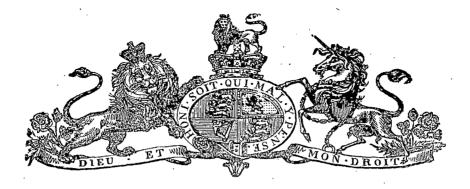1 8 7 2.

SESSION II.

TASMANIA.

HOUSE OF ASSEMBLY.

DEGREE OF ASSOCIATE OF ARTS:

REPORT OF EXAMINERS OF MALE CANDIDATES.

Laid upon the Table by the Colonial Treasurer, and ordered by the House to be printed, October 30, 1872.

TASMANIAN COUNCIL OF EDUCATION.

DEGREE OF ASSOCIATE OF ARTS—SEPTEMBER, 1872.

Male Candidates.

IN conformity with the Rules and Regulations of the Tasmanian Council of Education, the Council have directed the publication of the names of the Candidates who have passed the Examination for the Degree of Associate of Arts to the satisfaction of the Examiners, and upon whom the Degree has been conferred accordingly :—

FIRST CLASS.

JAMES WILLIAM TIBBS, Pupil of the Hutchins School, Hobart Town. Awarded the Council's Gold Medal as Senior Associate of the year, Second Prize of Books of the value of £5 each for English, Latin, Greek, and Mathematics.

WILLIAM ANDREW REILLY, Pupil of the Hutchins School, Hobart Town. Awarded the Council's First Prize of Books of the value of £10 each for English, Latin, Greek, and French.

FRANCIS LEICESTER BUTLER, Pupil of the Hutchins School, Hobart Town. Awarded the Council's First Prize of Books of the value of £10 for Mathematics, Prize of Books of the value of £5 for Natural Philosophy, and Prize of Books for Chemistry.

SECOND CLASS.

HENRY MICHAEL DAVIES, Pupil of the High School, Hobart Town.

THIRD CLASS.

FREDERICK CHARLES BURGESS, Pupil of the High School, Hobart Town.

GEORGE LLEWELLYN MEREDITH, Pupil of the Hutchins School, Hobart Town. Awarded one of the Council's Prizes for Chemistry.

THOMAS TAYLOR, Pupil of the High School, Hobart Town.

PERCY WESTON ARCHER, Pupil of the High School, Hobart Town.

JAMES JOHNSTON, Pupil of the Collegiate School, Hobart Town.

The Report of the Examiners, together with the General and Special Class Lists, and the Tabulated results of the Examination, are subjoined.

By Order of the Council,

GEO. RICHARDSON, *Secretary.*

Hobart Town, 24th September, 1872.

EXAMINERS' REPORT.

THE Examiner in English, Greek, Latin, and French has the honor to report to the Tasmanian Council as follows :—

Eleven Candidates presented themselves for the Preliminary Examination, all of whom passed, but in three instances the Examiner regretted to find more mistakes in spelling than he was prepared to expect. The sums set in the Preliminary Examination did not involve a very great number of figures, but they were considered sufficient to test ordinary accuracy, as well as a knowledge of the principles upon which the sums were to be worked : the result of this part of the Examination was satisfactory.

Both in the preliminary and in the main Examination those parts of the subjects comprised under the general head of English were best answered which depended upon the memory of so much bookwork : thus in almost every instance the Candidates seemed quite at home in Geography and History and in the technicalities of Morell, but when they were invited to detect the faults in a piece of extremely bad English, invented for the purpose, not one of them pointed out one half. The English Essay, with a few meritorious exceptions, was deficient in method, elegance, and point, and showed plainly that this important branch of instruction had not received the attention to which it was entitled. The Shakspere paper was also generally answered in a manner which showed more diligence in mastering the notes than thoughtful appreciation of the author's art and diction. For a similar reason the translation of passages from Greek, Latin, and French authors prescribed by the Council was far more satisfactory than the answers to questions upon the inflection, syntax, and idioms of those languages. It would be unreasonable to complain of this result, for every one acquainted with the subject is aware that this is to a certain extent the inevitable tendency of all public examinations; but your Examiner believes this tendency may be in a great measure counteracted by introducing a few changes in the plan of study recommended by the Council.

Your Examiner therefore suggests ;—that in future a single and separate subject should comprise History and Geography as distinct from the English Language, and that such a relative value should be given to these subjects as fairly belongs to matters which require no exercise of any faculty save memory ; that the author prescribed for the English Language should not necessarily be chosen out of the Reading Book hitherto in use ; and that a knowledge of this author should not be held to consist merely or chiefly in explaining the allusions contained in the work, but in all those topics wherein intelligent and able teachers may be reasonably expected to exercise the taste and judgment of their pupils : that, in place of the minute and useless subtlety of that kind of analysis which has hitherto been acquired out of a repulsive text-book, it should be left to the teachers to accustom their pupils in sentences of various construction to find out the real subject in the mind of the writer, and the real predicate which he intends to convey concerning it ; and that the examination in analysis should be based upon this method of teaching ; and, lastly, that it should be announced that English composition will hereafter be held to be an essential part of the examination in English. It would be also as well to inform the Candidates that in both the ancient and modern languages the rendering of set passages, and the explanation of the facts to which they refer, will hold a very subordinate place in determining the degree of their proficiency. When a book in any language is given out as a subject, the pupil should be expected not merely to learn what that book is about, but to use it as a means of learning the language in which it is written. When once the Council has succeeded in convincing those who are reading for this Examination, and those who are preparing others for it, that such is their intention, the value of these examinations as incentives to study and tests of teaching, and the value of the Degree itself as a mark of intelligent progress, will be very considerably increased.

All examinations are interruptions of study and interferences with the teacher, but it behoves those who conduct them not to fetter the teacher beyond what is absolutely necessary for uniformity ; and it may be added that it is also very desirable not to fetter the Examiner. The system of marks as propounded in the scheme of the Council has, in this instance, proved rather a hindrance than an assistance in determining both the absolute and relative merits of the Candidates. If it is intended that there shall be one and the same Examiner in all successive years, and that Examiner is consulted in fixing the number of marks, there will be no inconvenience arising from his binding himself by his own estimate ; but if the Council expect that they will have to vary the Examiners, the marks hitherto prescribed had better be forthwith abolished.

In conclusion, it is the very agreeable duty of your Examiner to inform the Council that those Candidates who have been returned in the list as having passed with credit are not only the best of their year, but would in any Examination in any part of the world have gained the warm approbation of competent judges ; and, furthermore, that a very large proportion of the Candidates shewed an amount of proficiency in French which, considering the circumstances in which they were placed, is as surprising as it is praiseworthy.

Your Examiner has to acknowledge the uniform courtesy and kindness which he has experienced at the hands of the President and Council, and also of Mr. Richardson the Secretary, by whose zeal and constant attention his labours have been materially relieved.

<div align="right">CHARLES BADHAM.</div>

MATHEMATICS.—Presented by all Candidates. All passed: two—Butler and Tibbs—with credit. These two competitors were nearly equal in their answering in Euclid, Arithmetic, and Algebra; but in Trigonometry the former showed marked superiority,—in fact he alone really understood the subject.

In the Lower Geometry, Euclid, Books I.—IV., the answering was satisfactory: with one exception the Candidates seemed to have thoroughly mastered the work. Easy deductions, however, were scarcely attempted,—Butler alone succeeded in doing correctly two out of the four set. In the Higher Geometry, Books VI. & XI., the questions proposed were well answered by Reilly, Butler, and Tibbs in the order named. In Algebra there were two or three complete failures; but Butler and Tibbs again distinguished themselves, each obtaining exactly three-fourths of full marks. In Arithmetic the same pair did well, answering correctly seven out of eight questions; but the papers of the remaining nine Candidates were not on the whole satisfactory, the average of their marks falling considerably short of half of full marks,—a proportion which ought to be attained in an Arithmetic Paper.

The general average of the marks for the whole subject, 296 out of 800, may be considered satisfactory when it is remembered that, out of the maximum, 260 marks are apportioned to the Higher Euclid and Trigonometry,—subjects which are not required for passing.

