(No. 100.)



1873.

TASMANIA.

HOUSE OF ASSEMBLY.

TASMANIAN SCHOLARSHIPS.

EXAMINERS' REPORT FOR 1873.

Laid upon the Table by the Colonial Treasurer, and ordered by the House to be printed, October 3, 1873.



TASMANIAN COUNCIL OF EDUCATION.

TASMANIAN SCHOLARSHIPS.

THE Council of Education have 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 Examiner, and to whom such Scholarships have been awarded accordingly, under the terms of "The Tasmanian Council of Education and Scholarship Act:"—

GEORGE WILSON WATERHOUSE, age 17 years and 6 months, Hobart Town, Tasmania, Associate of Arts, 1871, Pupil of W. W. Fox, Esq., B.A., Horton College, Ross.

CHARLES CALEB WILLIAMSON, age 18 years and 10 months, Launceston, Tasmania, Associate of Arts, 1871, Pupil of the Rev. W. H. SAVIGNY, M.A., Church Grammar School, Launceston.

The Report of the Examiners is annexed.

By Order of the Council,

GEO. RICHARDSON, Secretary.

Hobart Town, 25th September, 1873.

EXAMINER'S REPORT.

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

I HAVE the honor to report that five Candidates presented themselves for the Tasmanian Scholarship Examination.

The Examination commenced on Thursday, the 18th, and was continued for six days, with seven hours paper work on each day.

On summing the marks awarded to the various papers, it was found that two out of the five had attained the standard fixed by the Council.

The Candidate whose papers were marked (4) stands first, having obtained 2001 marks in all, of which 761—eleven above the prescribed minimum—were gained on the Mathematical Papers.

The Candidate whose papers were marked (1) comes next, having obtained in all 1678 markstwenty-eight above the minimum total—of which 943 were gained in Classics.

On opening the sealed envelopes it was found that the successful Candidates were-

GEORGE WILSON WATERHOUSE, A.A., 1871. CHARLES CALEB WILLIAMSON, A.A., 1871.

A full table of marks obtained in each subject is appended to this Report.

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

25 September, 1873.

TABLE OF MARKS.

	Full.	1.	2.	з.	4.	5.
MATHEMATICS.				- <u></u>		
I. Arithmetic and Algebra I. Euclid and Geometrical Conics and	350	77	50	84	190	108
Trigonometry and Analytical Conics III. Trigonometry and Analytical Conics IV. Differential Colonys, and Natural	375 375		43	196 20	248 146	128 —
Philosophy	400	28	44	95	177	36
Total	1500	256	137	395	761	272
CLASSICS. I. Greek Authors II. Latin Authors III. Greek Composition IV. Latin Composition V. General Questions VI. & VII. Ancient History <i>Total</i>	275 225 250 300 300 150 1500	$ \begin{array}{r} 234 \\ 189 \\ 120 \\ 150 \\ 136 \\ 114 \\ \hline 943 \end{array} $	147 120 75 125 157 86 710	118 109 65 85 83 38 498	216 156 80 110 173 128 863	162 129 80 75 88 70 604
MODERN LANGUAGES & HISTORY. [7] I. English II. French III. Constitutional History Total	250 250 250 250 750	142 196 141 479	83 [°] 101 123 307	72 94 129 295	110 116 151 377	94 143 105 342
GRAND TOTAL	3750	1678	1154	1188	2001	1218

EXAMINATION for the TASMANIAN SCHOLARSHIPS, 1873.

Hobart Town, 25th September, 1873.

Mathematics.—I.

ARITHMETIC AND ALGEBRA.

Four Hours.

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

- 1. Standard gold is worth £3 17s. $10\frac{1}{2}d$. an oz., and contains 22 parts of pure gold and 2 parts of copper. Jeweller's gold is 18 carats fine. How many ounces of pure gold must be added to a gold chain which weight 30 ozs. that the mixture may be coined into sovereigns, and how many coins will there be?
- 2. If an acre of ground be covered with water to the depth of 6 inches, how many litres of water are there on an are of the ground? A litre is a cubic decimetre. 1 metre = 39371 inches. 1 hectare = $2\frac{1}{2}$ acres.
- 3. A and B walk in the same direction round a circular path whose radius is 1 furlong at the rate of 3.75 and 4.25 miles an hour respectively, starting from the same point; at what intervals of time in minutes will B pass A? The circumference of a circle is $\frac{44}{7}$ times the radius,
 - nearly.
- 4. The mean solar year contains 365.242218 days; explain how accumulated error is prevented in the civil year which contains an exact number of days. Christmas Day 1870 was Sunday; shew that Christmas Day of any other year of the 19th century is Sunday if the difference between the number of that year and 70 increased by its fourth part, omitting fractions, be divisible by 7. Was Christmas Day 1842 Sunday? Will Christmas Day 1892 be Sunday?
- 5. A cubical tank contains 1000 gallons. A gallon contains 277.274 cubic inches. Find the length of the edge of the tank in inches correctly to the nearest tenth.
- 6. When are four magnitudes proportionals? If two magnitudes vary together, by what ready practical test can you ascertain if they vary proportionally? If the present value of £125 due 5 years hence be £100, what will be the present value of the same sum due 3 years hence, the rate of simple interest remaining the same?

