of filling the champion frog up with small stones.

Lastly, after you have conversed with the famous American humourist once or twice you will have arrived at the conclusion that he is a real good fellow, and a man with considerable force of character. Most people who have heard Mark Twain lecture in Australia have been
4 delighted with his | quaint and original way of putting things, though a few have come away professing disappointment, urging that he has told them nothing new. Whether or not Mark Twain would be pleased with this criticism I cannot say, but it is really one of the highest compliments that could be paid to him, because it shows how universally his stories have been
5 read. It is well enough to read these stories for one's self, but it is a real treat to | hear the author himself in his own quaint way describing the adventures of Huck Finn, telling the story of the ever green Jumping Frog, or giving his audience, in a confidential sort of way, the details of Adam's Diary.

My first glimpse of Mark Twain was as he was pacing up and down the vestibule at Menzies's one evening after dinner; and, as the sporting reporters say, I spotted him at once.
6 He is very like his portraits, only greyer, and | there is no mistaking him. Later on it was my good fortune to meet him on the Union liner "Mararoa," *en route* to Dunedin, and to have several interesting chats with him in the intervals during which he left his work for a change of scene and a smoke on the upper deck. The stereotyped interview is distasteful to most literary men of any ability, so I discreetly kept pencil and note-book out of view, and the gifted
7 author | never dreamt for a moment that he was being "drawn out" for an interview.

Mark Twain, it appears, is a hard worker. He has been living for some years past in France and Germany. He started out on his present lecturing tour quite unprepared, and with some misgivings on this score. By the time he reached the colonies, however, he was ready to "face the music," and has succeeded beyond expectations. In his spare time he is
8 engaged in | writing a book on his present travels, and this will be looked forward to with interest by most colonials. Every day and every night he is hard at work in his cabin, but he is in no danger of becoming "played out," as his method of working is such that there is always a freshness about what he does. As soon as he feels that he has been writing long
9 enough on one subject he leaves it and goes on | to another. In the same way with regard to books: when he gets to a point at which writing becomes a labour he immediately throws that book overboard, and takes up something more congenial to the inspiration of the moment. He has now two or three unfinished books pigeon-holed in this way. Some day they will be
10 finished, and will see the light in due course. This is a tip which might be taken with advantage by some modern writers. |

(c.) At the rate of 100 words per minute. Takes 5 minutes.

Your other candidate, at any rate, does not appeal to you on the merits of his ancestors. He has his own work and his own life to speak for him. I noticed that at a meeting which was held on Monday—I noticed with regret—that Mr. Trevelyan sneered at my friend Mr. Stanley as being old and grey-haired. If Mr. Stanley is old, I must be venerable (laughter), because I was born four years before he saw the light; and if he is grey-haired, I
1 say his grey hairs are a crown of honour. (Cheers.) They are | the testimony of the hardships and dangers which he has undergone in the service of his country—hardships and dangers which young Mr. Trevelyan is never likely to be called upon to experience. Mr. Stanley's name is a household word not only in the United Kingdom, but throughout the civilised world. He is, as the chairman has told you, one of the greatest of our modern pioneers and explorers, and I say that that should commend him, especially in a working-class constituency such as is this of North Lambeth. I wish sometimes that the working classes would
2 pay a | little more attention to the history of the growth of this Empire; I wish they would think more of the questions connected with its further expansion. I can show you in a minute that they are life and death to you. What do you think is at the present moment the greatest of the social problems with which we have to deal? The greatest and the most difficult is the lack of employment. It is the fact that in our midst, unfortunately, there are many who are
3 willing to work, but who cannot find work to do. What is the | reason? The reason is to be found—the principal reason—in the continuous and enormous growth of our population. Do you know that during the present century alone the population of Great Britain has increased from ten and a half millions at the beginning to thirty-three millions at the present day? It has increased by 200 per cent., and I tell you that that enormous increase in these small islands, which are insufficient to find subsistence for all their inhabitants—that enormous increase can
4 only be provided for by our great foreign and our great colonial trade. (Cheers.) | Under those circumstances the greatest benefactor is the man who finds for us new markets, who opens up to us fresh outlets to our trade; and I tell you that, in my opinion, in this way Mr. Stanley has done more already for the working people of this country than would have been done for them by all the items of the Newcastle programme, even if every one of them had been meant to pass, and had already been passed into law. Now, gentlemen, I think we must come to an
5 understanding. The vast majority present are here to listen. |

Maori.—For Senior and Junior Civil Service. Time allowed: 3 hours.

1. Translate the following into English:—

ROANGA-RAHIA ME RURU-TEINA.