NATURAL PHILOSOPHY.—Three Candidates. One failed. Butler did very well, and Tibbs fairly.

I recommend or award, as the case may be, according to the Regulations of the Council,—

First Prize in Mathematics .... F. L. Butler.
Second Prize in Mathematics .... J. W. Tibbs.
Prize for Natural Philosophy .... F. L. Butler.

<div align="right">M. H. IRVING, Examiner in Mathematics and</div>
Melbourne, 18th September, 1872.   Natural Philosophy.

CHEMISTRY.—The Examiner in Chemistry reports as follows :—

Two Candidates presented themselves for this subject. Both acquitted themselves with great credit. Their answers were so remarkably even that I cannot recommend one rather than the other for the prize : out of a possible 300 marks each obtained over 230. But while I commend the diligence with which they have studied and mastered the text-book, the very evenness of their proficiency shows the evil of a too slavish adherence to one author; nor do I place any great reliance upon the study of physical science obtained exclusively from books, whether Geology apart from practical work among the rocks, or Chemistry without the manipulations of the laboratory.

<div align="right">C. H. TASMANIA.</div>

The Prizes which by the Council's Regulations must be awarded are—

Council's Gold Medal .... J. W. Tibbs.
First Prize for English .... W. A. Reilly.
First Prize for Latin .... W. A. Reilly.
First Prize for Greek .... W. A. Reilly.
First Prize for French........................... W. A. Reilly.
First Prize for Mathematics .... F. L. Butler.

The Prizes which by the Council's Regulations are left to the discretion of the Examiners have thus been awarded :—

First Prize for Natural Philosophy .... F. L. Butler.
Prize for Chemistry .... { F. L. Butler.
                                              { G. L. Meredith.
Second Prize for English .... J. W. Tibbs.
Second Prize for Latin .... J. W. Tibbs.
Second Prize for Greek .... J. W. Tibbs.
Second Prize for Mathematics.................. J. W. Tibbs.

Full Tables of the Results are appended to this Report.

<div align="center">For the Examiners,</div>

Hobart Town, 24th September, 1872.   CHARLES BADHAM, D.D.

TASMANIAN COUNCIL OF EDUCATION.

EXAMINATION FOR THE DEGREE OF ASSOCIATE OF ARTS, SEPTEMBER, 1872.

MALE CANDIDATES.

GENERAL CLASS LIST.

FIRST CLASS.

NAME.	MARKS.	AGE.		PRIZES.
		years.	months.	
Tibbs, J. W.	2821	16	11	Gold Medal as Senior Associate of the year. Second Prizes for English, Latin, Greek, and Mathematics.
Reilly, W. A.	2816	16	6	First Prizes for English, Latin, Greek, and French.
Butler, F. L.	2706	16	7	First Prizes for Mathematics, Natural Philosophy, and Prize for Chemistry.

SECOND CLASS.

NAME.	MARKS.	AGE.		PRIZES.
Davies, H. M.	1956	17	6	—

THIRD CLASS.

NAME.	MARKS.	AGE.		PRIZES.
Burgess, F. C.	1867	17	9	—
Meredith, G. L.	1831	17	0	Prize for Chemistry.
Taylor, Thos.	1695	18	11	—
Archer, P. W.	1518	17	0	—
Johnston, James	1467	16	7	—

For the Examiners,

17th September, 1872.   CHARLES BADHAM, D.D.

SPECIAL CLASS LIST.

English.	Latin.	Greek.	French.	Mathematics.	Natural Philosophy.	Chemistry.
FIRST CLASS.	FIRST CLASS.	FIRST CLASS.	FIRST CLASS.	FIRST CLASS.	FIRST CLASS.	FIRST CLASS.
Reilly.	Reilly.	Reilly.	Reilly.	Butler.	Butler.	Butler.
Tibbs.	Tibbs.	Tibbs.	Burgess.	Tibbs.	—	Meredith.
Butler.	—	—	Tibbs.	—	—	—
Davies.	—	—	Davies.	—	—	—
SECOND CLASS.	SECOND CLASS.	SECOND CLASS.	SECOND CLASS.	SECOND CLASS.	SECOND CLASS.	SECOND CLASS.
Burgess.	Meredith.	Davies.	Meredith.	Reilly.	Tibbs.	None.
Johnston.	Davies.	Taylor.	Butler.	Meredith.	—	—
Archer.	Butler.	Butler.	Taylor.	Burgess.	—	—
Taylor.	Taylor.	Burgess. }	Johnston.	Johnston.	—	—
Meredith.	Burgess.	Archer. }	Archer.	Archer.	—	—
—	Archer.	Johnston.	—	Davies. }	—	—
—	Johnston.	—	—	Taylor. }	—	—

For the Examiners,

17th September, 1872.   CHARLES BADHAM, D.D.

TASMANIAN COUNCIL OF EDUCATION.

EXAMINATION for the Degree of ASSOCIATE OF ARTS.—*September*, 1872.

TABULATED RESULTS.

NO.	NAME.	DATE OF BIRTH.	SCHOOL.	TEACHER.	*English.*	*Latin.*	*Greek.*	*French.*	*Mathematics.*	*Natural Philosophy.*	*Chemistry.*	TOTAL.	CLASS.
				[*Maximum No. of Marks*..	**1000.**	**800.**	**800.**	**600.**	**800.**	**300.**	**300.**		
1	Tibbs, James William	27 October, 1855	Hutchins, Hobart Town	Rev. J. R. Buckland, B.A.	744 c	532 c	478 c	415 c	517 c	135	—	2821	First.
2	Reilly, William Andrew	13 March, 1856	Hutchins, Hobart Town	Rev. J. R. Buckland, B.A.	839 c	638 c	507 c	479 c	353	—	—	2816	First.
3	Butler, Francis Leicester	28 February, 1856	Hutchins, Hobart Town	Rev. J. R. Buckland, B.A.	602 c	393	281	384	589 c	223 c	234 c	2706	First.
4	Davies, Henry Michael	19 March, 1855	High School, Hobart Town	Rev. R. D. Poulett Harris, M.A.	574 c	396	384	400 c	202	—	—	1956	Second.
5	Burgess, Frederick Charles	30 December, 1854	High School, Hobart Town	Rev. R. D. Poulett Harris, M.A.	539	355	274	455 c	244	—	—	1867	Third.
6	Meredith, George Llewellyn	28 September, 1855	Hutchins, Hobart Town	Rev. J. R. Buckland, B.A.	458	479	—	385	279	—	230 c	1831	Third.
7	Taylor, Thomas	20 September, 1853	High School, Hobart Town	Rev. R. D. Poulett Harris, M.A.	471	363	297	362	202	—...	—	1695	Third.
8	Archer, Percy Weston	25 September, 1855	High School, Hobart Town	Rev. R. D. Poulett Harris, M.A.	488	320	274	232	204	—	—	1518	Third.
9	Johnston, James	14 February, 1856	Collegiate School, Hobart Town.	Mr. A. Ireland.	510	225	172	350	210	—	—	1467	Third.

NOTE.—*c.* passed with credit.

For the Examiners,

CHARLES BADHAM, *D.D.*

Hobart Town, 17th September, 1872.

TASMANIAN COUNCIL OF EDUCATION.

EXAMINATION FOR A.A. DEGREE.—SEPTEMBER, 1872.

MALE CANDIDATES.

Preliminary Examination.

SATURDAY, 7th SEPTEMBER, 1872.

ENGLISH GRAMMAR.

Three hours and a half.

Professor BADHAM, D.D., *Examiner.*

1. Analyse the following sentences, and parse from " when" to " impudence :"—

From what has been said, it is plain that modesty and assurance are both amiable, and may very well meet in the same person. When they are thus mixed and blended together, they compose what we endeavour to express when we say a modest assurance ; by which we understand the just mean between bashfulness and impudence.

2. Criticise the following—

We were shown the skull of a man, whom our guide told us must have lived upwards of twenty thousand years ago. His opinion, however, was not very reliable, as he had no available means for ascertaining the fact.

