(No. 32.)

1884.

PARLIAMENT OF TASMANIA.

TASMANIAN SCHOLARSHIPS:

EXAMINERS' REPORT FOR 1883.

Presented to both Houses of Parliament by His Excellency's Command.

TASMANIAN COUNCIL OF EDUCATION.

TASMANIAN SCHOLARSHIPS.

THE Council of Education has directed the publication of the names of the under-mentioned Candidates who have passed the Examination for the Tasmanian Scholarships to the satisfaction of the Examiners; and to whom Scholarships have been awarded, tenable for four years from the 1st June next, subject to the conditions laid down by the Council's Regulations:—

EVETT GORDON ALLPORT, aged 19 years and 9 months, Associate of Arts, 1880. Pupil of W. W. Fox, Esq., B.A., Horton College, Ross.

JOHN JOSEPH MACNAMARA, aged 19 years and 2 months, Associate of Arts, 1881. Pupil of the High School, Hobart, Rev. R. D. Poulett-Harris, M.A., Rector.

The Report of the Examiners is annexed.

By Order of the Council,

GEO. RICHARDSON, *Secretary.*

Hobart, 12*th December*, 1883.

EXAMINERS' REPORT.

MR. PRESIDENT AND MEMBERS OF THE TASMANIAN COUNCIL OF EDUCATION.

WE have the honor to report that the Examination for the Tasmanian Scholarships began on Friday, 30th November, and ended on Saturday, 8th December.

Five Candidates presented themselves, all of whom fulfilled the Council's condition for eligibility to the Scholarship, namely, obtaining 500 marks in Classics.

All the Candidates presented Higher Mathematics, and did very good work in this new branch of the Examination.

The Examiners are quite agreed that the minimum fixed by the Council, viz., 2200 marks in all, might in future years be raised to 2400,—a limit which has been attained this year by three Candidates, while a fourth at his first essay has come but little short of it.

Four Candidates qualified: Macnamara stood first in Classics, and in the group English, French, and History, but the great superiority of Allport's mathematical work won him the first place.

Of the five Candidates four have displayed a large amount of mathematical ability. Allport proved himself superior to his competitors in every separate branch of both the Higher and the Lower Mathematics, except the Differential and Integral Calculi, in which subjects Macnamara stood first. Hales, although standing only fourth in order, from not apparently having read so high as some of his competitors, yet, from the manner in which he solved the problems, displayed mathematical talent of no mean order. The new scheme seems to have worked advantageously, and has certainly afforded a better criterion for discriminating the merits of the Candidates.

On opening the envelopes it was found that the Scholars for 1883 were—

EVETT GORDON ALLPORT, A.A., 1880,
JOHN JOSEPH MACNAMARA, A.A., 1881,

and that two others had qualified, viz.—

JAMES HARCOURT SMITH, A.A., 1881.
FREDERICK CHARLES HALES, A.A., 1881.

A full Schedule of Marks is appended to this Report.

M. H. IRVING, *M.A.*, *Chairman.*

Hobart, 10*th December*, 1883.

EXAMINATION for TASMANIAN SCHOLARSHIPS, *December*, 1883.

TABLE OF MARKS.

	Full Marks.	*Motto.*				
		A.	**B.**	**C.**	**D.**	**E.**
MODERN LANGUAGES AND HISTORY.						
I. English	400	130	155	161	243	214
II. French	400	189	188	215	144	219
III. Modern History	400	130	173	115	197	138
Total	1200	449	516	491	584	571
LOWER CLASSICS.						
I. Latin Prose, History and Grammar	450	147	102	212	229	189
II. Latin Authors prescribed	300	133	162	190	191	185
III. Greek Prose, History and Grammar	450	184	134	247	263	223
IV. Greek Authors prescribed	300	197	206	221	239	224
Total	1500	661	604	870	922	821
LOWER MATHEMATICS.						
I. Arithmetic and Algebra	350	160	135	240	200	285
II. Euclid, Geometrical Conics, and Logarithms	375	210	140	260	268	307
III. Trigonometry and Analytical Geometry	375	180	198	215	244	259
IV. Natural Philosophy	400	201	129	268	160	167
Total	1500	751	602	983	872	1018
HIGHER MATHEMATICS.						
I. Theory of Equations	350	165	153	245	232	295
II. Spherical Trigonometry	350	100	15	170	205	230
III. Differential and Integral Calculus	400	148	0	155	328	274
IV. General Problems	400	84	40	105	80	138
Total	1500	497	208	675	845	937
GRAND TOTAL	5700	2358	1930	3019	3223	3347

M. H. IRVING, *M.A.*, *Chairman.*

Council of Education, Hobart, 10*th December*, 1883.

Greek.—I.

Four hours.

M. H. Irving, M.A., *Examiner.*

A.—Translate into Greek—

According as the war progressed the general state of society became worse; men became savage, and sought out new schemes of overthrowing their enemies, and new cruelties to wreak their vengeance upon them. Even the very signification of ordinary terms changed. Rash boldness came to be considered loyal friendship, and wise caution specious cowardice. Men were expected to stop at nothing for their party, and if they did hesitate they were cast aside as worthless and unfaithful. For party became the paramount bond and overrode the ties of blood. Its object was not to abide by the law, but to evade and violate it. Oaths and promises were indeed given and taken, but had not a particle of force if interest opposed them. And the one interest which swallowed up every other feeling was the lust of power—of ruling in the state—some as aristocrats, some as leaders of a democracy, but even then only so long as no more complete victory, such as a tyranny over both friends and foes, was in view. Thus every form of villany became prevalent in the Greek world on account of their internal factions. Simple honesty was laughed out of society, and guarded mistrust took its place. There was no superior power to arbitrate, and men were so trained to forecast unexpected dangers that they were unable to feel confidence in either oath or promise.

This is the substance of what the great Greek historian tells us of the state of Greece about the middle of the Peloponnesian war.

Mahaffy.

B.—HISTORY.

1. Give some account of the reforms of Cleisthenes.
2. Sketch the rise of Athenian power from 479 to 448 B.C.
3. Give with dates a sketch of the career of Epaminondas.
4. Sketch Alexander's campaigns in Asia for the first five years of his invasion.

C.—GRAMMAR.

1. Compare the inflections of the verb used by Homer with the Attic forms.
2. Give the Greek for—Better than I. Four drachmæ a day. I am pleased at your success. In his archonship. I hear you say. My head aches. He is more knave than fool. Fully explain each construction.
3. Give a scheme of conditional sentences as used in Greek, and compare with the Latin equivalents.
4. Give the future perfects and aorists in use from *ἄγω, ἀκούω, ἔχω, ἕπομαι, ὄλλυμι, ἵστημι, ὁράω, αἱρέω.* Point out and explain any abnormal forms.
5. Name, exemplify, and explain the "case-like" endings found in Greek.

Greek.—II.

Four hours.

M. H. Irving, M.A., *Examiner.*

1. Translate—

(A) *Πότερον οὖν αἱρεῖ, ὦ Σιμμία, ἐπισταμένους ἡμᾶς γεγονέναι, ἢ ἀναμιμνήσκεσθαι ὕστερον ὧν πρότερον ἐπιστήμην εἰληφότες ἦμεν; Οὐκ ἔχω, ὦ Σώκρατες, ἐν τῷ παρόντι ἐλέσθαι. Τί δέ; τόδε ἔχεις ἑλέσθαι, καὶ πῇ σοι δοκεῖ περὶ αὐτοῦ· ἀνὴρ ἐπιστάμενος περὶ ὧν ἐπίσταται ἔχοι ἂν δοῦναι λόγον ἢ οὔ; Πολλὴ ἀνάγκη, ἔφη, ὦ Σώκρατες. Ἦ καὶ δοκοῦσί σοι πάντες ἔχειν διδόναι λόγον περὶ τούτων ὧν νῦν δὴ ἐλέγομεν; Βουλοίμην μὲν τἄν, ἔφη ὁ Σιμμίας· ἀλλὰ πολὺ μᾶλλον φοβοῦμαι μὴ αὔριον τηνικάδε οὐκέτι ᾖ ἀνθρώπων οὐδεὶς ἀξίως οἵός τε τοῦτο ποιῆσαι. Οὐκ ἄρα δοκοῦσί σοι ἐπίστασθαί γε, ἔφη, ᾧ Σιμμία, πάντες αὐτά; Οὐδαμῶς. Ἀναμιμνήσκονται ἄρα ἃ ποτε ἔμαθον; Ἀνάγκη. Πότε λαβοῦσαι αἱ ψυχαὶ ἡμῶν τὴν ἐπιστήμην αὐτῶν; οὐ γὰρ δὴ ἀφ' οὗ γε ἄνθρωποι γεγόναμεν. Οὐ δῆτα. Πρότερον ἄρα. Ναί. Ἦσαν ἄρα, ὦ Σιμμία, αἱ ψυχαὶ καὶ πρότερον, πρὶν εἶναι ἐν ἀνθρώπου εἴδει, χωρὶς σωμάτων, καὶ φρόνησιν εἶχον. Εἰ μὴ ἄρα ἅμα γιγνόμενοι λαμβάνομεν, ὦ Σώκρατες, ταύτας τὰς ἐπιστήμας· οὗτος γὰρ λείπεται ἔτι ὁ χρόνος. Εἶεν, ὦ ἑταῖρε· ἀπόλλυμεν δὲ αὐτὰς ἐν ποίῳ ἄλλῳ χρόνῳ; οὐ γὰρ δὴ ἔχοντές γε αὐτὰς γιγνόμεθα, ὡς ἄρτι ὡμολογήσαμεν· ἢ ἐν τούτῳ ἀπόλλυμεν, ἐν ᾧπερ καὶ λαμβάνομεν; ἢ ἔχεις ἄλλον τινὰ εἰπεῖν χρόνον; Οὐδαμῶς, ὦ Σώκρατες, ἀλλ' ἔλαθον ἐμαυτὸν οὐδὲν εἰπών.*