7. Prove that, if a number is a measure of each of two others, it is also a measure of the difference of any multiples of them.

If $x^n + ax + b$ and $x^n + a'x + b'$ have a common measure prove that it is of the form x + p, where p does not contain x, and the condition for this is—

$$(b'-b)^{n} + a (b'-b) (a-a')^{n-1} + b (a-a')^{n} = 0.$$

or, $(b'-b)^{n} + a'(b'-b)(a-a')^{n-1} + b'(a-a')^{n} = 0.$

8. When is a series of numbers in A.P., G.P., H.P., respectively? Shew that a, b, c, d are in A.P., G.P., or HP., according as $\frac{a-b}{b-c}$ is equal to $\frac{a}{a}$, $\frac{a}{b}$, or $\frac{a}{c}$ respectively, and that in the second case $a^2 + d^2 > b^2 + c^2$.

9. Solve the Equations-

- (a) $\frac{x^2+3}{x-1} + \frac{x^2-x+1}{x-2} = 2$. $\frac{x^2-2x+1}{x-3}$ (β) $x^3(ax+b) (a+bx) = 0$. (γ) $\begin{cases} \frac{x^3}{y} - \frac{y^3}{x} = \frac{15}{2} \\ \frac{x}{y} - \frac{y}{x} = \frac{3}{2} \end{cases}$ (δ) $\begin{cases} x+y+z=6. \\ x^2+y^2+z^2 = 14. \\ yz-x(y+z) = 1. \end{cases}$
- 10. Solve the equation $x^2 + px + q = 0$, and shew that -p is the sum of the roots and q their product. If the ratio of the roots be the same as the ratio of the roots of $x^2 + p'x + q' = 0$ then $p^2q' = p'^2q$. In the equation (β) of the last question if s be the sum and p the product of the roots then as = bp.
- 11. If one solution in integers of the equation ax + by = c be known then all the integral solutions may be found. Prove this.

A has 10 sovereigns and owes a debt of 44 shillings to B, who has only francs for change; supposing £1 equivalent to 25 francs, in how many ways can A pay his debt?

12. Give a sketch of the proof of the Binomial Theorem for a positive integral index. Shew that

the expansion of $(a + b)^n$ may be written in the form $\ln \Sigma \frac{a^{n-r}}{n-r} \cdot \frac{b^r}{r}$ where Σ denotes

the sum of all the terms obtained by giving r the values 0, 1, 2 ..., n in succession. Write down the middle term in the expansion of $(1 + x)^{2n}$ and shew that if it is equal to M, then $M | n = 1.3.5 \dots (2n - 1) \cdot (2x)^n$.

- 13. Find the number of combinations of *n* things taken *r* together. Shew that $r. {}_{n}C_{r} = n. {}_{n-1}C_{r-1}$ and that the sum of the number of combinations of *n* things taken 1, 2, 3, *n* at a time, respectively, is $2^{n} - 1$. In how many ways could two sides at croquet be selected from 6 ladies and 5 gentlemen, each side consisting of 2 ladies and 1 gentleman?
- 14. Investigate the relation between the principal, rate, time, and amount at simple and compound interest.

If a sum of money at a given rate of interest accumulate to p times its original value in t years, and to p' times its original value in t' years, shew that

$$t'(p-1) = t(p'-1)$$
 or $t \log_n p' = t'$

according as simple or compound interest be reckoned.

15. Investigate the condition that a number N may be divisible by r - 1 or r + 1, r being the radix of its scale.

Hence shew how to find readily if a number in the common scale is divisible by 9 or by 11.

- 16. Shew that—
 - (a) $1^{2} + 2^{2} + 3^{2} + \dots + n^{2} = \frac{n^{2}}{2} + \frac{n^{3}}{3} + \frac{n}{6} \dots$ Use indeterminate (β) $1 + 2 \cdot 2 + 2^{2} \cdot 3 + 2^{3} \cdot 4 + \dots + 2^{n-1} \cdot n = (n-1)2^{n} + 1.$ (γ) $1 - \frac{2}{2} + \frac{3}{2^{2}} - \frac{4}{2^{3}} + \dots + to \infty = \frac{4}{9}.$

In (a) briefly state the principle employed and apply it to find the two binomial factors of $7x^2 - x - 1$.

Write brief notes on the use of the symbols ∞ and $= in (\gamma)$.

Mathematics.—II.

EUCLID. GEOMETRICAL CONICS. TRIGONOMETRY.

Four hours.

- 1. If a straight line drawn through the centre of a circle bisect a straight line which does not pass through the centre, it shall cut it at right angles.
 - Find the locus of the middle points of chords of a circle which all pass through a given point within the circle.
- 2. To inscribe a circle in a given triangle.
 - Find in magnitude and position the locus of the centres of circles inscribed in a series of triangles having the same base and equal vertical angles.
- 3. Triangles of the same altitude are to one another as their bases.

ABC is a triangle, O a point within it. Straight lines AO, BO, CO are drawn and meet the sides opposite A, B, C in points which divide them into parts whose lengths are a, a'; b, b'; c, c'; respectively. Shew that abc = a'b'c'.