I was prevented coming to your party by the physician of our mutual friend, who recommended me to stop at home.

Dictation.

Many persons are impelled by the love of the marvellous to visit foreign countries, and on their return they delight to astonish their neighbours with the recital of their adventures, and to pourtray scenes with which their hearers are unacquainted ; hence it is that travellers are often guilty of deliberate deceit : but sometimes they mislead us unconsciously, because they have not acquired the habit of keeping separate, in their own minds, their preconceived notions and their real experiences. In men of fervid imagination, this result can only be achieved by continual effort ; for it is only by daily practice that they can hope so to discipline their minds that, in relating what has occurred to them, they shall adhere to literal facts, without any colouring from the emotions which they have occasioned.

ARITHMETIC.

1. Multiply forty millions thirty-one thousand and twenty-four by four hundred and one.
2. The cost of 1 lb. of a certain article is 4s. 7d., find the cost of 3 cwt. of the same article.
3. Prove the truth of your result in the preceding example.
4. A man travels at the rate of 44 feet in 5 seconds, how many miles does he travel in one hour ?
5. How many tons of water to the acre correspond to a rainfall of one inch, the weight of a cubic foot of water being 1000 ozs. avoirdupois ?
6. Four bills of the following amounts—£27 10s. 3¾d., £13 4s. 7½d., £43 0s. 6d., and £5, are paid out of £100 ; what money is left ?

GEOGRAPHY AND HISTORY.

Three hours.

Professor BADHAM, D.D., *Examiner.*

1. In what countries are the following places situated :—Astrakhan, Bagdad, Brest, Colchester, Delhi, Genoa, Goa, Lima, Leghorn, Pittsburgh, Quito, Wexford.
2. What countries do the following chains of mountains divide :—The Carpathian, the Oural, the Jura. Describe the course of the Elbe, the Orinoco, the Burrampooter, and the Rhone. Mention the principal capes in England, Italy, and Greece.

3. Mention three important events in each of the following reigns :—Henry III., Henry VII., Anne.
4. What kings of England were (a) succeeded by their brothers? (b) succeeded immediately by their grandsons ?
5. Trace the descent of Edward IV. from Edward III., and of George I. from James I.

English Grammar and Shakspere, *(Merchant of Venice).*

Three hours.

Professor BADHAM, D.D., *Examiner.*

1. Analyse the following :—
    (*a*) It is a long lane which has no turning.
    (*b*) The allowances of the settlement at this time were certainly liberal, and all was done that private charity could do. But it was a people in beggary; it was a nation that stretched out its hands for food.

2. Explain the words " Vailing her high top," " You grow exceeding strange," " To be dressed in an opinion of wisdom," " I 'll grow a talker for this gear."

3. Express in Shaksperian language—
    By rather exhibiting a grander appearance than my weak resources would allow to continue. To shoot another arrow the same way that you shot the first. When did friendship take interest from his friend ? If he will take it, well and good.

4. Explain—
    " That thou but lead'st this fashion of thy malice
    To the last hour of act."

5. Give the Shaksperian equivalent for
    Whereas,
    In the whole or in part,
    You are in his power.

6. Quote as much as you can remember of observations upon the following subjects :—
    Men are keener in pursuit than in enjoyment.
    That some men affect wisdom by a pretended gravity.

7. Quote as much as you can remember of Shylock's plea on behalf of his nation, and of Bassanio's observations upon outward show.

8. What part of the plot of the Merchant of Venice is morally defective, and how has Shakspere toned this down ?

9. How are the primary Saxon derivatives of nouns classed ? Give an instance of each kind.

10. How are the primary derivative English verbs formed ? Give two instances of each kind.

English Composition.

Three quarters of an hour.

Professor BADHAM, D.D., *Examiner.*

Either—
    (*a*) An essay on Memory.
Or—
    (*b*) A letter describing what you consider to be the chief attractions in a visit to Europe.

History and Geography.

Three hours.

Professor BADHAM, D.D., *Examiner.*

1. Give an account of Lady Arabella Stuart, and of the movements made on her behalf.

2. What events led to the plantation of Ulster, and how was it effected ?

3. Trace briefly the career of George Villiers.

4. Give some account of ship money.

5. What were the principal parties which stood on the Parliamentary side at the outburst of the Civil War ? Mention the most distinguished men in each.

6. Describe fully the Battle of Dunbar and its consequences.

7. What was the policy of the French Court with regard to England during the reign of Charles the Second ?

8. Give a brief account of the Test and Corporation Acts, the Exclusion Bill, and the Rye House Plot.

1. Describe the nature and origin of the trade winds and the monsoons.
2. Give the lands, seas, and places of importance which are traversed by the tropic of Cancer, and by the equatorial line.
3. What countries lie between the Caucasus and the valley of the Indus? State what you have read of the inhabitants of any of those countries.
4. Where are the following places, and to what government does each of them belong—Aden, Amoy, Belgrade, Balkh, Buda, Cairo, Ceuta Coquimbo, Honolulu, Hedjaz, Lerwick, Natchez, Penang, Quebec, Tampico?
5. In what places are the following substances chiefly produced—coal, petroleum, quicksilver, sugar, sulphur, timber?
   What are the chief seats in England, France, and Germany of the following manufactures—cotton goods, woollen cloths, hardware?
6. Mention the chief towns in Belgium; describe their situation, and state for what they are remarkable either commercially or historically.
7. What are the chief seats of the linen manufacture in the United Kingdom and other parts of Europe?
8. Name the provinces forming the presidency of Bengal.
9. What are the most important vegetable products of Hindostan?
10. Name the principal towns and the exports of Ceylon.

Latin.

Two hours and a half.

Professor BADHAM, D.D., *Examiner.*

Translate into Latin prose :—

Epaminondas and he were both equally inclined to every virtue; but Pelopidas delighted more in the exercises of the body, and Epaminondas in the improvement of the mind; and the one diverted himself in the wrestling-ring or in hunting, while the other spent his hours of leisure in hearing or reading something in philosophy. Among the many things that reflected glory upon both, there was nothing which men of sense so much admired, as that strict and inviolable friendship which subsisted between them from first to last, in all the high posts which they held, both military and civil. For if we consider the administration of Aristides and Themistocles, of Cimon and Pericles, of Nicias and Alcibiades, how much the common concern was injured by their dissension, their envy and jealousy of each other, and then cast our eyes upon the mutual kindness and esteem which Pelopidas and Epaminondas inviolably preserved, we may justly call these colleagues in civil government and military command, and not those whose study it was to get the better of each other rather than of the enemy. The true cause of the difference, was the virtue of these Thebans, which led them not to seek, in any of their measures, their own honor and wealth, the pursuit of which is always attended with envy and strife; but being both inspired from the first with a divine ardour to raise their country to the summit of glory, for this purpose they availed themselves of the achievements of each other, as if they had been their own.

Latin.

Two hours and a half.

Professor BADHAM, D.D., *Examiner.*

Translate into Latin elegiac verse :—

One day I wrote her name upon the strand;
But came the waves, and washed it away:
Agayne, I wrote it with a second hand;
But came the tyde, and made my paynes his prey.
Vayne man, sayd she, that doest in vaine assay
A mortall thing so to immortalize;
For I my selve shall lyke to this decay,
And eke my name bee wyped out lykewize.
Not so, quod I; let baser things devize
To dy in dust, but you shall live by fame;
My verse your vertues rare shall eternize,
And in the hevens wryte your glorious name.
Where, when as death shall all the world subdew,
Our love shall live, and later life renew.

Latin.

LIVY—Book XXI. GRAMMAR.

Four hours.

Professor BADHAM, D.D., *Examiner.*

Translate into Latin—

I do not know for how many sesterces you bought the house at Tibur, but I believe that if you had waited two years, you would have bought a much better one at Gabii.

He promised that unless something unforeseen happened, he would have the corn cut three days later at farthest.