(B) Καὶ τὸ μὲν πρὸς τοὺς Ἀθηναίους τοσοῦτον ἀγαθὸν εὖ βουλευομένοις εὑρίσκεται. τὴν δὲ ὑπὸ πάντων ὁμολογουμένην ἄριστον εἶναι εἰρήνην πῶς οὐ χρὴ καὶ ἐν ἡμῖν αὐτοῖς ποιήσασθαι; ἢ δοκεῖτε, εἴ τῳ τι ἔστιν ἀγαθὸν ἢ εἴ τῳ τὰ ἐναντία, οὐχ ἡσυχία μᾶλλον ἢ πόλεμος τὸ μὲν παύσαι ἂν ἑκατέρῳ, τὸ δὲ ξυνδιασώσαι, καὶ τὰς τιμὰς καὶ λαμπρότητας ἀκινδυνοτέρας ἔχειν τὴν εἰρήνην, ἄλλα τε ὅσα ἐν μήκει λόγων ἄν τις διέλθοι, ὥσπερ περὶ τοῦ πολεμεῖν; ἃ χρὴ σκεψαμένους μὴ τοὺς ἐμοὺς λόγους ὑπεριδεῖν, τὴν δὲ αὐτοῦ τινα σωτηρίαν μᾶλλον ἀπ' αὐτῶν προϊδεῖν. καὶ εἴ τις βεβαίως τι ἢ τῷ δικαίῳ ἢ βίᾳ πράξειν οἴεται, τῷ παρ' ἐλπίδα μὴ χαλεπῶς σφαλλέσθω, γνοὺς ὅτι πλείους ἤδη καὶ τιμωρίαις μετιόντες τοὺς ἀδικοῦντας καὶ ἐλπίσαντες ἕτεροι δυνάμει τινὶ πλεονεκτήσειν, οἱ μὲν οὐχ ὅσον οὐκ ἡμύναντο ἀλλ' οὐδ' ἐσώθησαν, τοῖς δ' ἀντὶ τοῦ πλέον ἔχειν προσκαταλιπεῖν τὰ αὑτῶν ξυνέβη. τιμωρία γὰρ οὐκ εὐτυχεῖ δικαίως, ὅτι καὶ ἀδικεῖται· οὐδὲ ἰσχὺς βέβαιον, διότι καὶ εὔελπι. τὸ δὲ ἀστάθμητον τοῦ μέλλοντος ὡς ἐπὶ πλεῖστον κρατεῖ, πάντων τε σφαλερώτατον ὂν ὅμως καὶ χρησιμώτατον φαίνεται· ἐξ ἴσου γὰρ δεδιότες προμηθείᾳ μᾶλλον ἐπ' ἀλλήλους ἐρχόμεθα.

(C) εἰ δ' οὖν, ἐρῶ γὰρ καὶ τὸ σὸν, κεῖνον θέλων
ἐπωφελῆσαι ταῦτ' ἔδρα, τούτου θανεῖν
χρῆν αὐτὸν οὕνεκ' ἐκ σέθεν; ποίῳ νόμῳ;
ὅρα τιθεῖσα τόνδε τὸν νόμον βροτοῖς
μὴ πῆμα σαυτῇ καὶ μετάγνοιαν τιθῇς.
εἰ γὰρ κτενοῦμεν ἄλλον ἀντ' ἄλλου, σύ τοι
πρώτη θάνοις ἂν, εἰ δίκης γε τυγχάνοις.
ἀλλ' εἰσόρα μὴ σκῆψιν οὐκ οὖσαν τιθῇς.
εἰ γὰρ θέλεις, δίδαξον ἀνθ' ὅτου τανῦν
αἴσχιστα πάντων ἔργα δρῶσα τυγχάνεις,
ἥτις ξυνεύδεις τῷ παλαμναίῳ, μεθ' οὗ
πατέρα τὸν ἀμὸν πρόσθεν ἐξαπώλεσας,
καὶ παιδοποιεῖς· τοὺς δὲ πρόσθεν εὐσεβεῖς
κἀξ εὐσεβῶν βλαστόντας ἐκβαλοῦσ' ἔχεις.
πῶς ταῦτ' ἐπαινέσαιμ' ἄν; ἢ καὶ τοῦτ' ἐρεῖς,
ὡς τῆς θυγατρὸς ἀντίποινα λαμβάνεις;
αἰσχρῶς, ἐάν περ καὶ λέγῃς. οὐ γὰρ καλὸν
ἐχθροῖς γαμεῖσθαι τῆς θυγατρὸς οὕνεκα.

(D) Νέστωρ δ' αὖ κατέρυκε καθαπτόμενος ἐπέεσσιν.
"Ζεὺς τό γ' ἀλεξήσειε καὶ ἀθάνατοι θεοὶ ἄλλοι,
ὡς ὑμεῖς παρ' ἐμεῖο θοὴν ἐπὶ νῆα κίοιτε
ὥς τέ τευ ἢ παρὰ πάμπαν ἀνείμονος ἠὲ πενιχροῦ,
ᾧ οὔτε χλαῖναι καὶ ῥήγεα πόλλ' ἐνὶ οἴκῳ,
οὔτ' αὐτῷ μαλακῶς οὔτε ξείνοισιν ἐνεύδειν.
αὐτὰρ ἐμοὶ πάρα μὲν χλαῖναι καὶ ῥήγεα καλά.
οὔ θην δὴ τοῦδ' ἀνδρὸς Ὀδυσσῆος φίλος υἱός
νηὸς ἐπ' ἰκριόφιν καταλέξεται, ὄφρ' ἂν ἔγωγε
ζώω, ἔπειτα δὲ παῖδες ἐνὶ μεγάροισι λίπωνται,
ξείνους ξεινίζειν, ὅς τίς κ' ἐμὰ δώμαθ' ἵκηται."
τὸν δ' αὖτε προσέειπε θεὰ γλαυκῶπις Ἀθήνη
"εὖ δὴ ταῦτά γ' ἔφησθα, γέρον φίλε· σοὶ δὲ ἔοικεν
Τηλέμαχον πείθεσθαι, ἐπεὶ πολὺ κάλλιον οὕτως.
ἀλλ' οὗτος μὲν νῦν σοὶ ἅμ' ἕψεται, ὄφρα κεν εὕδῃ
σοῖσιν ἐνὶ μεγάροισιν· ἐγὼ δ' ἐπὶ νῆα μέλαιναν
εἶμ' ἵνα θαρσύνω θ' ἑτάρους εἴπω τε ἕκαστα.
οἷος γὰρ μετὰ τοῖσι γεραίτερος εὔχομαι εἶναι·
οἱ δ' ἄλλοι φιλότητι νεώτεροι ἄνδρες ἕπονται,
πάντες ὁμηλικίη μεγαθύμου Τηλεμάχοιο.
ἔνθα κε λεξαίμην κοίλῃ παρὰ νηὶ μελαίνῃ
νῦν· ἀτὰρ ἠῶθεν μετὰ Καύκωνας μεγαθύμους
εἶμ', ἔνθα χρεῖός μοι ὀφέλλεται, οὔ τι νέον γε
οὐδ' ὀλίγον. σὺ δὲ τοῦτον, ἐπεὶ τεὸν ἵκετο δῶμα,
πέμψον σὺν δίφρῳ τε καὶ υἱέι· δὸς δέ οἱ ἵππους,
οἵ τοι ἐλαφρότατοι θείειν καὶ κάρτος ἄριστοι."

2. Translate, explain, and refer to context—

(*a*) ὅπλισσον δ' ἥια καὶ ἄγγεσιν ἄρσον ἅπαντα,
οἶνον ἐν ἀμφιφορεῦσι, καὶ ἅλφιτα, μνελὸν ἀνδρῶν,
δέρμασιν ἐν πυκινοῖσι.