Hence shew that the straight lines drawn through A, B, C at right angles to the opposite sides pass through a point.

- 4. Give Euclid's test for four magnitudes being proportionals; illustrate it by referring to the proof of the proposition in question 3. What is the ordinary *numerical* test? Why is this not applicable in Geometry? Shew that the two tests are equivalent.
- 5. Give a definition of a tangent which shall apply to all conics, and from the definition prove that the tangent to a circle at any point is perpendicular to the radius through the point. If a circle be regarded as an ellipse shew where the foci and directrices are.
- 6. Define a parabola, and shew that its subnormal is constant and equal to half the latus rectum.
 - A point moves so that its shortest distance from a given circle is equal to its distance from a fixed diameter of the circle. Find its locus.
- 7. The tangent at any point of an ellipse makes equal angles with the focal distances of the point, and the normal at the point bisects the angle between them.

Shew that the sum of the distances of a point P within a triangle ABC from the angles A, B, C, is least when each of the straight lines PA, PB, PC bisects the angle between the other two, and hence determine the position of the point geometrically. Observe that the sum of the three is a minimum when that of any two being constant the third has its least value.

- 8. State the property of the hyperbola corresponding with that of the ellipse in the last question. If an ellipse and an hyperbola are confocal they intersect at right angles.
- 9. State clearly what is meant by the circular measure of a given angle; if it be c, and if d and g be the number of degrees and grades in the same angle, shew that 1800 $c = 10 \pi d = 9 \pi g$.
- 10. Find $\cos 15^{\circ}$ (a) given the sines and cosines of 45° and 30° , (β) given $\cos 30^{\circ}$, and shew that the results are identical.
- 11. Shew that $\sin \frac{C}{2} = \sqrt{\frac{(s-a)(s-b)}{ba}}$ where A is the angle of a triangle ABC whose sides opposite ABC are a b c respectively and 2s = a + b + c.

If $1 - \cos A$, $1 - \cos B$, $1 - \cos C$ are in *H.P.* then *a*, *b*, *c* are also in *H.P.*

12. Shew how to solve a triangle having given two sides a, b, and the angle A. Shew when there will be two solutions; in this case if c₁ c₂ be their third sides the distance between the centres of their circumscribing circles is c₁ - c₂/2 sin A.

If $r_1 r_2$ are the radii of the inscribed circles, the distance between their centres is $\frac{r_1 - r_2}{\sin \frac{A}{2}}$.

Mathematics.—III.

TRIGONOMETRY AND ANALYTICAL CONICS.

Four hours.

1. Three points move in three concentric circles describing angles whose circular measures are a, β, γ , in descending order, in the unit of time, starting from points which are on a radius of the largest circle. Shew that they will not be together on a radius of this circle again till after an interval $\frac{2\mu\pi}{a-\gamma}$ or $\frac{2\nu\pi}{a-\beta}$ where $\frac{\mu}{\nu}$ is what $\frac{a-\gamma}{a-\beta}$ becomes when reduced to its lowest terms. Hence prove that if the three hands of a stop-watch are together at 12 o'clock they will not be together again for twelve hours.

- 2. If $\tan(\cot \theta) = \cot(\tan \theta)$, shew that $\theta = \frac{1}{2}\sin^{-1}\frac{4}{(2n+1)\pi}$ where *n* is any integer except - 1.
- 3. Eliminate ϕ from the equations $n\sqrt{2} \sin \frac{\phi}{2} = \sin \left(\frac{\pi}{4} + \frac{\phi}{2}\right)$ and $\sin \phi \cdot \sin (a + \beta) = \sin (a \beta).$ Result, $\tan \beta = \left(\frac{1}{n} 1\right)^2 \tan a.$

- 4. Investigate the expansion of $\log (1 + x)$ in a series of ascending powers of x. Hence shew how from a table of logarithms of numbers of five figures the logs. of numbers of six figures may be approximately found.
- 5. Write down the first four terms of the expansion of $\sin a$ in a series of ascending powers of a. Assuming that when a is not large the first two terms of the series are sufficient, prove the rule for finding the length of an arc of a circle; viz., 'From eight times the chord of half the arc subtract the chord of the whole arc, one-third of the remainder will be the length of the arc nearly.
- 6. Investigate the exponential values of sin x and cos x. Hence sum the series cos $x + x \cos 2x + x$ $x^2 \cos 3x + \ldots$ ad inf. x < 1.
- 7. Show that the equation to a straight line may be written in the form $\frac{x-h}{l} = \frac{y-h}{m} = r$. Interpret the constants of this equation, the axes being rectangular. Find the equation to a straight line drawn through a given point (h, k) which cuts two other given lines drawn through another given point so that the parts of it intercepted between (h, k) and the given lines may be in a given ratio. Shew that there will be two lines.
- 8. Shew that any homogeneous equation of the second degree in x and y represents a series of straight lines passing through the origin. What does the equation $xy^3 x^3y$ represent?
- 9. Find the equations to the straight lines which bisect the angles between ax + by + c = 0 and a'x + b'y + c' = 0, and shew that they are at right angles.