Translate into English—

Præceps vestra, Romani, et prior legatio fuit, quum Hannibalem, tamquam suo consilio Saguntum oppugnantem deposcebatis: ceterum hæc legatio verbis adhuc lenior est, re asperior. Tunc enim Hannibal et insimulabatur, et deposcebatur, nunc ab nobis et confessio culpæ exprimitur, et, ut a confessis, res extemplo repetuntur. Ego autem non, privato publicone consilio Saguntum obpugnatum sit, quærendum censeam: sed utrum jure, an injuria. Nostra enim hæc quæstio atque animadversio in civem nostrum est, nostro an suo fecerit arbitrio. Vobiscum una disceptatio est, licueritne per fœdus fieri. Itaque quoniam discerni placet, quid publico consilio, quid sua sponte imperatores faciant; nobis vobiscum fœdus est a Lutatio consule ictum: in quo quum caveretur utrorumque sociis, nihil de Saguntinis (nec dum enim erant socii vestri) cautum est. At enim eo fœdere, quod cum Hasdrubale ictum est, Saguntini excipiuntur; adversus quod nihil ego dicturus sum, nisi quod a vobis didici. Vos enim, quod C. Lutatius consul primo nobiscum fœdus icit, quia neque auctoritate Patrum, nec populi jussu ictum erat, negastis vos eo teneri; itaque aliud de integro fœdus publico consilio ictum est. Si vos non tenent vestra fœdera, nisi ex auctoritate aut jussu vestro icta, ne nos quidem Hasdrubalis fœdus, quod nobis insciis icit, obligare potuit. Proinde omittite Sagunti atque Iberi mentionem facere, et, quod diu parturit animus vester, aliquando pariat. Tum Romanus, sinu ex toga facto, Hic, inquit, vobis bellum et pacem portamus; utrum placet, sumite. Sub hanc vocem haud minus ferociter, daret, utrum vellet, subclamatum est; et quum is iterum sinu effuso bellum dare dixisset, accipere se omnes esponderunt, et, quibus acciperent animis, iisdem se gesturos.

Proinde fortunam tuam pressis manibus tene: lubrica est, nec invita teneri potest. Salubre consilium sequens quam præsens tempus ostendit melius; impone felicitati tuæ frenos; facilius illam reges. Nostri sine pedibus dicunt esse fortunam, quæ manus et pennas tantum habet; quum manus porrigit, pennas quoque comprehendere non sinit. Denique, si deus es, tribuere mortalibus beneficia debes, non sua eripere; sin autem homo es, id quod es semper esse te cogita: stultum est eorum meminisse, propter quæ tui oblivisceris. Quibus bellum non intuleris, bonis amicis poteris uti; nam et firmissima est inter pares amicitia; et videntur pares, qui non fecerunt inter se periculum virium. Quos viceris, amicos tibi esse, cave credas: inter dominum et servum nulla amicitia est: etiam in pace belli tamen jura servantur.

Give the perfect and supine of the following verbs:—Contundo, impingo, intexo, percello, permolo, demeto, elicio, resilio.

Write down the first person present of the verb of Oblitus, differtus, commentus; also of perhorrui, pertimui, severis; and derive Oblectare, polliceri, irritus, bustum, sidus, suffoco, nundinor, cavillo, vacillo, meditor.

Write down the meaning of:—Vereor ut hoc verum sit—At enim secus videtur Stoicis—Haud scio an nos ludibrio habeat—Nihil minus suspicabatur quam fratrem spe excidisse—Mihi usus venit ut repulsam ferrem—Quantum illud e re tua futurum sit, tute videris.

What author does Livy chiefly follow in his account of the second Punic war? What others does he quote in the 21st Book, and what is known of them?

Latin.

OVID—Fasti, Book I.   HORACE—Odes, Books I. & II.

Four hours.

Professor BADHAM, D.D., *Examiner.*

Translate into English, explaining briefly any word or allusion that seems to need explanation :—

1. " Vitæ summa brevis spem nos vetat inchoare longam.
    Jam te premet nox fabulæque Manes
    Et domus exilis Plutonia ; quo simul mearis
    Nec regna vini sortiere talis,
    Nec tenerum Lycidan mirabere."

2. " Iracunda diem proferet Ilio
Matronisque Phrygum classis Achilleï ;
Post certas hiemes uret Achaïcus
Ignis Iliacas domos."

3. " Velox amœnum sæpe Lucretilem
Mutat Lycæo Faunus, et igneam
Defendit æstatem capellis
Usque meis pluviosque ventos."

4.   —— " habentque
Tartara Panthoiden iterum Orco
Demissum, quamvis clipeo Trojana refixo
Tempora testatus nihil ultra
Nervos atque cutem morti concesserit atræ,
Judice te non sordidus auctor
Naturæ verique."

5. " Negligis immeritis nocituram
Postmodo te natis fraudem committere ?   Fors et
Debita jura vicesque superbæ
Te maneant ipsum."

6. " Truditur dies die,
Novæque pergunt interire Lunæ.
Tu secanda marmora
Locas sub ipsum funus, et sepulchri
Immemor struis domos
Marisque Baiis obstrepentis urges
Summovere litora,
Parum locuples continente ripa."

7. " Unde si Parcæ prohibent iniquæ
Dulce pellitis ovibus Galesi
Flumen, et regnata petam Laconi
Rura Phalanto."

8. Quisque suas artes ob idem delibat agendo,
Nec plus quam solitum testificatur opus.

9. Dulcia cur dentur video ; stipis adjice causam,
Pars mihi de festo ne labet ulla tuo.

10. Multa quidem didici : sed cur navalis in ære
Altera signata est, altera forma biceps ?

11. Ille manu mulcens propexam ad pectora barbam,
Protinus Œbalii rettulit arma Tati,
Utque levis custos armillis capta Sabinis
Ad summæ tacitos duxerit arcis iter.

12. Utque erat immissis puppim stetit ante capillis,
Continuitque manum torva regentis iter ;
Et procul in dextram tendens sua brachia ripam,
Pinea non sano ter pede texta ferit.

13. Magne, tuum nomen rerum mensura tuarum est ;
Sed qui te vicit, nomine major erat.

14. Scortea non illi fas est inferre sacello,
Ne violent puros exanimata focos.

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1. Give the approximate dates of the appearance of the Fasti and of Horace's 1st and 2nd Book of Odes, and mention one or more public events which may be assigned to nearly the same dates.

2. Give a brief account of Agrippa, Mæcenas, and Germanicus.

3. Express in writing, according to the Roman computation, the day of the month and the year in which you answer this.

4. State the reasons for believing that the Romans had a year of ten months, and account for such a division of time.

5. Where and what are Antium, Cales, Formiæ, Galesus, Garganus, Liris, Massicus, Tibur, Venusia.

Greek.—I.

EURIPIDES, Medea. GRAMMAR AND ETYMOLOGY.
Three hours.
Professor BADHAM, D.D., *Examiner.*

Translate into English—

(a)
ἐχθροὶ γὰρ ἐξιᾶσι πάντα δὴ κάλων,
κοὐκ ἔστιν ἄτης εὐπρόσοιστος ἔκβασις.

(b)
χρὴ δ' οὔποθ' ὅστις ἀρτίφρων πέφυκ' ἀνὴρ
παῖδας περισσῶς ἐκδιδάσκεσθαι σοφούς.
χωρὶς γὰρ ἄλλης ἧς ἔχουσιν ἀργίας
φθόνον πρὸς ἀστῶν ἀλφάνουσι δυσμενῆ.

(c)
πολλὰς δ' ἔχουσα θανασίμους αὐτοῖς ὁδοὺς,
οὐκ οἶδ' ὁποίᾳ πρῶτον ἐγχειρῶ, φίλαι,
πότερον ὑφάψω δῶμα νυμφικὸν πυρὶ,
ἢ θηκτὸν ὤσω φάσγανον δι' ἥπατος,
σιγῇ δόμους ἐσβᾶσ' ἵν' ἔστρωται λέχος.