(*b*) δίχα δέ σφισιν ἤνδανε βουλη
ἢ καθύπερθε Χίοιο νεοίμεθα παιπαλοέσσης
νήσου ἐπὶ Ψυρίης, αὐτὴν ἐπ' ἀριστέρ' ἔχοντες
ἢ ὑπένερθε Χίοιο, παρ' ἠνεμοέντα Μίμαντα.
ἠτέομεν δὲ θεὸν φῆναι τέρας.

(*c*) ὣς καὶ συ πάγκλαυτον αἰῶνα κοινὸν εἵλου,
τὸ μὴ καλὸν καθοπλίσασα δύο φέρειν ἐνὶ λόγῳ,
σοφά τ' ἀρίστα τε παις κεκλῆσθαι.

(*d*) ἔπειτα λύων ἡνίαν ἀριστέραν
κάμπτοντος ἵππου λανθάνει στήλην ἄκραν
παίσας· ἔθραυσε δ' ἄξονος μέσας χνόας
κἀξ ἀντυγων ὄλισθε· σὺν δ' ἐλίσσεται
τμητοῖς ἰμᾶσι.

(*e*) καὶ ὁ Κέβης ἠρέμα ἐπιγελάσας, Ἴττω Ζεὺς, ἔφη, τῇ αὐτοῦ φωνῇ εἰπών.

(*f*) οὐδὲν κωλύειν φῆς ταῦτα πάντα μηνύειν ἀθανασίαν μὲν μή, ὅτι δὲ πολυχρόνιόν τέ ἐστι ψυχὴ καὶ ἦν που πρότερον ἀμήχανον ὅσον χρόνον καὶ ἤδει τε καὶ ἔπραττε πολλ' ἄττα.

(*g*) καὶ τραυματισθεὶς πολλὰ, ἐλειποψύχησέ τε, καὶ πεσόντος αὐτοῦ ἐς τὴν παρεξειρεσίαν ἡ ἀσπὶς περιερρύη ἐς τὴν θάλασσαν καὶ ἐξενειχθείσης αὐτῆς ἐς τὴν γὴν οἱ Αθηναῖοι πρὸς τὸ τροπαῖον ἐχρήσαντο.

(*h*) οὐ γὰρ τὸ προμηθὲς, οἷς ἂν ἄλλος ἐπίῃ, περὶ τῆς σφετέρας ὁμοίως ἐνδέχεται λογισμὸν, καὶ ὅστις τὰ μὲν ἑαυτοῦ ἔχει, τοῦ πλείονος δε ὀρεγόμενος ἑκών τινι ἐπέρχεται.

3. Derive fully and give the meaning of *ἀγανακτεῖν, ἀξιοῦν, ἀπαλλαγή, ἀντίληψις, αὐλίζεσθαι, διφρηλάτης, ἐγχεσίμωρος, εἰργμός, ἡροειδής, παρουσία, ῥοδοδάκτυλος, ὑπηρέτημα.*

4. Where are the following, and how are they mentioned in your books :—Crisa, Delos, Delium, Galepsus, Megara, Sunium, Thyrea ?

5. Who were the following, and how are they mentioned in your books :—Cleon, Euryclea, Perdiccas, Phœax, Strophius, Theseus ?

Latin.—I.

Four hours.

M. H. Irving, M.A., *Examiner.*

A. Translate into Latin Prose—

The Roman policy, however, presents another side which lays much greater claim to our interest. It was compelled at sundry periods to abandon its proud exclusive principles, and court for self-preservation the alliance of aliens, and even of enemies. The annals of the Roman people afford a conspicuous illustration of the natural laws which seem to control the rise and progress of nations. The almost uninterrupted succession of their triumphs, the enormous extent of the dominion they acquired, and the completeness of the cycle through which they passed from infancy to decay, combine to present them to us as the normal type of a conquering race.

One principle seems to be established by their history. It is the condition of permanent dominion that the conquerors should absorb the conquered gradually into their own body, by extending, as circumstances arise, a share in their own exclusive privileges to the masses from whom they have torn their original independence. Thus only can they provide a constant supply of fresh blood to recruit their own exhausted energies and strengthen the basis of their power, while they extend the limits of their conquests.

All conquering nations instinctively resent this sacrifice of pride and immediate interest: all struggle blindly against it. The more readily they submit to the necessity, the longer do they retain the vitality of their institutions and repel the natural advances of decay. The obstinacy with which the Dorian conquerors of Sparta resisted this necessity checked their career of aggrandizement, and brought their political existence to a premature termination. On the other hand, the latest conquerors of our own island, as well as those of Gaul, have acknowledged the condition attached to their triumph, and the effects of their victory, itself long since forgotten, have endured through a succession of many centuries.

Merivale.

B. History of Rome—

1. A brief sketch, with dates, of the 2nd Punic war.
2. State briefly the events connected with these dates:—B.C. 498, 471, 390, 340, 300, 241, 146, 102, 63, 44.
3. The causes of the decay of the Republic.
4. Name, with dates, the principal events connecting Rome with Greece.

C. Latin Grammar—

1. Analyse the Latin case-endings, and show that all the declensions may be reduced to one type. What traces have you in Latin of cases other than those in common use?
2. "Dixit rem confectum iri." "Sui purgandi causâ adsunt." Discuss fully, and explain these constructions.
3. Put into Latin—Pity me. Discharge your duty. Wounded in the thigh. He surrounded Rome with walls. For how much did you buy it? I bought it for two asses. Spare the conquered. Pure of life. Black of skin. It is to our interest.
   Explain the reason of the construction in each case.
4. Exemplify the various forms of *perfect* in use in Latin, and explain their origin.
5. Write a brief English narrative in Oratio Recta, and turn into Latin in Oratio Obliqua. Make your narrative such that it will exemplify all the rules of Oratio Obliqua.

Latin.—II.

Three hours.

M. H. Irving, M.A., *Examiner.*

1. Translate—

(A) De Gorgia autem quod mihi scribis, erat quidem ille in quotidiana declamatione utilis: sed omnia postposui dummodo praeceptis patris parerem. Διαῤῥήδην enim scripserat ut eum dimitterem statim. Tergiversari nolui, ne mea nimia σπουδή suspicionem ei aliquam importaret. Deinde illud etiam mihi succurrebat, grave esse me de judicio patris judicare. Tuum tamen studium et consilium gratum acceptumque est mihi. Excusationem angustiarum tui temporis accipio. Scio enim quam soleas esse occupatus. Emisse te praedium vehementer gaudeo; feliciterque tibi rem istam evenire cupio. Hoc loco me tibi gratulari noli mirari. Eodem enim fere loco tu quoque emisse te fecisti me certiorem. Habes. Deponendae tibi sunt urbanitates. Rusticus Romanus factus es. Quomodo ego mihi nunc ante oculos tuum jucundissimum conspectum propono! Videor enim videre ementem te rusticas res, cum villico loquentem, in lacinia servantem ex mensa secunda semina. Sed quod ad rem pertinet, me tum tibi defuisse aeque ac tu doleo. Sed noli dubitare, mi Tiro, quin te sublevaturus sim, si modo fortuna me: praesertim quum sciam communem nobis emptum esse istum fundum. De mandatis quod tibi curae fuit, est mihi gratum. Sed peto a te ut quam celerrime mihi librarius mittatur, maxime quidem Graecus; multum mihi enim eripitur operae in exscribendis hypomnematis. Tu velim in primis cures ut valeas, ut una συμφιλολογεῖν possimus. Anterum tibi commendo. Vale.

(B) Tum exuto justitio reditum ad munia, et Drusus Illyricos ad exercitus profectus est, erectis omnium animis petendæ e Pisone ultionis, et crebro questu, quod, vagus interim per amœna Asiæ atque Achaiæ, arroganti et subdola mora scelerum probationes subverteret. Nam vulgatum erat missam, ut dixi, a Cn. Sentio famosam veneficiis Martinam subita morte Brundisii exstinctam, venenumque nodo crinium ejus occulatum, nec ulla in corpore signa sumpti exitii reperta. At Piso, præmisso in urbem filio, datisque mandatis per quæ principem molliret, ad Drusum pergit; quem haud fratris interitu trucem quam remoto æmulo æquiorem sibi sperabat. Tiberius, quo integrum judicium ostentaret exceptum comiter juvenem sueta erga filios familiarum nobiles liberalitate auget. Drusus Pisoni si vera forent quæ jacerentur, præcipuum in dolore suum locum respondit: sed malle falsa et inania, nec cuiquam mortem Germanici exitiosam esse. Hæc palam et vitato omni secreto; neque dubitabantur præscripta ei a Tiberio, cum incallidus alioqui et facilis juventa senilibus tum artibus uteretur.