Find the equations to the internal and external bisectors of $\frac{x}{a} + \frac{y}{b} = 1$ and $\frac{x}{b} + \frac{y}{a} = 1$.

and shew that the area of the triangle formed by them with either axis is $\frac{a^2 b^2}{(a+b)^2}$

- 10. Find the condition that a straight line through (h, k) may cut the circle $x^2 + y^2 = c^2$ in two coincident points. Hence shew that the equation to the two tangents through (h, k) to the circle is $(h^2 + k^2 c^2) \{ (x h)^2 + (y k^2) \} = \{ h(x h) + h(y h) \}^2$ or, by reduction, $(hy - hx)^2 = c^2 \{ (x - h)^2 - (y - k)^2 \}$. The first result if obtained is sufficient.
- 11. Give the different interpretations of $xx' + yy' c^2 = 0$ according as (x', y') is within, on, or without the circle $x^2 + y^2 = c^2$. Shew that if A lies on the polar of B with respect to a given circle, then B also lies on the polar of A with respect to the same circle.
- 12. If S = 0, S' = 0, be two intersecting circles, shew that S S' = 0 represents their common chord. Interpret this equation when S and S' do not intersect.

If any number of circles touch a fixed straight line in the same point and be cut by another circle the common chords pass through a fixed point; shew this and determine the point.

- 13. The tangent to the parabola $y^2 = 4ax$ which is inclined at an angle $\tan^{-1}m$ to its axis has for its equation $y = mx + \frac{a}{m}$. Prove this. If the two tangents to this parabola through a point P make with the axis AX angles $\theta_1 \ \theta_2$ respectively, shew that $\tan \theta_1 + \tan \theta_2 = \tan PAX$.
- 14. Find the polar equation to the parabola in (13), the focus being the pole. Hence shew that the segments of any focal chord have the semi-latus-rectum for their harmonic mean.
- 15. If (h, k) be the middle point of the straight line $\frac{x-h}{l} = \frac{y-h}{m} = r$, which is a chord of the ellipse $b^2x^2 + a^2y^2 - a^2b^2 = 0$, shew that (h, h) lies in the line $b^2lx + a^2my = 0$.
- 16. What is an asymptote? Shew that the asymptotes to a curve of the second degree may be found by equating the terms of highest dimensions to zero. Find the angle between the asymptotes of the hyperbola $xy = bx^2 + c$.

Atathematics.-IV.

DIFFERENTIAL CALCULUS AND NATURAL PHILOSOPHY.

Four hours.

- 1. Explain what is meant by the limit of a dependent variable? What is the limit of $(1 + x)^{\tilde{x}}$ when x decreases without limit? Hence shew that when $\theta = 0$, $(\cot \theta)^{\cot^2 \theta} = \frac{1}{\sqrt{2}}$
- 2. Define the term 'differential coefficient,' first in words then in symbols. Give either a geometrical or a mechanical illustration of the definition. Find from the definition the differential coefficients with respect to x of log x, sin x^{0} .

3. If y = f(u) and u is a fraction of x, shew that $\frac{dy}{dx} = f'(u)\frac{du}{dx}$.

- State clearly what is meant by f'(u). Hence shew that if $y = uvw \dots$, $\frac{1}{y} \cdot \frac{dy}{dx} = \frac{1}{u} \cdot \frac{du}{dx} + \frac{1}{v} \cdot \frac{dv}{dx} + \frac{1}{w} \cdot \frac{dw}{dx} + \dots$

If $\cos x \cos 2x \cos 4x \dots \cos 2^n x = \frac{\sin 2^n x}{2^n \sin nx}$ find the value of $\tan x + 2 \tan 2x$ $+ 2^{2} \tan 2^{2} x + \dots + 2^{n-1} \tan 2^{n-1}$

 $\frac{x}{2}\sqrt{a^2 - x^2} + \frac{a^2}{2}\sin^{-1}\frac{x}{a}.$ $\cos \left\{ \cos \left(\cos x \right) \right\}$ $x + \frac{1}{x} + \frac{1}{x} + \&c.$ e^x with respect to \sqrt{x} .

5. What is the meaning of $\frac{d^n y}{dx^n}$? If $x = a \cos \theta + b \sin \theta$ and $y = a \sin \theta - b \cos \theta$ shew

that
$$\frac{d^4x}{d\theta^4} \cdot \frac{d^3y}{d\theta^3} - \frac{d^3x}{d\theta^3} \cdot \frac{d^4y}{d\theta^4}$$
 is independent of θ ; and that $\frac{d^{2n}x}{d\theta^{2n}} = (-1)^n x$.