(d)
μοῦσαι δὲ παλαιγενέων λήξουσ' ἀοιδᾶν
τὰν ἐμὰν ὑμνεῦσαι ἀπιστοσύναν.
οὐ γὰρ ἐν ἁμετέρᾳ γνώμᾳ λύρας
ὤπασε θέσπιν ἀοιδὰν
Φοῖβος, ἁγήτωρ μελέων· ἐπεὶ ἀντάχησ' ἂν ὕμνον
ἀρσένων γέννᾳ· μακρὸς δ' αἰὼν ἔχει
πολλὰ μὲν ἁμετέραν ἀνδρῶν τε μοῖραν εἰπεῖν.

(e)
τοὐνθένδε μέντοι δεινὸν ἦν θέαμ' ἰδεῖν·
χροιὰν γὰρ ἀλλάξασα λεχρία πάλιν
χωρεῖ τρέμουσα κῶλα, καὶ μόλις φθάνει
θρόνοισιν ἐμπεσοῦσα μὴ χαμαὶ πεσεῖν.
καί τις γεραιὰ προσπόλων, δόξασά που
ἢ Πανὸς ὀργὰς ἢ τινὸς θεῶν μολεῖν,
ἀνωλόλυξε, πρίν γ' ὁρᾷ κατὰ στόμα
χωροῦντα λευκὸν ἀφρὸν, ὀμμάτων τ' ἀπὸ
κόρας στρέφουσαν, αἷμά τ' οὐκ ἐνὸν χροΐ·
εἶτ' ἀντίμολπον ἧκεν ὀλολυγῆς μέγαν
κωκυτόν. εὐθὺς δ' ἡ μὲν ἐς πατρὸς δόμους
ὥρμησεν, ἡ δὲ πρὸς τὸν ἀρτίως πόσιν,
φράσουσα νύμφης συμφοράν· ἅπασα δὲ
στέγη πυκνοῖσιν ἐκτύπει δρομήμασιν.

Parse the verbs in Extract (c).

Explain the difference between οὐ μὴ μεθήσεις τοῦτον and οὐ μὴ μεθῇς τοῦτον, and account for each.

Explain what is remarkable in ὅπως ἂν, οἶμαι, καὶ παραστῶσιν τύχαι—ὡς οὐ κρινοῦμαι τῶνδέ σοι τὰ πλείονα—σοφώτερ' ἢ κατ' ἄνδρα συμβαλεῖν ἔπη—γνώσει γὰρ αὐτὴ ζημίας ἀποστροφήν.

In οἶσθ' ὡς μετεύξει καὶ σοφωτέρα φανεῖ why does Elmsley change μετεύξει into μέτευξαι?

Resolve the crasis in ζυγγνωστὰ μὲν τἄρ' ἦν σε λυπεῖσθαι γύναι.

In what senses do the following words occur in the Medea—μεθορμίζεσθαι, ἐπαγγέλλεσθαι, παρίεσθαι, ὑπεκδραμεῖν, περιστέλλειν, ξυναρτᾶν.

What verbs are used as equivalent to the passives of ἐκβάλλω, of τίθημι and its compounds, and of ποιῶ and ποιοῦμαι?

Parse ἐκτίσει, ἐκτενεῖ, ἐξέδου, ἀνίεις, ἀπέσβη, θεσμὰ, ἄλῃ.

Derive πλημμελὴς, ἀθῷος, ἄπλατος.

Express in Greek—

1. The women confounded everything by their contrivances.
2. It is impossible but that he should drive thee out of the land when he hears what thou hast threatened.
3. We know not which way to take.
4. It behoves us to hit on some plan for returning from banishment.
5. Oh! that thou hadst never seen the slave that thou broughtest.

At what festivals, and at whose expense, were tragedies put upon the Athenian stage? Mention all that you know about the mode of composition, the number of actors and of the chorus. How do we know the date of the Medea, and what else do we learn from the same source?

Greek.—II.

XENOPHON—Anabasis, Book II.　　GRAMMAR.　　COMPOSITION.

Four hours.

Professor C. BADHAM, D.D., *Examiner.*

Translate into English, and add necessary explanations—

Ὁ μὲν οὕτως εἶπεν· ἀκούσας δ᾽ ὁ Τισσαφέρνης ἔφη· "Ταῦτ᾽ ἐγὼ ἀπαγγελῶ βασιλεῖ, καὶ ὑμῖν πάλιν τὰ παρ᾽ ἐκείνου· μέχρι δ᾽ ἂν ἐγὼ ἥκω, αἱ σπονδαὶ μενόντων. ἀγορὰν δ᾽ ἡμεῖς παρέξομεν." Καὶ εἰς μὲν τὴν ὑστεραίαν οὐχ ἧκεν· ὥσθ᾽ οἱ Ἕλληνες ἐφρόντιζον. τῇ δὲ τρίτῃ ἥκων ἔλεγεν ὅτι διαπεπραγμένος ἥκοι παρὰ βασιλέως δοθῆναι αὐτῷ σώζειν τοὺς Ἕλληνας, καίπερ πάνυ πολλῶν ἀντιλεγόντων ὡς οὐκ ἄξιον εἴη βασιλεῖ ἀφεῖναι τοὺς ἐφ᾽ ἑαυτὸν στρατευσαμένους. Τέλος δ᾽ εἶπε· "Καὶ νῦν ἔξεστιν ὑμῖν πιστὰ λαβεῖν παρ᾽ ἡμῶν ἦ μὴν φιλίαν παρέξειν ὑμῖν τὴν χώραν καὶ ἀδόλως ἀπάξειν εἰς τὴν Ἑλλάδα, ἀγορὰν παρέχοντας· ὅπου δ᾽ ἂν μὴ ᾖ πρίασθαι, λαμβάνειν ὑμᾶς ἐκ τῆς χώρας ἐάσομεν τὰ ἐπιτήδεια. Ὑμᾶς δ᾽ αὖ ἡμῖν δεήσει ὀμόσαι ἦ μὴν πορεύσεσθαι ὡς διὰ φιλίας, ἀσινῶς σῖτα καὶ ποτὰ λαμβάνοντας, ὁπόταν μὴ ἀγορὰν παρέχωμεν· ἢν δὲ παρέχωμεν ἀγοράν, ὠνουμένους ἕξειν τἀπιτήδεια.

Εἰ δὲ δὴ καὶ μανέντες σε ἀποκτείναιμεν, ἄλλο τι ἂν ἢ τὸν εὐεργέτην ἀποκτείναντες, πρὸς βασιλέα τὸν μέγιστον ἔφεδρον ἀγωνιζοίμεθα; Ὅσων δὲ δὴ καὶ οἵων ἂν ἐλπίδων ἐμαυτὸν στερήσαιμι, εἴ σέ τι κακὸν ἐπιχειρήσαιμι ποιεῖν, ταῦτα λέξω. Ἐγὼ γὰρ Κῦρον ἐπεθύμησά μοι φίλον γενέσθαι, νομίζων τῶν τότε ἱκανώτατον εἶναι εὖ ποιεῖν ὃν βούλοιτο· σὲ δὲ νῦν ὁρῶ τήν τε Κύρου δύναμιν καὶ χώραν ἔχοντα καὶ τὴν σαυτοῦ σώζοντα, τὴν δὲ βασιλέως δύναμιν, ᾗ Κῦρος πολεμίᾳ ἐχρῆτο, σοὶ ταύτην σύμμαχον οὖσαν. Τούτων δὲ τοιούτων ὄντων, τίς οὕτω μαίνεται ὅστις οὐ βούλεται σοὶ φίλος εἶναι; Ἀλλὰ μὴν ἐρῶ γε καὶ ταῦτα, ἐξ ὧν ἔχω ἐλπίδας καὶ σὲ βουλήσεσθαι φίλον ἡμῖν εἶναι. Οἶδα μὲν γὰρ ὑμῖν Μυσοὺς λυπηροὺς ὄντας οὓς νομίζω ἂν σὺν τῇ παρούσῃ δυνάμει ταπεινοὺς ὑμῖν παρασχεῖν· οἶδα δὲ καὶ Πισίδας· ἀκούω δὲ καὶ ἄλλα ἔθνη πολλὰ τοιαῦτα εἶναι ἃ οἶμαι ἂν παῦσαι ἐνοχλοῦντα ἀεὶ τῇ ὑμετέρᾳ εὐδαιμονίᾳ.