(C) Tum canit, errantem Permessi ad flumina Gallum
Aonas in montes ut duxerit una sororum:
Utque viro Phœbi chorus assurrexerit omnis;
Ut Linus hæc illi divino carmine pastor,
Floribus atque apio crines ornatus amaro,
Dixerit: "Hos tibi dant calamos, en, accipe, Musæ,
Ascræo quos ante seni, quibus ille solebat
Cantando rigidas deducere montibus ornos."
His tibi Gryneï nemoris dicatur origo,
Ne quis sit lucus, quo se plus jactet Apollo.

Quid loquar, ut Scyllam Nisi, quam fama secuta est,
Candida succinctam latrantibus inguina monstris
Dulichias vexasse rates, et gurgite in alto
Ah! timidos nautas canibus lacerasse marinis;
Aut ut mutatos Terei narraverit artus,
Quas illi Philomela dapes, quæ dona pararit,
Quo cursu deserta petiverit, et quibus ante
Infelix sua tecta supervolitaverit alis?

(D) Rusticus ille tuus sumit trechedipna, Quirine,
Et ceromatico fert niceteria collo!
Hic alta Sicyone, ast hic Amydone relicta,
Hic Andro, ille Samo, hic Trallibus aut Alabandis,
Esquilias dictumque petunt a vimine collem,
Viscera magnarum domuum dominique futuri.
Ingenium velox, audacia perdita, sermo
Promptus et Isæo torrentior. Ede, quid illum
Esse putes? quemvis hominem secum attulit ad nos:
Grammaticus, rhetor, geometres, pictor, aliptes,
Augur, schœnobates, medicus, magus: omnia novit
Græculus esuriens; in cœlum, jusseris, ibit.
In summa, non Maurus erat neque Sarmata nec Thrax,
Qui sumpsit pennas, mediis sed natus Athenis.
Horum ego non fugiam conchylia? me prior ille
Signabit fultusque toro meliore recumbet,
Advectus Romam quo pruna et cottona vento?
Usque adeo nihil est, quod nostra infantia cœlum
Hausit Aventini, bacca nutrita Sabina?

(E) ER. Facere certumst. proinde ita omnes itinera insistant sua,
Nequis in hac platea negoti conferat quicquam sui:
Nam meus est ballista pugnus, cubitus catapultast mihi,
Humerus aries: tum genu ut quemque icero, ad terram dabo.
Dentilegos omnis mortalis faciam, quemque offendero.

HE. Quae illaec est minatio? nam nequeo mirari satis.

ER. Faciam ut huius die locique meique semper meminerit:
Qui mi in cursu opstiterit, faxo uitae is opstiterit suae.

HE. Quid hic homo tantum incipissit facere cum tantis minis?

ER. Prius edico, nequis propter culpam capiatur suam:
Continete uos domi, prohibete a uobis uim meam.

HE. Mira edepol sunt ni hic in uentrem sumpsit confidentiam.
Vae misero illi, quoius cibo iste factust imperiosior.

ER. Tum pistores scrofipasci, qui alunt furfuri sues,
Quarum odore praeterire nemo pistrinum potest:
Eorum si quoiusquam scrofam in puplico conspexero,
Ex ipsis dominis meis pugnis exculcabo furfures.

HE. Basilicas edictiones atque imperiosas habet.
Satur homost, habet profecto in uentre confidentiam.

ER. Tum piscatores, qui praehibent populo piscis foetidos,
Qui aduehuntur quadrupedanti crucianti cantherio,
Quorum odos subbasilicanos omnis abigit in forum:
Eis ego ora uerberabo surpiculis piscariis,
Vt sciant, alieno naso quam exhibeant molestiam.

2. Translate, explain fully, and refer where possible to context—

(*a*) D. xvii. Kal. Quint; a.d. viii. Id. Nov.

(*b*) Iis enim ventis istinc navigatur qui si essent nos Corcyræ non sederemus.

(*c*) Quamobrem camino luculento utendum censeo, præsertim qui sagis non abundares.

(*d*) Principes mortales, rempublicam æternam esse. Proin repeterent solemnia: etiam voluptates resumerent.

(*e*) Tiberius dilatâ notione de jure Flaminis, decretas ob Tribuniciam Drusi potestatem cerimonias temperavit: nominatim arguens insolentiam sententiæ, aureasque literas contra patrium morem.

(*f*) Profundum vendis tu quidem, haud fundum mihi.
Sed si venturus, temperi.

(*g*) Inde ibis in latomias lapidarias
Ibi quom alii octonos lapides effodiunt, nisi
Cotidiano sesquiopus confeceris
Sexcentoplago nomen indetur tibi. (Scan these lines.)

(*h*) Post ubi jam thalamis se composuere, siletur
In noctem, fessosque sopor suus occupat artus.
(*i*) Post, ubi Nona suos Aurora ostenderit ortus
Inferias Orphei Lethæa papavera mittes,
Et nigram mactabis ovem, lucumque revises.
(*j*) Omnia vel medium fiat mare.
(*k*) Occurrit matrona potens, quæ molle Calenum
Porrectura viro miscet sitiente rubetam.
(*l*) Quis cœlum terris non misceat, et mare cœlo
Si fur displiceat Verri, homicida Miloni
Clodius accuset mœchos, Catilina Cethegum,
In tabulam Sullæ si dicant discipuli tres.

3. Where and what are—Augustodunum, Mænalus, Ortygia, Parthenope, Sora, Venusia? State where and how they are named in your books.

4. Who were Apronius, Ariobarzanes, Gallus, Polycletus, Silenus, Tiphys?

5. Derive *fully*, and give the meanings of alumnus, ausculto, codicilli, collega, exactor, hebdomas, paropsis, perpauxillum, pinnirapus, provincia, sudus, viaticum, villa.

A.

Mathematics.—I.

Three hours.

Dr. Bromby, *Examiner*.

Arithmetic and Algebra.

1. Simplify $\frac{\frac{3}{16} \text{ of } £\cdot 0133}{\cdot 0057 \text{ of } 2\frac{1}{2} \text{ guineas}}$; and state what the denomination is, in which you leave the result.

2. Two clocks begin to strike twelve together; one occupying 35 seconds between the first and last stroke, the other 25. What fraction of a minute is there between their seventh strokes?

3. A train 88 yards long overtook a person who was walking by the side of the line at the rate of 4 miles an hour, and passed him completely in 10 seconds; it afterwards overtook another person and passed him in 9 seconds. At what rate per hour was this second person walking?

4. What is the present value of £130 0*s*. 7½*d*. due 9 months hence, supposing the 4 per cents to be at 92?

5. In a constituency, in which each elector may vote for two candidates, half of the constituency vote for A, but divide their second votes among B, C, D, E, in the proportion of 4, 3, 2, 1; of the remainder half vote for B, and divide their second votes among C, D, E, in proportion of 3, 1, 1; two-thirds of the remainder vote for D and E; 540 do not vote at all. Find the whole number of electors.

6. Extract the square root of $2n\sqrt{-1}$; also find the value of $(4 + 3\sqrt{-20})^{\frac{1}{2}} + (4 - 3\sqrt{-20})^{\frac{1}{2}}$.

7. Find the value of $\frac{(a + bx^2)^{\frac{1}{2}} + (a - bx^2)^{\frac{1}{2}}}{(a + bx^2)^{\frac{1}{2}} - (a - bx^2)^{\frac{1}{2}}}$ when $x = \left(\frac{2ac}{bc^2 + b}\right)^{\frac{1}{2}}$.

8. Solve the equations—

(*a*) $\frac{7x + 16}{21} - \frac{x + 8}{4x - 11} = \frac{x}{3}$.

(*b*) $x = \frac{12 + 8x^{\frac{1}{2}}}{x - 5}$ (Four answers wanted).

(*c*) $\left.\begin{aligned} x^3y^2 + xy^4 &= 156 \\ 2x^3y^2 - x^2y^3 &= 144 \end{aligned}\right\}$ (Two answers for x and y).

9. A and B put out different sums to interest, amounting together to £200. B's rate of interest was £1 per cent. more than A's. At the end of 5 years, B's accumulated simple interest wanted but £4 to be double of A's. At the end of 10 years, A's principal and interest was to B's as 5 to 8. Required the separate sums put out by each, and the rate per cent.

10. Define Harmonical Progression. Why so named? Find the harmonical mean between a and b.

11. If $a : b :: c : d$, prove that $\left(\frac{1}{a} + \frac{1}{d}\right) - \left(\frac{1}{b} + \frac{1}{c}\right) = \frac{(a - b)(a - c)}{abc}$.

12. If $s_1, s_2, s_3 \ldots\ldots s_{2n}$ be the sums of n terms of $2n$ arithmetical progressions, whose first terms are the same, and common differences $d, 2d, 3d \ldots\ldots 2nd$; prove that

$$s_2 + s_4 + \ldots\ldots s_{2n}) - (s_1 + s_3 \ldots\ldots s_{2n-1}) = \frac{1}{2}n^2(n - 1)d.$$

13. If p and q be the r^{th} terms of the expansions of $(1 - x)^{-\frac{1}{2}}$ and $(1 - x)^{-\frac{3}{2}}$, prove that $q = (2r - 1)\,p$.