- 6. Define the centre of gravity of a body. Find that of a triangle and deduce that of a conical shell. Heavy particles whose weights are indicated by the figures are placed at the centres of the small squares. Find the centre of the system. If the weight 7 be removed find the centre of gravity of the remaining weights. 2 6 10 7 8 3
- 7. What can you affirm of the direction and magnitude of the forces when a body is in equilibrium under the action of (1) two forces, (2) three forces?
 - ABC is a triangle of rigid rods jointed at A, B, C. An India-rubber band not parallel to BC passes round the triangle nipping the sides AB, AC at the points P and Q. Draw a figure shewing the line of action and direction of every force which acts on the rods AB, BC.
- 8. What are the conditions of equilibrium for any number of forces acting in one plane on a body? Two rectangles ABCD, DGFE are rigidly attached so as to have their sides ED, DC in the same straight line and DG and DA coincident but unequal, and DE = DC, AD = h, GD = h', DC = b; the weight of ABCD is μhb and that of FGDE is $\mu'h'b$. The materna rates with EC on a horizontal plane to which it is fixed by a binner at E. system rests with EC on a horizontal plane to which it is fixed by a hinge at E. A force Tis applied at B in the plane of the figure and making an angle a measured upwards from AB produced and acting towards AD. Find its magnitude when the system is just overturning.

Hence explain the effect of a buttress in increasing the stability of a wall.

9. What is meant by the acceleration of a force? What is the connection between the acceleraltion (f) of a force (P) and the mass (M) of the body moved?

If a foot be the unit of space, a second the unit of time, water the substance whose density is the unit of density, find the number of ounces avoirdupois in the unit of weight. What number will represent the acceleration of gravity when a mile is the unit of space and an hour that of time?

10. When a body moves in a circle of radius r with uniform velocity V, what is the magnitude and what the direction of acceleration?

A particle of weight W describes a circle of radius r uniformly on a smooth horizontal table, being fastened to an elastic string which passes through a small hole in the table at the centre of the circle, and is fastened to a point vertically below the hole at a distance l equal to the unstretched length of the string. The tension of a string is proportional to its extension, and a weight P would stretch the string to twice its natural length. Determine the velocity of rotation.

11. If a very great force act for a very short time on a body of finite mass, what is the dynamical effect? Shew how the effect may be observed and represented numerically though neither the force nor the time is known. What is meant by an elastic body? and what by the the force for the time is known. What is mean by an obtain some interval is modulus of elasticity? Mention the most elastic substance you know of. An elastic ball (modulus = e) is projected vertically upwards with velocity V from a horizontal plane, and 2V the

falls to the plane, rebounds, falls again, and so on. Shew that after a time $\frac{27}{g(1-e)}$ the

motion will be indefinitely small. If the ball had been projected at an angle of 60° to the vertical, what would the velocity of projection be that after the same time the motion might be entirely along the plane?

- 12. What is meant by the pressure at any point of a plane immersed in a heavy fluid and by the whole pressure on the plane? Shew that the latter is equal to that on an equal horizontal plane immersed in the same fluid to a depth equal to that of the centre of gravity of the former plane. Two equal conical wine-glasses are filled with wine, one mouth up, the other inverted on a plane : explain clearly which glass sustains the greater pressure.
- 13. Shew that the pressure at any point of a heavy fluid at rest is proportional to the depth of the point below the surface. A lump of lead is fastened to a string and dipped into a glass of water which stands in a scale-pan and is counterpoised by a weight in the other pan; the lead does not touch the glass. Shew clearly whether the balance will be disturbed or not.
- 14. Explain the principle, construction, and use of the common Hydrometer. How do the graduations run? If a cylinder of wood height h, radius of base r, density ρ , float in water, and then be placed, floating, under the receiver of an air-pump and the air (density a) be exhausted, will the cylinder rise or sink, and by how much?

Classics.—I.

GREEK AUTHORS.

Three hours.

HOMER-Iliad VIII. HERODOTUS-Euterpe. SOPHOCLES-Philoctetes. THUCYDIDES-Book II.

(A)

Translate, adding brief notes in the margin where you judge it necessary :---Τεῦκρος δ' άλλον ὀϊστὸν ἀπὸ νευρῆφιν ἰαλλεν "Εκτορος άντικρύ, βαλέειν δέ έ ίετο θυμός. 'Αλλ' δ γε καὶ τόθ' ἅμαρτε παρέσφηλεν γὰρ 'Απολλων 'Αλλ' 'Αρχεπτόλεμον, θρασὺν "Εκτορος ἡνιοχῆα, Ιέμενον πόλεμόνδε βάλε στῆθος παρὰ μαζόν. "Ηριπε δ' έξ όχέων, ύπερώησαν δέ οί ίπποι 'Ωκύποδες' τοῦ δ' αὖθι λύθη ψυχή τε μένος τε. Έκτορα δ' αίνὸν ἄχος πύκασε φρένας ἡνιόχοιο. Τον μεν έπειτ' είασε και άχνύμενος περ έταίρου, Κεβριόνην δ' ἐκέλευσεν ἀδελφεὸν ἐγγὺς ἐόντα [•]Ιππων ήνί έλείν όδ ἄρ' οὐκ ἀπίθησεν ἀκούσας. Αὐτὸς δ' ἐκ δίφροιο χαμαὶ θόρε παμφανόωντος Σμερδαλέα ίάχων ό δε χερμάδιον λάβε χειρί, Βη δ' ίθυς Τεύκρου, βαλέειν δέ έ θυμος ανώγει. "Ητοι ὁ μὲν φαρέτρης ἐξείλετο πικρὸν ὀϊστὸν, Θήκε δ' έπι νευρή τον δ' αι κορυθαίολος Έκτωρ Αὐερύοντα παρ' ὦμον, ὅθι κληῒς ἀποέργει Αὐχένα τε στῆθός τε, μάλιστα δὲ καίριόν ἐστιν, Τή ρ' ἐπὶ οἶ μεμαῶτα βάλεν λίθω ὀκριόεντι, Ῥῆξε δέ οἱ νευρήν · νάρκησε δὲ χεὶρ ἐπὶ καρπῷ, Στη δε γνύξ έριπων, τόξον δε οί έκπεσε χειρός. Αίας δ' οὐκ ἀμέλησε κασιγνήτοιο πεσόντος, 'Αλλὰ θέων περίβη καί οἱ σάκος ἀμφεκάλυψεν.