Kotahi te wahine rongo nui e kiia ana e te rongo korero a nga iwi katoa, ko Roanga-rahia te ingoa, a ka noho taua hunga nei, he tuakana he teina, ko Ruru-teina te potiki o taua hunga, ka rongo aua tangata nei i te rongo atahua o taua wahine, a ka mea ratou kia haere kia kite ratou, ka mea puku a ia a ia o ratou mana taua wahine, ka mahia te waka ka oti, ka maanu ki te wai ka hoe taua hunga a ka tae ki te kainga i a Roanga-rahia, ka toia te waka ki uta, ka haere nga tangata ki te kainga o taua wahine, a ka rokohina atu aua tamariki e ta potaka ana, ka ui atu a Ruru-teina ki a ratou "Kei whea te huanui." Ka ki mai aua tamariki "whanatu na te roro o te whare o Roanga-rahia." A ka ki atu te waha a Ruru "Ko te huanui tera?" Ka ki mai taua hunga tamariki "Ae," a ka haere tera a Ruru ka tae ki te kainga, ka haere ki roto o te whare o te kainga, ka noho ratou, ka meatia mai he kai mo ratou.

2. Translate the following passage into Maori:—

After the whites came to New Zealand, and as soon as the wars between them and the Maoris had nearly ceased, a new state of things came into being. At this time three ways of life lay open to the Maoris—one was the European way, another his own old mode of living, and the third a kind of mixture of the two. It is to be feared that the Maori made a wrong choice—or, rather, that he chose the third kind of life, and made a very bad mixture. What he has done has been partly to keep to his own old ways and partly to take up the injurious customs of the pakeha. When the pakeha came the Maori was offered much that could do him great good, but at the same time he had too many opportunities of learning from the pakeha practices that would do him unspeakable harm. The Maori too often refused the benefits offered him, and eagerly accepted what was hurtful and destructive. He refused many most useful hints from the pakeha because he did not thoroughly understand their nature, and because they plainly led—at first, at all events—to pretty hard work and some self-denial. He accepted many a bad gift from the pakeha because it seemed easy and pleasant to use it, and because there was no delay preceding the enjoyment of it.

3. Put the following into English:—

I haere mai koe i hea? He kau pai taku kau. He aha te ingoa o te rakau nui na? Ko to potae he mea raranga ki te takakau witi. I mua noa atu i tu nga whare Maori ki runga ki nga maunga, inaianei e tu ke ana nga whare ki nga wahi mania.

4. Put the following into Maori:—

I love her very much. If you meet John tell him that I would like to see him. It would be a good thing for the Maoris if they were to build their houses on high ground. They paddled their canoe very fast.

5. Illustrate the use of the following words—*E, kia, toko, whai*—supplying translations of each example.

Trigonometry.—For Senior Civil Service. Time allowed: 3 hours.

1. What is meant by circular measure? Express in circular measure (1) an interior angle of a regular decagon, (2) the angle subtended by one of its sides at the circumference of the circumscribing circle.

2. Prove that the circumferences of different circles vary as their radii, and their areas as the squares of their radii.

Find in yards the radius of the circle which contains one square mile.

3. Prove that $\sin^2 A + \cos^2 A = 1$; and give the numerical values of $\tan 150^\circ$, $\sin 225^\circ$, and $\sec 300^\circ$.

Show that $(\sin 150^\circ + \cos 150^\circ)(\sin 150^\circ - \cos 150^\circ) = \cos 120^\circ$.

4. Find $\sin(A + B)$ in terms of the ratios of A and B , taking A and B to be positive angles, and their sum to be less than a right angle: hence deduce expressions for $\sin 2A$ and $\cos(A + B)$.

5. Prove the following identities:—

$$(a) \sin(A + B) \cdot \sin(A - B) = \sin^2 A - \sin^2 B;$$

$$(b) \frac{\operatorname{cosec} 2A}{1 + \cot^2 A} = \frac{1}{2} \tan A;$$

$$(c) \frac{\sin(A - C)}{\cos A \cdot \cos C} + \frac{\sin(B - A)}{\cos B \cdot \cos A} + \frac{\sin(C - B)}{\cos C \cdot \cos B} = 0.$$

6. If $\tan A = 2\sqrt{2}$, find $\sin A$, $\sin 2A$, and $\sin \frac{A}{2}$.

7. Show that in any triangle the sides are proportional to the sines of the opposite angles.

The sides of a triangle are 60ft., 84ft., and 96ft.: find the area of the triangle and the sine of each of its angles.

8. Prove that in any triangle ABC , if the sides opposite to the angles A, B, C , be denoted by a, b, c respectively,

$$\frac{a+b}{a-b} = \frac{\tan \frac{1}{2}(A+B)}{\tan \frac{1}{2}(A-B)}.$$

Having given that $a = 20$, $b = 10$, $C = 60^\circ$, solve the triangle.

9. From the top of a house 42ft. high, the elevation of the top of a tower, standing on the same level as the house, was observed to be $18^\circ 15'$; and at the base of the house the elevation was found to be $32^\circ 30'$: find the height of the tower.

[Given $\log. 42 = 1.623249$; $L \cos 18^\circ 15' = 9.977586$; $L \sin 14^\circ 15' = 9.391206$; $L \sin 32^\circ 30' = 9.730216$; $\log. 8.706 = .939819$ —diff. 50.]

Approximate Cost of Paper.—Preparation, not given; printing 3,150 copies), £28 12s.

By Authority: SAMUEL COSTALL, Government Printer, Wellington.—1896.