14. Investigate the condition that the r^{th} term of the expansion of $(1 + x)^n$ shall be the greatest: and thence find the greatest term in the expansion of $\left(1 + \frac{5}{6}\right)^{\frac{3}{2}}$.

15. Resolve $\frac{6x^2 - 4x - 6}{(x - 1)(x - 2)(x - 3)}$ into partial fractions by means of indeterminate coefficients.

B.

Mathematics.—I.

Three hours.

Dr. Bromby, *Examiner.*

Theory of Equations.

1. If $a, b, c \ldots . h, l$, be the roots of the equation $x^n - px^{n-1} + qx^{n-2} - rx^{n-3} \ldots . + Qx^2 - Px + l = 0$, prove that $p = a + b + c \ldots . + h + l$, $q = ab + ac + \ldots . bc + bd \ldots .$, $r = abc + abd + \ldots . . bcd \ldots .$, and $l = abc \ldots . . kl$.

2. If the coefficients of an equation be rational, and $a + \sqrt{\beta}$ be one root, prove that $a - \sqrt{\beta}$ will be another.

3. Transform $x^4 - 2x^3 + x = 132$ into another equation whose roots shall be less by 1 than the roots of the given equation. Verify the result by solving both equations.

4. If a, b, c, &c be the roots of the equation $x^n - px^{n-1} + qx^{n-2} -$ &c. $= 0$, by how much must these roots be diminished in order that the second term may disappear? Investigate also the equation of condition that would make it possible for both the second and third terms to disappear.

5. Show how the equation $x^3 - qx - r = 0$ may be solved by Trigonometry. Apply the principle to solve $x^3 - 6x - 4 = 0$.

6. Solve the following equations:—
   (*a*) $x^4 + 13x^3 + 33x^2 + 31x + 10 = 0$, which has three equal roots.
   (*b*) $x^4 - 5x^3 - 75x^2 + 405x - 486 = 0$, which has two roots equal but of different signs.
   (*c*) $x^3 - 6x^2 + 11x - 6 = 0$, which has its roots in arithmetical progression.
   (*d*) $x^3 - 13x^2 + 54x - 72 = 0$, which has its roots in harmonical progression.
   (*e*) $x^4 - 5x^3 + 6x^2 - 5x + 1 = 0$.

   N.B.—The work of all these solutions must be shown up.

7. It can be shown that when quantities which are limits to the real roots of an equation are successively substituted for the unknown quantity, the results will be alternately positive and negative; prove that this result will not be affected, should there be an imaginary root.

8. Find a quantity which, when substituted for x, will render the first term of an equation greater than all the rest.

A.

Mathematics.—II.

Four hours.

Dr. Bromby, *Examiner.*

Euclid. Geometrical Conics. Logarithms.

1. If two triangles have two angles of the one equal to two angles of the other, each to each, and one side equal to one side, viz. either the sides adjacent to the equal angles in each, or the sides opposite to them; then shall the other sides be equal, each to each, and also the third angle of the one equal to the third angle of the other.

2. If a straight line be bisected, and produced to any point; the rectangle contained by the whole line thus produced, and the part of it produced, together with the square on half the line bisected, is equal to the square on the straight line which is made up of the half and the part produced.

3. To draw a straight line from a given point, either without or in the circumference, which shall touch a given circle.

4. To describe a circle about a given triangle.

5. From a given straight line to cut off any part required.

6. If from any angle of a triangle, a straight line be drawn perpendicular to the base; the rectangle contained by the sides of the triangle is equal to the rectangle contained by the perpendicular and the diameter of the circle described about the triangle.

7. If two straight lines meeting one another be parallel to two other straight lines which meet one another, but are not in the same plane with the first two; the plane which passes through these is parallel to the plane passing through the others.

8. Show how to draw a line cutting two concentric circles, so that the part of it which is intercepted by the circumference of the greater may be twice the part intercepted by the circumference of the less.

9. If through any point in the diagonal of a parallelogram a straight line be drawn, meeting two opposite sides of the figure, the segments of this line will have the same ratio as those of the diagonal.

10. The locus of the middle points of any system of parallel chords of a conic is a straight line which meets the directrix on the straight line through the focus at right angles to the chords.

11. The ordinate of any point on a parabola, whatever diameter is taken, is a mean proportional to the parameter of that diameter and the abscissa of the point.

12. Prove that in the ellipse the projections of the two foci on the tangent lie on the auxiliary circle.

13. If AA′ be the axis of an ellipse passing through a cone, and AH, A′K be the diameters of circles drawn perpendicular to the axis of the cone, and PN be drawn from any point P in the ellipse perpendicular to AA′, prove that $PN^2 : AN \cdot A'N = AH \cdot A'K : AA'^2$.

14. What is meant in logarithmic computation by a subsidiary angle? Exemplify its use (1) if an expression be of the form $a + b$, (2) if of the form $a - b$, (3) if of the form $\sqrt{a + b} + \sqrt{a - b}$.

15. Given log 2 = ·30103, log 3 = ·47712 and log 7 = ·84509, find the logs. of 17·5 and ·000875.

B.

Mathematics.—II.

Three hours.

Dr. Bromby, *Examiner.*

Spherical Trigonometry.

1. In any spherical triangle the sines of the angles are to one another as the sines of the sides opposite to them.

2. Prove that $\cos A = \dfrac{\cos a - \cos b \cdot \cos c}{\sin b \cdot \sin c}$.

3. By means of the polar or supplemental triangle, convert the above formula into $\cos a = \dfrac{\cos A + \cos B \cdot \cos C}{\sin B \cdot \sin C}$, and proceed to prove Napier's analogies.

4. If r be the radius of a sphere, and the triangle ABC be described on its surface, prove that the area of the triangle $= \dfrac{A + B + C - 180^\circ}{180^\circ} \times \pi r^2$.

5. If two arcs QBA, Qba be intersected by two others PaA, PbB in the points A, B and a, b, prove that $\dfrac{\sin AQ}{\sin BQ} = \dfrac{\sin Aa}{\sin Bb} \cdot \dfrac{\sin Pb}{\sin Pa}$.

6. Enunciate Napier's Rules for the solution of right-angled spherical triangles; and prove the several cases.

7. The hypotenuse of a right-angled spherical triangle is 75° 20′, and one of the oblique angles is 57° 16′; find the other parts.

8. The three angles of a spherical triangle are 111° 4′, 143° 18′, and 131° 30′; find any one side, (1) in degrees, and (2) in miles, supposing the radius of the sphere to be 20 yards?

9. Launceston in Tasmania and Wellington in New Zealand have each a latitude of 41° S., and the difference of their longitude is 28°; supposing the circumference of the earth to be 24,000 miles, what is the distance between these two cities?

A.

Mathematics.—III.

Four hours.

Dr. Bromby, *Examiner.*

Trigonometry and Analytical Geometry.

1. Define a secant of an arc, and assign a geometrical reason why secants in the second and third quadrants should be a negative.
2. Investigate the numerical value of sin 18°.
3. If s_1 denote the sum of the tangents of the angles $\alpha, \beta, \gamma, \ldots\ldots\lambda$, and s_2 denote the sum of their products taken two and two, and s_3 denote the sum of their products taken three and three, &c., prove that $\tan(\alpha + \beta + \gamma + \ldots\ldots + \lambda) = \frac{s_1 - s_3 + s_5 - s_7 \ldots\ldots}{1 - s_2 + s_4 - s_6 \ldots\ldots}$.
4. Eliminate θ and ϕ from the equations $\cos^2\theta = \frac{\cos\alpha}{\cos\beta}$, $\cos^2\phi = \frac{\cos\gamma}{\cos\beta}$, and $\frac{\tan\theta}{\tan\phi} = \frac{\tan\alpha}{\tan\gamma}$.
5. In any triangle ABC, having sides a, b, c respectively opposite the angles A, B, C, prove that $\tan\frac{A}{2} \cdot \tan\frac{B}{2} = \frac{a + b - c}{a + b + c}$.
6. Show from the above that if p be the perimeter of a triangle, $a = \frac{p}{2} \cdot \frac{\cos\frac{1}{2}(B + C)}{\cos\frac{B}{2} \cdot \cos\frac{C}{2}}$.
7. Given two sides of a triangle 400 and 500, and the angle contained by them 88° 30′; solve the triangle.
8. Wanting to know the breadth of a river I measure along the bank a base AB = 250 ft. At the extremity A I find by a prismatic compass that the bearings of B and of a tree on the opposite bank are respectively 124° 4′ and 60° 33′ E. of N.; and at B I find the bearings of A and of the tree to be respectively 57° 56′ and 0° 28′ W. of N.; what is the breadth of the river?
9. $y = 3x + 6$ and $y + 2x = 4$ are two straight lines; find their point of intersection, and their angle of inclination to each other. Also trace the lines, it being understood that the co-ordinate axes are rectangular.
10. Name the curves, to which the following are equations:—
    (*a*) $y^2 - 2xy + x^2 - 2y - 1 = 0$.
    (*b*) $y^2 - 2xy - x^2 + 2 = 0$.
    (*c*) $y^2 - 2xy + x^2 - 1 = 0$.
    (*d*) $y^2 - 4xy + 5x^2 + 2y - 4x + 2 = 0$.
    (*e*) $y^2 + 2x^2 - 10x + 12 = 0$.
11. Express $y^4 + 2a^2xy - x^4 = 0$ by a polar equation in its simplest form.
12. Find the centres of all the curves in Question 10, which have centres, and also determine the magnitude of their axes, and their inclination to the co-ordinate axes.
13. Trace the curve $y^2 = \frac{x^3 - bx^2}{x + c}$.