(B) Οἱ μὲν δὴ ἐκποδών, μισθῷ ὁμολογήσαντες, ἀπαλλάσσονται οἱ δὲ ὑπολειπόμενοι ἐν οἰκήμασι, ὥδε τὰ σπουδαιότατα ταριχεύουσι. πρῶτα μὲν σκολιῷ σιδήρῳ διὰ τῶν μυξωτήρων ἐξάγουσι τὸν ἐγκέφαλον, τὰ μὲν αὐτοῦ οὕτω ἐξάγοντες, τὰ δὲ ἐγχέοντες φάρμακα, μετὰ δὲ, λίθῳ Aἰθιοπικῷ ὀξέϊ παρασχίσαντες παρὰ τὴν λαπάρην, ἐξ ῶν εἶλον τὴν κοιλίην πᾶσαν ἐκκαθήραντες δὲ αὐτὴν, καὶ διηθήσαντες οἶνῷ φοινικηίῷ, αῦτις διηθέουσι θυμιήμασι τετριμμένοισι. ἐπειτα τὴν νηδὺν σμύρνης ἀκηράτου τετριμμένης, καὶ κασίης, καὶ τῶν ἄλλων θυωμάτων, πλὴν λιβανωτοῦ, πλήσαντες, συρράπτουσι ὀπίσω. ταῦτα δὲ ποιήσαντες, ταριχεύουσι λίτρῷ, κρύψαντες ἡμέρας ἑβδομήκοντα πλεῦνας δὲ τουτέων οὐκ ἔξεστι ταριχεύειν. ἐπεὰν δὲ παρέλθωσι αἱ ἑβδομήκοντα, λούσαντες τὸν νεκρὸν, κατειλίσσουσι πῶν αὐτοῦ τὸ σῶμα σινδόνος βυσσίνης τελαμῶσι κατατετμημένοισι, ὑποχρίοντες τῷ κόμμι, τῷ δὴ ἀντὶ κόλλης τὰ πολλὰ χρέωνται Αἰγύπτιοι. ἐνθεῦτεν δὲ παραδεξάμενοί μιν οἱ προσήκοντες, ποιεῦνται ξύλινον τύπον ἀνθρωποειδέα ποιησάμενοι δὲ, ἐσεργνῦσι τὸν νεκρόν. καὶ κατακληΐσαντες οὕτω, θησαυρίζουσι ἐν οἰκήματι θηκαίῳ, ἱστάντες ὀρθὸν πρὸς τοῖχον. οὕτω μὲν τοὺς τὰ πολυτελέστατα σκευάζουσι νεκρούς.

(C) "Ολοιο καί σοι πολλάκις τόδ' ηὐξάμην. άλλ' ού γάρ ούδεν θεοι νέμουσιν ήδύ μοι, συ μεν γέγηθας ζών, έγω δ' άλγύνομαι τοῦτ' αὕθ', ὅτι ζῶ σὺν κακοῖς πολλοῖς τάλας, γελώμενος πρός σοῦ τε καὶ τῶν ᾿Ατρέως διπλών στρατηγών, οίς σύ ταῦθ' ὑπηρετείς. καίτοι συ μεν κλοπή τε κάνάγκη ζυγεις έπλεις αμ' αὐτοῖς, ἐμὲ δὲ τὸν πανάθλιον έκόντα πλεύσανθ' έπτὰ ναυσὶ ναυβάτην άτιμον έβαλον, ώς σύ φής, κείνοι δε σέ. και νῦν τί μ' ἄγετε; τί μ' ἀπάγεσθε; τοῦ χάριν δς ούδέν είμι και τέθνηχ' υμίν πάλαι. πως, ω θεοίς έχθιστε, νύν ούκ είμί σοι χωλός, δυσώδης; πως θεοις έξεσθ', όμου πλεύσαντος, αίθειν ίρά; πως σπένδειν έτι; αύτη γαρ ήν σοι πρόφασις έκβαλείν έμέ. κακώς όλοισθ'. όλεισθε δ' ήδικηκότες τόν άνδρα τόνδε, θεοίσιν εί δίκης μέλει. έξοιδα δ' ώς μέλει γ' έπει ούποτ' αν στόλον έπλεύσατ' αν τόνδ' ούνεκ' άνδρος άθλίου, εἰ μή τι κέντρον θεῖον ῆγ' ὑμάς ἐμοῦ. ἀλλ', ὡ πατρῷα γῆ θεοί τ' ἐπόψιοι, τίσασθε τίσασθ' ἀλλὰ τῷ χρόνῳ ποτὲ ξύμπαντας αὐτοὺς, εἴ τι κἄμ' οἰκτείρετε. ώς ζώ μεν οἰκτρώς, εἰ δ' ἴδοιμ' ὀλωλότας τούτους, δοκοίμ' αν της νόσου πεφευγέναι.