Write down the future and aorist, according to Attic use, of the following verbs :— ἀμφιέννυμι, ἀναβιβάζω, ἀποδιδράσκω, διώκω, κομίζω, λανθάνω, ὄμνυμι, ὀφείλω, παίζω, καταπάττω, ὠθῶ, and the passive aorist of κλίνω, τείνω, ἀφίημι, ἕλκω, κατακόπτω.

Translate into Greek—

If we had been wanting in horses or soldiers we should not have crossed the river.

If we were to be conquered in the plain we might yet be able to seize upon the mountains.

We let Cyrus do us good while he was in prosperity, shall we not then be ashamed of abandoning him now that we see him in danger?

Here one might see the way in which Clearchus superintended the work.

It was not a proper season to dry the dates.

They have let the water out, in order to frighten the Greeks.

The king would give a great deal to see us scattered over the country.

We will wait for him that we may ask him if he yet bears us any grudge.

French.

MOLIÈRE—Le Bourgeois Gentilhomme.

Three hours and a half.

Professor BADHAM, D.D., *Examiner.*

Translate into French—

1. I did not doubt but that he would come.

2. We said we would not give it him unless he promised to return it to us.

3. He commits more blunders than he writes words.

4. He wore a large hat so that no man might recognise him.

5. The girls have hidden themselves behind that tree.

6. The two girls have shewn each other the letters which they have received.

7. What is his idea?　Has he spoken to you of it?

8. Great as his merits may have been, it was not he who ought to have spoken of them.

9. Whatever the opinions of critics may be, his poem will not please the multitude.

10. That star has never appeared more beautiful than it appears at this moment.

Translate into English—

(*a*) Il en veut à son frère.

(*b*) C'est à mon insu qu'il l'a fait.

(*c*) À quoi bon battre les champs pour une bagatelle ?

(*d*) Il achève ce travail à son corps défendant.

(*e*) Dussè-je le payer de ma personne je ne démordrai pas de cette opinion.

(*f*) Enfin de guerre lasse il s'est rendu.

(*g*) A la pesanteur près les deux substances se ressemblent beaucoup.

(*h*) Ils se jetèrent sur la proie à qui mieux mieux.

(*i*) Il a péroré avec beaucoup d'emphase.

(*j*) Pour peu que vous le guettiez vous verrez que c'est un pauvre sire.

Write down the first person of all the tenses and moods, and the participles of acquérir, atteindre, émouvoir, écrire, tordre, maudire, racheter, and jeter.

Translate into English—

1. Et que sera donc la philosophie ? Je vous trouve tous trois bien impertinents de parler devant moi avec cette arrogance, et de donner impudemment le nom de science à des choses que l'on ne doit pas même honorer du nom d'art, et qui ne peuvent être comprises que sous le nom de métier misérable de gladiateur, de chanteur et de baladin !

2. Belle demande ! Je défie un peintre, avec son pinceau, de vous faire rien de plus juste. J'ai chez moi un garçon qui, pour monter une rhingrave, est le plus grand génie du monde ; et on autre qui, pour assembler un pourpoint, est le héros de notre temps.

3. Tout ce monde-là est un monde qui a raison, et qui est plus sage que vous. Pour moi, je suis scandalisée de la vie que vous menez. Je ne sais plus ce que c'est que notre maison. On dirait qu'il est céans carême-prenant tous les jours ; et dès le matin, de peur d'y manquer, on y entend des vacarmes de violons et de chanteurs dont tout le voisinage se trouve incommodé.

4. Madame parle bien. Je ne saurais plus voir mon ménage propre avec cet attirail de gens que vous faites venir chez vous. Ils ont des pieds qui vont chercher de la boue dans tous les quartiers de la ville pour l'apporter ici ; et la pauvre Françoise est presque sur les dents, à frotter les planchers que vos biaux maîtres viennent crotter régulièrement tous les jours.

5. Ce monsieur le comte qui va chez elle lui donne peut-être dans la vue, et son esprit, je le vois bien, se laisse éblouir à la qualité. Mais il me faut, pour mon honneur, prévenir l'éclat de son inconstance. Je veux faire autant de pas qu'elle au changement où je la vois courir, et ne lui laisser pas toute la gloire de me quitter.

6. L'histoire de Rome, pendant un siècle, fut remplie de pareils malentendus entre ces deux peuples qui ne semblaient pas parler la même langue. Le patriciat persistait à retenir la plèbe en dehors du corps politique ; la plèbe se donnait des institutions propres. La dualité de la population romaine devenait de jour en jour plus manifeste. Il y avait pourtant quelque chose qui formait un lien entre ces deux peuples, c'était la guerre. Le patriciat n'avait eu garde de se priver de soldats. Il avait laissé aux plébéiens le titre de citoyens, ne fût-ce que pouvoir les incorporer dans les légions. On avait d'ailleurs veillé à ce que l'inviolabilité des tribuns ne s'étendît pas hors de Rome, et pour cela on avait décidé qu'un tribun ne sortirait jamais de la ville. A l'armée, la plèbe était donc sujette, et il n'y avait plus double pouvoir ; en présence de l'ennemi, Rome redevenait une.

Mathematics.—I.

ALGEBRA.

Four hours.

M. H. IRVING, Esq., M.A., *Examiner.*

[*Every result is to be reduced to its simplest form.*]

1. Explain clearly in words the meaning of the following expressions—

$ab - cd$, a^m, $a^{\frac{2}{3}}$, $\dfrac{a^2 + b^2}{a^2 - b^2}$.

2. Three bits of string, of lengths a, b, c inches, are each shortened by d inches, and the remainders cut in half. These halves are then joined. Find an expression for their length, supposing $\dfrac{d}{4}$ inches to be used at each of the two joins.

3. Find the value of $3a^2b + \dfrac{a^2 + b^2}{c} + abc + \dfrac{2ab}{3} + \dfrac{a^2}{b^3} + \dfrac{a - b}{a^3 + b^3 + c^4}$, when $a = 4$, $b = 3$, $c = 2$.

4. Simplify $a - \{x + (x - 2a)\} + (2a - x) - \{(a - 2x) - (2a - x) + (x - 2a)\}$

5. Multiply $a^3 + 3a^2b + 3ab^2 + b^3$ by $a^3 - 3a^2b + 3ab^2 - b^3$.

6. Divide $16x^2 - y$ by $2x^{\frac{1}{2}} - y^{\frac{1}{4}}$.

7. Square $\dfrac{\sqrt{a + \sqrt{a^2 - b}}}{2} + \dfrac{\sqrt{a - \sqrt{a^2 - b}}}{2}$.

8. Substitute $a + b$ for x and $a - b$ for y in the fraction $\dfrac{x^5 + x^4y + x^3y^2 + x^2y^3 + xy^4 + y^5}{x^5 - x^4y + x^3y^2 - x^2y^3 + xy^4 - y^5}$.

9. Extract the square root of $16x^6 - 8x^5 - 7x^4 - 14x^3 + 5x^2 + 4x + 4$.

10. A cistern has two taps, one will fill it in 45, the other in 75 minutes. If both are set running, in what time will it be filled?

11. Solve $\dfrac{x^2 + 2x + 2}{x + 1} + \dfrac{x^2 + 8x + 20}{x + 4} = \dfrac{x^2 + 4x + 6}{x + 2} + \dfrac{x^2 + 6x + 12}{x + 3}$.

12. Solve the equation $x^4 + y^4 = 706$.
$$x + y = 8.$$

13. The area of a rectangular field is 4 acres, and its circuit 564 yards. How many yards are there in its length and in its breadth?

14. If there be a number of two digits, prove that the difference between its square and that of the number formed by its digits reversed is divisible by 99.

15. A cricket club contains 20 members, 8 of whom can bowl. How many different elevens can be made up, each containing four bowlers.

16. There is an Arithmetical Progression in which the sum of n terms always equals n^2. Find its first term, its common difference, and its ninth term.