B.

Mathematics.—III.

Four hours.

Dr. Bromby, *Examiner.*

Differential and Integral Calculus.

1. Differentiate the following—
$$\log\left\{x + (1 + x^2)^{\frac{1}{2}}\right\};\ \log\left(\frac{1 - \cos 8x}{1 + \cos 8x}\right)^{\frac{1}{2}};\ \tan^{-1}\left(\frac{a + bx}{b - a}\right)^{\frac{1}{2}};\ e^{3x}(\sin 4x)^5.$$
2. If $\tan\frac{y}{2} = \left(\frac{1 - x}{1 + x}\right)^{\frac{1}{2}}$, find the value of $\frac{dy}{dx}$; and if $u = \tan^{-1}\frac{x}{y}$, find the value of du.
3. If $y = \frac{e_x + e^{-x}}{e^x - e^{-x}}$ prove that $\frac{dy}{dx} = 1 - y^2$.
4. Find the value of $\frac{b - (b^2 - x^2)^{\frac{1}{2}}}{x^2}$, when $x = 0$; also of $\frac{x - (n + 1)x^{n+1} + nx^{n+2}}{(1 - x)^2}$ when $x = 1$.

5. In the curve $y = \frac{x^2}{a} - \frac{a^2}{x}$, show whether it has maximum or minimum values of its ordinate.

6. What are the objects of the Differential and Integral Calculi respectively? Explain the symbol $\int_a^b (\phi x)\, dx$.

7. What is meant by "integration by parts"? Apply the principle to find the integral of $x^2 \cos ax$.

8. Integrate the following expressions; $\frac{dx}{1 + x + x^2}$, $\frac{dx}{1 + x - x^2}$, $\frac{dx}{x^2(1 - x^2)^{\frac{1}{2}}}$, $dx\,(\tan x)^2$, $x^3 (\log x)\, dx$, $dx \tan^{-1} x$.

9. Show how the integration of $\frac{x^n dx}{(a^2 - x^2)^{\frac{1}{2}}}$ may be made to depend upon the integration of $\frac{dx}{(a^2 - x^2)^{\frac{1}{2}}}$ when n is even, and upon $\frac{x dx}{(a^2 - x^2)^{\frac{1}{2}}}$ when n is odd.

10. If AN be the abscissa of a parabola and PN its ordinate, show that the area $\mathrm{ANP} = \frac{2}{3}\,\mathrm{NP}.\,\mathrm{AN}$.

11. The radius of the base of a given cone is a, its altitude $\sqrt{b^2 - a^2}$; show that the area of the greatest parabola which can be cut from it is $\frac{\sqrt{3}.ab}{2}$.

12. Trace the curve $y = \frac{x}{a}(2ax - x^2)^{\frac{1}{2}}$; and ascertain the exact position of its points of contrary flexure, also of its maximum and minimum ordinates.

A.

Mathematics.—IV.

Four hours.

Dr. Bromby, *Examiner.*

Natural Philosophy.

1. Two forces represented by the numbers 3 and 4 act upon a body, and having the directions, in which they act, inclined to each other at an angle 115° 16′. Find the resultant of the two forces, and its inclination to each of them.

2. Four forces are represented in direction and amount by the four sides of a regular hexagon taken in order. What will be the ratio and inclination of the resultant to the first of them?

3. Two pictures of equal weight are suspended symmetrically by cords passing over smooth pegs; the two portions of the cord in one case making an angle of 60° and in the other of 90° with each other; compare their tensions.

4. Two forces 5 and 3 acting respectively parallel to the base and length of an inclined plane will each of them singly sustain upon it a weight W; determine the magnitude of W.

5. A uniform beam AB rests with one end A on a smooth vertical wall; the other end B is supported by a string fastened to a point C in the wall; the length of the beam is 3 feet, that of the string 5 feet. Find CA.

6. At the angles of a square whose side is 20 inches are placed particles whose weights are as 1, 3, 5, 7; find the distance of the centre of gravity from the particle of least weight.

7. An imperfectly elastic ball is projected downwards with a certain velocity, and after falling through a height of 20 feet meets the horizontal plane; the ball rebounds 10 feet, then falls again and rebounds 4 feet; find the elasticity of the body and the velocity of projection.

8. A string will bear a strain of 10 lbs. 7 oz. Determine the size of the largest piece of cork (*s.g.* ·24) which it can keep below the surface of mercury (*s.g.* 13·6); supposing the weight of a cubic foot of water to be 1000 oz.

9. A cylinder whose altitude is a is just immersed in a fluid with its axis vertical; find the point in the axis through which a horizontal plane must pass that the pressures on the convex surfaces may be equal.

10. If h, h' be the readings of the barometer at the beginning and end of a descent in a cylindrical diving-bell, and a the altitude of the bell, prove that the depth of the top of the bell is $(h' - h)\,13{\cdot}6 - \frac{h'}{h} \cdot a$.

11. Describe the hydraulic ram.

12 Hiero, tyrant of Syracuse, entrusted a goldsmith with 1680 grains of gold to be manufactured into a crown: but the tyrant, suspecting by the colour that silver had been mixed with the gold, notwithstanding the correctness of the crown's weight, consulted Archimedes on the matter. The philosopher found on experiment that a lump of gold when weighed in water lost $\frac{4}{77}$ of its weight in air, silver lost $\frac{2}{21}$; but the crown lost $\frac{1}{14}$. What was the number of the grains of silver which the goldsmith had substituted for gold?

B.

Mathematics.—IV.

Four hours.

Dr. Bromby, *Examiner.*

General Problems.

1. A tangent to a circle at a point A intersects two parallel tangents in B, C, the points of contacts of which with the circle are D, E respectively; show that if BE, CD intersect in F, AF is parallel to the tangents BD, CE.

2. The side BC of a triangle ABC is bisected in D, and any straight line is drawn through D, meeting AB, AC produced if necessary in E, F respectively, and the straight line through A, parallel to BC, in G. Prove that DE is to DF as GE is to GF.

3. Solve the equations—

$$\left.\begin{aligned} x^{\frac{x^{\frac{1}{4}}+y^{\frac{1}{4}}}{2}} &= y^{\frac{4}{3}} \\ y^{\frac{x^{\frac{1}{4}}+y^{\frac{1}{4}}}{2}} &= x^{\frac{1}{3}} \end{aligned}\right\}$$

4. If σ_1 represent the sum of a geometric progression continued *in infinitum*, σ_2 the sum of the squares of the terms, σ_3 the sum of their cubes, &c.; prove that $\frac{1}{\sigma_1} + \frac{1}{\sigma_2} + \frac{1}{\sigma_3} + \ldots\ldots$ *in inf.* $= \frac{r}{r-a} - \frac{1}{1-a}$.

5. Find the number of degrees and minutes between the two hands of a clock at 6·45′ P.M.? If the clock was losing a quarter of an hour per diem, and had been set right at noon, what then would have been the angle?

6. Prove that $\tan 2\theta = 2 \tan \{\theta + \tan^{-1}(\tan 3\theta)\}$; and find the value of x from the equation $\cot^{-1}(x-1) - \cot^{-1}(x+1) = 15°$.

7. Find the equation which shall represent the locus of the continual intersection of the sine of an arc, and secant of half the arc.

8. ABDC is a parallelogram, and AB is bisected in E; prove that the resultant of the forces represented by AD, AC is double of the resultant of those represented by AE, AC.

9. The altitude of a triangle is 4 ft., and a trapezium is cut from it by a line parallel to the base and distant 3 feet from it. Find distance of centre of gravity of this trapezium from the base.

10. If the sides of any triangle be bisected, and another triangle formed by joining these points of bisection, prove that the centre of gravity of the perimeter of the first triangle is the centre of gravity of the latter triangle.

11. Two men support a uniform heavy beam on their shoulders, which are 4 and 3 feet from the ends; if the pressure on one man be 5 times that on the other, find the length of the beam.