(D) Τῆς τε πόλεως ὑμᾶς εἰκὸς τῷ τιμωμένῳ ἀπὸ τοῦ ἄρχειν, ῷπερ ἅπαντες ἀγάλλεσθε, βοηθεῖν καὶ μὴ φεύγειν τοὺς πόνους ἢ μηδὲ τὰς τιμὰς διώκειν μηδὲ νομίσαι περὶ ἑνὸς μόνου, δουλείας ἀντ' ἐλευθερίας, ἀγωνίζεσθαι, ἀλλὰ καὶ ἀρχῆς στερήσεως καὶ κινδύνου ῶν ἐν τῷ ἀρχῷ ἀπήχθεσθε. ῆς οὐδ' ἐκστῆναι ἔτι ὑμῖν ἔστιν, εἴ τις καὶ τόδε ἐν τῷ παρόντι δεδιὼς ἀπραγμοσύνῃ ἀνδραγαθίζεται ὡς τυραννίδα γὰρ ἤδη ἔχετε αὐτὴν, ῆν λαβεῖν μὲν ἄδικον δοκεῖ εἶναι, ἀφεῖναι δὲ ἐπικίνδυνον. τάχιστ' ἄν τε πόλιν οἱ τοιοῦτοι ἑτέρους τε πείσαντες ἀπολέσειαν καὶ εἴ που ἐπὶ σφῶν αὐτῶν αὐτόνομοι οἰκήσειαν τὸ γὰρ ἄπραγμον οὐ σώζεται μὴ μετὰ τοῦ δραστηρίου τεταγμένον, οὐδὲ ἐν ἀρχούσῃ πόλει ξυμφέρει, ἀλλ' ἐν ὑπηκόψ, ἀσφαλῶς δουλεύειν.

(E) Καὶ τότε, ὡς ἔοικεν, ἡμῖν ἔσται οῦ ἐπιθυμοῦμέν τε καί φαμεν ἐρασταὶ εἶναι, φρονήσεως, ἐπειδὰν τελευτήσωμεν, ὡς ὁ λόγος σημαίνει, ζῶσι δὲ οὕ. εἰ γὰρ μὴ οἶόν τε μετὰ τοῦ σώματος μηδὲν καθαρῶς γνῶναι, δυοῖν θάτερον, ἢ οὐδαμοῦ ἔστι κτήσασθαι τὸ εἰδέναι ἢ τελευτήσασι· τότε γὰρ αὐτή καθ αὑτὴν ἔσται ἡ ψυχὴ χωρὶς τοῦ σώματος, πρότερον δ' οὕ. καὶ ἐν ῷ ἂν ζῶμεν, οὕτως, ὡς ἔοικεν, ἐγγυτάτω ἐσόμεθα τοῦ εἰδέναι, ἐὰν ὅ τι μάλιστα μηδὲν ὁμιλῶμεν τῷ σώματι μηδὲ κοινωνῶμεν, ὅ τι μὴ πᾶσα ἀνάγκη, μηδὲ ἀναπιμπλώμεθα τῆς τούτου φύσεως, ἀλλὰ καθαρεύωμεν ἀπ' αὐτοῦ, ἕως ἂν ὁ θεὸς αὐτὸς ἀπολύσῃ ἡμᾶς· καὶ οὕτω μὲν καθαροὶ ἀπαλλαττόμενοι τῆς τοῦ σώματος ἀφροσύνης, ὡς τὸ εἰκός, μετὰ τοιούτων τε ἐσόμεθα καὶ γνωσόμεθα δι ἡμῶν αὐτῶν πᾶν τὸ εἰλικρινές· τοῦτο δ' ἐστιν ἴσως τὸ ἀληθές. μὴ καθαρῷ γὰρ καθαροῦ ἐφάπτεσθαι μὴ οὐ θεμιτὸν ἦ. τοιαῦτα οίμαι, ὡ Σιμμία, ἀναγκαῖον εἶναι πρὸς ἀλλήλους λέγειν τε καὶ δοξάζειν πάντας τοὺς ὀρθῷς φιλομάθεῖς.

Classics.-II.

LATIN TRANSLATIONS.

Three hours.

TERENCE-Phormio. CICERO-Speech for Milo. VIRGIL-Georgic IV. LIVY-Book I.

Translate, with brief marginal notes if you judge them necessary-

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Vereor, ne istæc fortitudo in nervom erumpat denique. PH. Ah, _ **(A**)

Non itast : factumst periclum, jam pedum visast via. Quot me censes homines jam deverberasse usque ad necem,

Hospites, tum civis ? quo magis novi, tanto sæpius.

Cedodum, en umquam injuriarum audisti mihi scriptam dicam ? GE. Qui istuc ? PH. Quia non rete accipitri tenditur neque miluo, Qui male faciunt nobis : illis qui nil faciunt tenditur, Quia enim in illis fructus est, in illis opera luditur.