17. A servant agrees to take a penny for the first week, twopence for the second, fourpence for the third, and so on. Find the amount paid him in wages by the end of the first quarter.

18. Prove that if $\dfrac{a}{b} = \dfrac{c}{d}$, $\dfrac{a + b}{a - b} = \dfrac{c + d}{c - d}$.

Mathematics.—II.

Euclid, Books 1—4. Arithmetic.

Four hours.

M. H. Irving, Esq., M.A., Examiner.

[*The work of every Arithmetic Question must be sent up in full. Credit will not be given for Answers alone.*]

1. Define—a circle, a straight line, parallel straight lines, a right angle. Define and draw—an obtuse-angled triangle, a rhombus, a gnomon, and a sector of a circle.

2. If one side of a triangle be produced, the exterior angle is greater than either of the interior opposite angles.

3. If the square described on one of the sides of a triangle be equal to the squares described on the other two sides, the angle contained by these is a right angle.

4. Construct a triangle whose angles shall be as the numbers 1, 2, 3.

5. State and prove the relation established in Euclid II. 12, between the squares on the sides of an obtuse-angled triangle.

6. ABCD is a rectangle, A and C opposite angles. Take any point O outside the rectangle, then the square on OA together with that on OC shall equal the square on OB together with that on OD.

7. If two equal circles touch externally, the centres of all circles that touch both of them lie in one straight line.

8. In a circle the angle in a semicircle is a right angle; that in a segment greater than a semicircle is less than a right angle; that in a segment less than a semicircle is greater than a right angle.

9. Inscribe a circle in a given triangle.

10. What property must a parallelogram possess in order that a circle may be inscribed in it? Prove your answer.

11. Ground 30 feet wide by 156 feet long is sold for £11,100. Find the price per acre.

12. Extract the square root of $8 \cdot 10$ to five places of decimals. If limited to three places what would be the nearest value of the square root?

13. A sells out £15,000 of 3 per cent. Stock at £92 10s., and with the proceeds buys 6 per cent. Debentures at £117 10s. How much is his income increased or decreased?

14. Find to three places of decimals the number of ounces Avoirdupois in a Troy pound.
15. Reduce 2 qrs. 14 lbs. 5 ozs. to the decimal of a cwt.
16. Find the rent of 246 acres 3 roods 17 poles at £2 7s. 10d. per acre.

17. Simplify the expression $\dfrac{1\frac{1}{9} - 2\frac{1}{4}}{6\frac{1}{4} - 3\frac{1}{16}} \div \dfrac{3\frac{1}{3} + 1\frac{1}{2}}{2\frac{1}{2} + 1\frac{3}{4}} \times \dfrac{3\frac{1}{2} - \cdot 1\frac{1}{2}}{2\frac{1}{2} - 1\frac{3}{4}}.$

18. Find the least common multiple of 22, 25, 33, 44, 45.

Mathematics.—III.

EUCLID, BOOKS VI. AND XI. PLANE TRIGONOMETRY. LOGARITHMS.

Three hours and a half.

M. H. IRVING, Esq , M.A., Examiner.

[For the last three questions, Logarithmic Tables will be required.]

1. If the sides of two triangles about each of their angles be proportionals, the triangles shall be equiangular, and the equal angles shall be those which are opposite to the homologous sides.
2. Compare the square inscribed in a semicircle with that inscribed in a quadrant of the same circle.
3. Describe a rectilineal figure equal to one and similar to another given rectilineal figure.
4. If an angle of a triangle be bisected by a straight line which cuts the base, the rectangle contained by the sides of the triangle is equal to the rectangle contained by the segments of the base, together with the square on the straight line which bisects the angle.
5. Define the inclination of one plane to another, a pyramid, a prism, a cone, a sphere, a cylinder, a cube, a dodecahedron.
6. If two straight lines are at right angles to the same plane they are parallel.
7. Out of a card a foot square is cut a circle whose diameter is half the diagonal of the square. Find the area of the remaining portion.
8. Assuming formulæ for sin. $\overline{A + B}$ and cos. $\overline{A + B}$, find tan. 2 A in terms of tan A. Hence if tan. 45° = 1, find tan. 22° 30′.
9. If the sides of a triangle be 3a, 5a, and 7a, show that the greatest angle is 120°.
10. If the sun's altitude be 30°, find in feet to 3 places of decimals the length of the shadow thrown on a level pavement by a lamp-post 10 ft. 6 in. high.
11. Define a logarithm ; show that the logarithm of the product of two numbers is the sum of their logarithms ; and hence prove that the logarithms to base 10 of all numbers consisting of the same digits differ only in their characteristics, wherever the decimal point may be placed.
12. Find the number of years in which £40 will amount to £100 at compound interest payable yearly at the rate of 4¾ per cent.
13. Find the length of one degree of longitude on the equator, the equatorial diameter being 7925 miles. Hence, having it given that the length of a degree of longitude varies as the cosine of the latitude, find the length of a degree of longitude in the latitude of Hobart Town, 42° 52′ S.
14. The sides of a triangular field are 18·71, 24·50, and 29·045 chains. Find its angles and its area in acres.

Natural Philosophy.

Three hours and a half.

M. H. IRVING, Esq., M.A., Examiner.

1. State the proposition known as the parallelogram of forces. State how it may be proved experimentally, and draw a diagram in illustration.
2. A body weighing 60 lbs. hangs by a rope 13 feet long. What force acting horizontally will pull it just five feet away from the vertical line?
3. A, B, C, are three pegs in a door forming an isosceles triangle, in which BAC is a right angle and BC horizontal. Find the pressure on each peg if two weights of 10 lbs. each hang at opposite ends of a string that passes over the three pegs.

4. A rod 8 feet long, each foot of which weighs 4 lbs., rests on two props A and B, 4 feet apart, A being 18 inches from one end. Find the pressures on A and on B.

5. If one corner of a square ABCD be cut off by a line joining E and F the bisections of AB and BC, find the position of the centre of gravity of the remaining surface AEFCD, having given that the area of any triangle equals half the base multiplied by the height, and that AB is 12 inches.

6. Explain with a diagram the first system of pulleys. Calculate the ratio of P to W, (a) disregarding the weight of the pulleys, (b) regarding it.

7. An inclined plane rises 16 in 65. Find the weight will be supported upon it by a horizontal force of 80 lbs., and also the pressure on the plane.

8. In a common screw press, given diameter of screw 5 inches, distance between thread ½ inch, length of lever 3 feet 6 inches, what resistance will be balanced by a power of 28 lbs. ?

9. Through what height must a body fall from rest to gain a velocity of 50 miles per hour. How long will it have been falling?

10. State the Third Law of Motion. Through what distance will a weight of 5 ounces drag in three seconds another weight of 4½ ounces connected with it by a string passing over a pulley which runs perfectly freely?

11. Explain the construction of the Hydrostatic Bellows. If the pipe be 2 inches and the plate 12 inches in diameter, what weight will be supported on the plate by 24 inches of water in the pipe?

12. The pressure on a surface of 40 square inches at a depth of 18 inches is 60 lbs., what is the specific gravity of the fluid?

13. If the specific gravity of gold be 19·3, and that of copper 8·9, find the specific gravity of a sovereign which contains 11 parts of gold to 1 of copper.

14. Explain the construction of the Mercurial Barometer.

15. What change in the atmospheric pressure corresponds to a rise of 1 inch in the Barometer if the specific gravity of mercury be 13·6 ?

16. A cubic vessel a foot every way is filled with sulphuric acid, specific gravity 1·8. Calculate the total pressure on the bottom and the sides.

Chemistry.

Three hours.

THE LORD BISHOP OF TASMANIA, *Examiner.*

1. Explain the terms "specific gravity" and "chemical affinity." Distinguish between a solid, a liquid, and a gas.

2. What is meant by the law of constant proportion ? Illustrate by instances expressed in chemical symbols.

3. Interpret the symbols NO ; CO_2 ; F_eO ; N_aO, SO_3 ; KO, NO_5.

4. Explain the following prefixes and affixes :—Prot- ; Deut- ; Hypo- ; -ous ; -ic ; -ide.

5. By what experiments would you illustrate the properties of (1) Conduction, (2) Radiation ?

6. Describe the process of disengaging (1) Hydrogen, (2) Carbonic Acid. Shew by a diagram the chemical changes that take place. How much Hydrogen is contained in 100 grains of water ?