12. Prove that the accelerating force on two bodies P and Q moving vertically, and connected by a string passing over a fixed pulley $= \left(\frac{P-Q}{P+Q}\right)^2 . g$.

13. A semicircle is immersed vertically in a fluid with its diameter coincident with the surface; determine on which of the chords parallel to the surface the pressure is greatest when the density of the fluid increases as the square of the depth. [Remember to allow for depth as well as density.]

14. Find by integration the volume of a cone of given base and altitude; also of a paraboloid of altitude a, formed by the revolution of the parabola $y^2 = lx$ round its axis.

15. A cone and a paraboloid of the same altitude floating in a fluid with their vertices downwards have each $\frac{1}{8}$ part of the axis above the surface; compare their specific gravities.

English.

Four hours.

M. H. Irving, M.A., *Examiner.*

[*N.B.—In valuing this paper, special credit will be given for the style of the answering.*]

1. "From synthetic, Aryan languages have generally tended to become analytic." Explain this statement, and contrast the advantages which a language possesses in the former and in the latter stage.

2. What older languages have been the chief sources of Modern English? Explain when and how they contributed, and what is the special value of each.

3. State what is known as Grimm's law. Give instances where it is obeyed in English, and also instances of its violation. Explain or account for the latter set.

4. Name the principal native (or Anglo-Saxon) elements by which derivatives are formed in English. Give the meaning, and an instance of the employment of each.

5. Distinguish a compound from a derivative word. How are compounds formed in English? and how do the parts modify each other?

6. Trace as fully as you can the etymologies of—

   (*a*) As, best, either, or, alone, only, (distinguish the meaning and use of the last two).
   (*b*) Chafe, cheap, island, I wis, lady, umpire.
   (*c*) Contemplate, history, outrage, parallelopiped, sudden, treasure.

7. Explain, with instances of each process, the formation of words by (1) Conversion, (2) Corruption, (3) False Analogy, (4) Metaphor.

8. Discuss and explain fully the grammatical construction in the following :—

   (*a*) The more the merrier, said he.
   (*b*) You had better not do it.
   (*c*) His words were sweeter than honey.
   (*d*) Or hearest thou rather pure ethereal stream?
   (*e*) To be weak is miserable, doing or suffering.
   (*f*) O, for a blast on that wild horn,
   On Fontarabian echoes borne,
   When Roland brave, and Oliver,
   And many a paladin and peer
   On Roncesvalles died.

9. Show clearly wherein the following are incorrect, and correct each :—

   (*a*) I gave no more than I could help.
   (*b*) Man never is, but always to be blest.
   (*c*) It was his horse, not himself who was killed.
   (*d*) We had now the choice of three alternatives.
   (*e*) The prophets, do they live for ever?
   (*f*) If the salt have lost his savour, wherewith shall it be salted?
   (*g*) I am one of those who cannot describe what I have not seen.
   (*h*) Not returning by evening, the parents becoming alarmed sent a party in quest of their children.
   (*i*) Critics, who of all others they pronounce the least fallible in their judgments.
   (*j*) Upon my arrival hither.
   (*k*) Few words are more vague in their acceptance.
   (*l*) Her future life, it was said, both was virtuous and happy.
   (*m*) Luckily the monks had given away a couple of Saint Bernards, which were returned to them, or the breed would have been lost.

10. Give a brief account, with dates, of these writers, and their principal works :—Bacon, Beda, Chaucer, Macaulay, Spenser, Scott.

11. Name the authors of the following, and the work in which each occurs :—

   (*a*) To be wroth with one we love
   Doth work like madness in the brain.
   (*b*) The spirits of your fathers
   Shall start from every wave.
   (*c*) Britons never shall be slaves.
   (*d*) The old order changeth, giving place to new.
   (*e*) The winter of our discontent.
   (*f*) The cynosure of neighbouring eyes.
   (*g*) Who thought of old the oak to rend,
   Dreamed not of the rebound.
   (*h*) Trailing clouds of glory do we come
   From God who is our home.

(*i*) The trivial round, the daily task.
(*j*) Welcome to your gory bed,
Death or Victory!

12. Discuss briefly the various theories of the Origin of Language.

French.

Four hours.

M. H. Irving, M.A., *Examiner.*

1. Re-translate into French—

These two poor women set to work before day, prolong it after nightfall, and see years join to years without their life being marked by any other event than the Sunday service, a walk, or a sickness. The younger of these two worthy workers is forty years old, and obeys her sister as she used to do when quite little. The elder watches over her, cares for her, and scolds her, with a mother's tenderness. At the first moment, one laughs: then one cannot hinder oneself from finding something touching in these two children, with grey hairs, of whom the one has not been able to give up the custom of obeying, the other of protecting.

'Tis not only in this that my two companions are younger than their years: ignorant of everything, they marvel unceasingly. We had not arrived at Clamart, when they cried out willingly that they did not believe the world so large!

2. Translate into French—

Winter passed away, and spring returned so early and so beautiful on that garden-like coast, sheltered as it is from the north winds by its belt of mountains, and open to the full rays of the southern sun. Spring returned and clothed the hill sides within the lines with its fresh verdure. But that verdure was no longer the mere delight of the careless eye of luxury, refreshing the citizens by its liveliness and softness, as they rode or walked up thither from the city to enjoy the surpassing beauty of the prospect. The green hill sides were now visited for a very different object: ladies of the highest rank might be seen cutting up every plant which it was possible to turn to food, and bearing home the common weeds of our road sides as a most precious treasure. Though the French general pitied the distress of the people, he was obliged to reserve such provisions as remained for the French army.

3. Translate— Arnold—*Siege of Genoa.*

Au fait, tout est pour le mieux; car je me doute qu'à aucune époque les poètes n'ont été heureux. En savez-vous un, parmi les plus favorisés, qui ait jamais pu étancher sa soif de gloire et d'hommages? En connaissez-vous un parmi les plus grands, qui ait jamais pu être satisfait de ses œuvres, y reconnaître les célestes tableaux que lui révélait son génie? Vie de leurres, de déceptions, de dégouts! Et encore, ceci n'en est que la surface, je m'imagine qu'elle recouvre des troubles plus grands, des dégouts plus amers. Ces têtes là se forgent une félicité surhumaine que chaque jour déçoit ou renverse; ils voient par delà les cieux et ils sont cloués à la terre: ils aiment des déesses et ne rencontrent que des mortelles. Tasse, Pétrarque, Racine, âmes tendres et malades, cœurs jamais paisibles, toujours saignants ou plaintifs, dites un peu ce qu'il en coûte pour être immortel!

Töpffer.

4. Translate—

Là, je le vois guidant l'obus aux bonds rapides;
Là, massacrant le peuple au nom des régicides;
Là, soldat aux tribuns arrachant leurs pouvoirs,
Là, consul jeune et fier, amaigri par les veilles
Que des rêves d'Empire emplissaient de merveilles,
Pâle sous ses longs cheveux noirs.
Puis, Empereur puissant, dont la tête s'incline;
Gouvernant un combat du haut de la colline,
Promettant une étoile à ses soldats joyeux
Faisant signe aux canons qui vomissaient des flammes,
De son âme à la guerre armant six cent mille âmes,
Grave et serein, avec un éclair dans les yeux:
Puis, pauvre prisonnier, qu'on raille et qu'on tourmente,
Croisant ses bras oisifs sur son sein qui fermente,
En proie aux geôliers vils comme un vil criminel,
Vaincu, chauve, courbant son front noir de nuages,
Promenant sur un roc où passent les orages
Sa pensée, orage éternel.

Victor Hugo—*Napoléon.*

5. Put into French—

(*a*) What do you want? Only to warm myself, for I'm very cold!
(*b*) What are cherries selling at a pound to-day?
(*c*) It's no use your trying—you'll never succeed!
(*d*) Take care, I'm afraid you will break that wine-glass.

(*e*) I can't do without my servant: he's been with me ten years.
(*f*) You must positively have that done at once, whether you like it or not.
(*g*) How tall are you, my fine fellow? About five feet nine.
(*h*) We want a boat, because we must start on our journey.
(*i*) In my letter which I was just closing, I can tell your father that you have just come.
(*j*) Make haste, and stand up: you have to make a bow.