7. Name the principal constituents of the atmosphere. How is its composition affected by the respiration of animals and by vegetable life ?

8. A piece of dry phosphorus is sealed up in a tube with atmospheric air, and gently heated. What is the action of the phosphorus in this experiment ? Describe the properties of the gas which is left.

9. In what respects do rain-water, spring-water, and sea-water differ ? How is pure water obtained from spring water ?

10. Describe the preparation and properties of (1) Potassium, (2) Ammonia.

11. Give some account of the following compounds and their properties :—

        (1) Starch and Dextrine.
        (2) Ether and its compounds.

12. Distinguish between organic and inorganic Chemistry. How would you illustrate the difference in the burning of a piece of paper ?

EXAMINATION FOR THE DEGREE OF ASSOCIATE OF ARTS, 1872.

THE Council of Education have directed the publication of the following Scheme of Examination for the Degree of Associate of Arts for the year 1872.

The Conditions upon which the Degree is granted, and Honours and Prizes are awarded, are also published for general information.

By Order of the Council,

GEORGE RICHARDSON, *Secretary.*

SKETCH of the Examination for the Degree of ASSOCIATE OF ARTS *for the Year* 1872.

ENGLISH.—The Candidate will be examined in *Shakespeare's Merchant of Venice, Acts I. to IV. inclusive,* with Questions on the Etymology and Grammatical construction of the Language; in History of England, *Student's Hume, Book V.*; and will be required to write a short original Composition, or a Report founded upon some abstract of facts furnished to him. He will also be examined in Physical, Commercial, and Political Geography. Books recommended: Poetical Reading Book with Aids for Grammatical Analysis, &c., by Morell and Ihne, (2s. 6d., Gordon); Morell's Grammar and Analysis with the Exercises, (3s. 6d., Constable); Smith's Student's Hume, (7s. 6d., Murray); Cornwell's School Geography, (3s. 6d., Simpkin & Co.)

LATIN.—Ovid, *Fasti, Book I.,* Horace, *Odes, Books I. and II.;* Livy, *Book XXI.* Questions will also be given on the Language, and the historical and geographical allusions. A passage for translation from some other Latin author; and passages of English for translation into Latin Prose and Verse.

GREEK.—Xenophon, *Anabasis, Book II.;* Euripides, *Medea.* Questions on the Language, and the historical and geographical allusions. A passage for translation from some other Greek author.

FRENCH.—Guizot's *Edouard III. et les Bourgeoise de Calais* (Bibliothèque des Chemins de Fer); Molière, *Le Bourgeois Gentilhomme.* Questions on the Language, and the historical and geographical allusions; a passage from some other French author for translation into English, and from some English author into French.

GERMAN.—Schiller, *Maria Stuart.* Questions on the Language, and the historical and geographical allusions; a passage from some other German author for translation into English, and from an English author into German.

ITALIAN.—Silvio Pellico, *Le Mie Prigioni,* with questions on the Language, and the grammatical construction; a passage from some other Italian author for translation into English, and from an English author into Italian.

PURE MATHEMATICS.—Euclid, *Books I. II. III. IV.,* Arithmetic, and Algebra. Candidates for Honours will be required to satisfy the Examiners in Euclid, *Book VI. and Book XI. to the 21st proposition inclusive,* Plane Trigonometry, (Text Books—Colenso's Trigonometry, 1st Part, or Todhunter's Trigonometry for Beginners), and the use of Logarithms.

NATURAL PHILOSOPHY.—Newth's First Book of Natural Philosophy,—not including the Eighth and Ninth Chapters.

CHEMISTRY.—Inorganic Chemistry. Books recommended—Wilson's Chemistry, (3s., Chambers' Educational Course.)

ZOOLOGY AND BOTANY.—Elementary questions will be set on the description and classification of animals, their habits and geographical distribution; and on the mercantile and industrial uses of animal products. Also, the description and classification of plants, their uses, and geographical distribution. Plants, and parts of plants, will be given for description. Text Books: Milne Edwards's Zoology, 7s. 6d., (Renshaw) and Lindley's Elements of Botany, 12s., (Bradbury).

GEOLOGY.—Books recommended—Page's Advanced Text Book of Geology, 5s., (Blackwood).

DRAWING.—Drawing from the Flat, from Models, and in Perspective. A fair degree of skill in freehand Drawing will be required in order that a Student may pass in this section. Text Books:— J. R. Dicksee's Linear Perspective or use of Schools, 8vo., (5s. Virtue), and R. S. Burn's Illustrated Drawing Book, 8vo., (2s., Ward & Lock.)

SCALE OF MARKS.

Full Marks obtainable.

English	1000
Latin	800
Greek	800
French, German, or Italian	600
Pure Mathematics	800
Elementary Principles of Hydrostatics and Mechanics	300
Chemistry	300
Zoology and Botany	300
Geology	300
Drawing	300

Marks.

Standard for First Class	2350
Standard for Second Class	1900
Standard for Third Class	1350

The Degree of Associate of Arts shall be open to persons of any age: but Candidates for that Degree above the age of nineteen years, who may take honors, shall be placed in separate class lists, and shall not be eligible for any Prizes that may be awarded by the Tasmanian Council of Education.

In determining the Classes, account will be taken of every part of the Examination; but no credit will be given for knowledge in any subject unless the Candidates show enough to satisfy the Examiners in that subject.

Every successful Candidate for the Degree of Associate of Arts shall receive a Certificate of his having obtained such Degree; and such Certificate shall be on parchment, under the Seal, and signed by the President of the Council. The Certificate shall specify the subjects in which the Candidate has passed, and the Class, if any, that he has attained.

PRELIMINARY EXAMINATION FOR THE DEGREE OF ASSOCIATE OF ARTS.

Previously to the Examination for the Degree of Associate of Arts, every Candidate will be required to satisfy the Examiners in—

1. Reading aloud a passage from some English prose author.
2. Writing from dictation.
3. The Analysis and Parsing of a passage from some standard English author.
4. The first four Rules of Arithmetic, Simple and Compound.
5. Geography. Under this head a competent knowledge will be required of the chief ranges of mountains, the principal rivers, the principal towns, and the coast-line of one or more of the countries in the following list:—England, Scotland, Ireland, Europe, Asia, Africa, North America, South America, Australasia.
6. The outlines of English History since the Conquest; that is to say, the succession of Sovereigns, the chief events, and some account of the leading men in each reign.

EXAMINATION FOR THE DEGREE OF ASSOCIATE OF ARTS.

The examination for those Students who have satisfactorily passed the preliminary examination will comprise the subjects mentioned in the following ten sections, in four of which at least, Latin being one, the Candidate must satisfy the Examiners:—

1. English.
2. Latin.
3. Greek.
4. French, German, or Italian.
5. Pure Mathematics.
6. The Elementary Principles of Hydrostatics and Mechanics.
7. The Elements of Chemistry.
8. Zoology and Botany.
9. Drawing.
10. Geology.

PRIZES.

1. The Council's Gold Medal, of the value of Ten Pounds, will be awarded to the Senior Associate, provided he be placed by the Examiners in the First Class of Associate of Arts.

2. Books to the value of Ten Pounds will be awarded as the First Prize in Sections 1, 2, 3, 4, and 5, to the Candidate who most distinguishes himself in each of those subjects, provided he be placed by the Examiners in the First Class of the Associates of Arts.

3. Books to the value of Five Pounds will be awarded as the Second Prize for each of the above-named Subjects, at the discretion of the Examiners.

4. Prizes of the value of Five Pounds each will, at the discretion of the Examiners, be awarded to the Candidates who most distinguish themselves in Sections 6, 7, 8, 9, and 10, provided their names appear in the Class List of those recommended for the Degree.