6. Translate the following, and point out what corrections are needed, and why:—
   (*a*) L'homme bien née n'aime contredire, mais il craint encore plus flatter.
   (*b*) Il n'y a que la première mort, ainsi que le premier nuit, qui aient excités étonnement.
   (*c*) Aimez-vous les uns et les autres, le seigneur la veux.
   (*d*) Se glorifier d'une bon action qu'on a fait est perdre toute la mérite d'elle.
   (*e*) Il est de l'anné mille huit cents vingt-huit que date l'invention de chemins-à-fer.
   (*f*) On pretent que les montagnes que traversent l'ancien et nouveau monde ont été autresfois de plains couverts par le mer.
   (*g*) Les vraies gens des lettres n'ambitionnent ni d'honneurs ou des richesses.
   (*h*) Les moyens les plus sûres dont nous employons pour assurer nôtre félicité sont celles qu'avoue la vertu.
7. Write down Pres. Ind. Act. bouillir; Pret. Def. Ind. Act. acquérir; Imp. Ind. Act. fuir; Pret. Def. Ind. Act. lire; Pres. Ind. Act. maudire; Pres. Subj. Act. prévaloir; Imp. Subj. Act. pouvoir; Cond. prévoir; Pres. Subj. Act. traire; Fut. Ind. Act. valoir; Pres. Subj. Act. voir; and Pres. Ind. Act. Neg. of se promener.
8. Discuss the etymologies of these nouns:—Aigle, cousin, écuyer, étranger, malheur, orfèvre, poèle, taureau; and of these verbs:—Acheter, brûler, coucher, écorcher, échapper, édifier, ménager, railler. Give the meaning of each, and illustrate its formation.
9. Give the meanings of, and analyse these words:—Assez, aussi, dans, desormais, hormis, néanmoins, même, où.
10. Brachet says there are 16 terminations forming diminutive nouns in French, coming from Latin. Name 10 of these, with examples of their use.
11. How are an accented *a* and *u* of Latin represented in French—(1) if short, (2) if long by nature, (3) if long by position? What happens to Latin unaccented vowels following the accented syllable? What to Latin *t* and *b*? In every case illustrate your answer by examples.
12. "Thus while the French nation is really Celtic, its language is not so." Explain this assertion, and shew how the fact came about.

Modern History.

Three hours.

Dr. Bromby, *Examiner*.

1. At what date did the first Saxon invasion of Britain take place? Who was the Roman emperor then? What account do the Saxon chronicles give of this invasion? Where were the invaders settled? Answer similar questions with respect to the last invasion.
2. Give a short history of Edward the Confessor. Who gave him this title? What exactly did it mean?
3. Give some account of the Crusade of Richard I. Name the French king who joined him; and the sovereign of the Saracens. Name also his queen, and the place and circumstances of his espousals. What were the conditions of Richard's final treaty with the Saracens?
4. To what exalted position in Europe did Henry VIII. aspire? Who succeeded in securing it? In whose hands was the disposal of it vested? Who at the time was King of France? and who was Pope of Rome?
5. To whom was Mary Queen of Scots successively married? On what charge was she condemned and executed?
6. Who were the Huguenots? What is the origin of the word? What part did Queen Elizabeth take in their struggles? and with what result?
7. Who founded the first colony in America? How did he name it? Give some account of his subsequent career. State also after whom Maryland was named.
8. Enumerate the various engagements between the armies of Charles I. and the Parliamentarians? naming the commanders, and the results.
9. Give some account of the Triple Alliance, and of the Treaty of Ryswick.
10. In the reign of what French king was Canada colonised, and in whose reign surrendered to England? Who was King of England during this last event? Give some account of the manner in which it was achieved.
11. In what way was Napoleon I. a subject of Great Britain? For how long?
12. Give a brief account of Lord Clive.

TASMANIAN COUNCIL OF EDUCATION.

Hobart, 19*th August*, 1882.

EXAMINATION FOR TASMANIAN SCHOLARSHIPS, 1883.

THE Council of Education have directed the publication of the following Regulations and Scheme of Examination for the Tasmanian Scholarships for the year 1883.

By Order of the Council,

GEORGE RICHARDSON, *Secretary.*

REGULATIONS FOR THE TASMANIAN SCHOLARSHIPS.

Every Candidate for a Scholarship must, by the provisions of the Act, be above the age of sixteen and under the age of twenty years. He must also have been resident in the Colony for the period of five years next before the time of his examination, and have taken the Degree of Associate of Arts.

The first day of September in each year is fixed and appointed as the date upon which the ages of Candidates for the Tasmanian Scholarships shall in each year be ascertained and computed.

Every youth desiring to become a Candidate for any such Scholarship shall send in his name to the Council at least one week before the first day of the Examination at which he desires to compete for such Scholarship, and shall furnish proof satisfactory to the Council that he is qualified according to the Act to become a Candidate, otherwise he shall not be allowed to compete at such Examination.

By the 14th Section of the Act, the examination for Tasmanian Scholarships must comprise the following subjects :—

1. Classics—Translations from Greek and Latin authors into English, Greek and Latin Composition, Ancient History, Philology.
2. Mathematics—Arithmetic, Algebra, Euclid, Plane Trigonometry.
3. Natural Philosophy—Elementary Statics, Dynamics, and Hydrostatics.
4. Modern History—The History of England.
5. The grammatical structure of the English Language, and French or German, at the option of the Candidate.

Every Scholar shall forward to the Secretary of the Council a certificate from the proper authority testifying to his having become a Member of some University of the United Kingdom; and until such certificate be received by the Secretary to the Council, or by their accredited Agent in Great Britain, the Council will not authorise the payment of any portion of the annual value of the Scholarship: provided always, that this condition shall not apply in any case where it has been proved to the satisfaction of the Council that the Scholar has been prevented by sickness or other sufficient cause from entering himself on the books of a University.

The Council will order to be paid by the Secretary, or an accredited agent in Great Britain, quarterly, to the said Scholar, the amount of his Scholarship for the quarter, upon the receipt by their Secretary, or by such accredited agent, of a testimonial from the authorities of the University or College to which he may belong, stating that he is conducting himself diligently and steadily.

In the event of any Tasmanian Scholar not being able to produce such a testimonial for any three months, he shall forfeit the amount to which he would be otherwise entitled for the said three months; and should he fail to do so for twelve months, his Scholarship shall be declared vacant, and he shall have no claim for moneys accruing therefrom: provided always, that this Rule shall not apply to Scholars when they have been incapacitated by illness from attending to their University or College duties.

For the further encouragement of Tasmanian Scholars to prosecute their studies diligently in the University or College to which they belong, the Council of Education will cause to be published in their Annual Reports the names of those who have obtained Prizes, Scholarships, or Exhibitions, or who have appeared in the "Honour List," together with the description or class of Honour which may have been awarded to them.

SCHEME of Examination for the TASMANIAN SCHOLARSHIPS *for the Year* 1883.

CLASSICS.

(A.)

LATIN.—Cicero, *Select Epistles*, (Long's Grammar School Classics); Tacitus, *Annals, Book III. Georgics, Book IV., & Bucolics;* Plautus, *Captivi;* Juvenal, *Satires I. II. III.*

GREEK.—Plato, *Phædo;* Thucydides, *Book IV.;* Sophocles, *Electra;* Odyssey, *Books II. & III.*

Questions will be set upon the historical and geographical allusions contained in the above-named Books, and in the grammar of the Latin and Greek languages.

Passages will be set for translation from English into Greek and Latin Prose. Questions will be set on the principal events and eras of Roman and Grecian History.

(B.)

A Paper in Latin Authors not specified.
A Paper in Greek Authors not specified.
A Paper in Critical, Historical, and Philological Questions.
A Paper in Verse Composition, Latin and Greek.

MATHEMATICS AND NATURAL PHILOSOPHY.

(A.)

Arithmetic; Algebra, except Theory of Equations; Euclid, *Books I. to VI. inclusive, and XI. to the 21st Proposition inclusive;* Plane Trigonometry, including Logarithms; Conic Sections, treated both geometrically and analytically. Elementary Statics, Dynamics, and Hydrostatics.

(B.)

A Paper in Theory of Equations.
A Paper in Spherical Trigonometry.
A Paper in Differential and Integral Calculus.
A Paper in Problems in all the subjects of the course.

Candidates may have the option of being examined in the extra Classical or extra Mathematical subjects marked **(B)**, by giving notice to the Secretary before the 1st September in the year of the Examination, but no Candidate will be allowed to present himself for both.

MODERN HISTORY.

The History of England, with that of foreign nations, so far as connected therewith.

MODERN LANGUAGES.

ENGLISH.—The history and philology of the English Language.

FRENCH OR GERMAN.*

FRENCH.—Grammar and Composition. Passages will be set for translation from French into English and from English into French prose.

GERMAN.—Grammar and Composition. Passages will be set for translation from German into English and from English into German prose.

The following values have been affixed to the several subjects of examination:—

1. *Classics*	(A)	1500	*Marks.*
	(B)	1500	,,
2. *Mathematics and Natural Philosophy*	(A)	1500	,,
	(B)	1500	,,
3. *Modern History*		400	,,
4. *Modern Languages*—			
(a.) English	400	800	,,
(b.) French or German	400		

It shall be essential to success that a Candidate gain at least 2200 *Marks; of which* 500 *shall have been gained in Classics and* 300 *in Mathematics.*

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* Intending Candidates are requested to inform the Council, on or before the 1st September, 1883, whether they wish to be examined in French or German.

WILLIAM THOMAS STRUTT,
GOVERNMENT PRINTER, TASMANIA.