Aliis aliundest periclum, unde aliquid abradi potest :

Mihi sciunt nil esse. dices 'ducent damnatum domum :' Alere nolunt hominem edacem, et sapiunt mea sententia,

Pro maleficio si beneficium summum nolunt reddere.

GE. Non pote satis pro merito ab illo tibi referri gratia.

Рн. Immo enim nemo satis pro merito gratiam regi refert.

Tene asymbolum venire unctum atque lautum e balneis, Otiosum ab animo, quom ille et cura et sumptu absumitur !

Dum tibi fit quod placeat, ille ringitur : tu rideas,

Prior bibas, prior decumbas : cena dubia adponitur. GE. Quid istuc verbist? PH. Ubi tu dubites quid sumas potissumum.

(B) Fingite igitur cogitatione imaginem hujus condicionis meze, si possim efficere, ut Milonem absolvatis, sed ita, si P. Clodius revixerit. Quid vultu extimuistis? Quonam modo ille vos vivus afficeret, quos mortuus inani cogitatione percussit? Quid? si ipse Cn. Pompeius, qui ea virtute ac fortuna est, ut ea potuerit semper, quæ nemo præter illum, si is, inquam, potuisset aut quæstionem de morte P. Clodii ferre aut ipsum ab inferis excitare, utrum putatis potius facturum fuisse? Etiamsi propter amicitiam vellet illum ab inferis evocare, propter rem publicam non fecisset. Ejus igitur mortis sedetis ultores, cujus vitam evocare, propter rem publicam non fecisset. Ejus igitur mortis sedetis uitores, cujus vitam si putetis per vos restitui posse, nolitis, et de ejus nece lata quæstio est, qui si eadem lege reviviscere posset, lata lex numquam esset. Hujus ergo interfector si esset, in confitendo ab üsne pœnam timeret, quos liberavisset? Græci homines deorum honores tribuunt iis viris, qui tyrannos necaverunt. Quæ ego vidi Athenis? quæ aliis in urbibus Græciæ? quas res divinas talibus institutas viris? quos cantus? quæ carmina? Prope ad immortalitatis et religionem et memoriam consecrantur. Vos tanti conservatorem populi, tanti sceleris ultorem non modo honoribus nullis afficietis, sed etiam ad supplicium rapi patiemini?

> (C)Sunt, quibus ad portas cecidit custodia sorti; Inque vicem speculantur aquas et nubila cœli; Aut onera accipiunt venienium, aut agmine facto Ignavum, fucos, pecus a præsepibus arcent. Fervet opus, redolentque thymo fragrantia mella. Ac veluti lentis Cyclopes fulmina massis Quum properant, alii taurinis follibus auras Accipiunt redduntque, alii stridentia tingunt Æra lacu; gemit impositis incudibus Ætna; Illi inter sese magna vi brachia tollunt In numerum, versantque tenaci forcipe ferrum : Non aliter, si parva licet componere magnis, Cecropias innatus apes amor urget habendi, Munere quamque suo. Grandævis oppida curæ, Et munire favos, et dædala fingere tecta : At fessæ multa referunt se nocte minores, Crura thymo plenæ; pascuntur et arbuta passim, Et glaucas salices casiamque, crocumque rubentem Et pinguem tiliam et ferrugineos hyacinthos. Omnibus una quies operum, labor omnibus unus.

(D) Medium erat in Anco ingenium, et Numæ et Romuli memor; et præterquam quod avi regno magis necessariam fuisse pacem credebat cum in novo tum feroci populo, etiam, quod illi contigisset otium, sine injuria id se haud facile habiturum : temptari patientiam et temptatam contemni, temporaque esse Tullo regi aptiora quam Numæ. Ut tamen, quoniam Numa in pace religiones instituisset, a se bellicæ cærimoniæ proderentur, nec gererentur solum sed etiam indicerentur bella aliquo ritu, jus ab antiqua gente Æquicolis, quod nunc fetiales habent, descripsit, quo res repetuntur. Legatus ubi ad fines eorum venit, unde res repetuntur, capite velato filo (lanæ velamen est) 'Audi, Juppiter,' inquit; 'audite fines' (cujuscunque gentis sunt, nominat); 'audiat fas. Ego sum publicus nuntius populi Romani : juste pieque legatus venio, verbisque meis fides sit.' Peragit deinde postulata. Inde Jovem testem facit. 'Si ego injuste impieque illos homines illasque res dedier populo Romano mihique exposco, tum patriæ compotem me nunquam siris esse.' Hæc, cum fines suprascandit, hæc, quicunque ei primus vir obvius fuerit, hæc portam ingrediens, hæc forum ingressus, paucis verbis carminis concipiendique jurisjurandi mutatis, peragit.

(E) Si, Quirites, parum existumaretis, quid inter jus a majoribus relictum vobis et hoc a Sulla paratum servitium interesset, multis mihi disserendum fuit, docendumque, quas ob injurias et quotiens a patribus armata plebes secessisset utique vindices paravisset omnis juris sui tribunos plebei. Nunc hortari modo reliquum est et ire primum via, qua capessundam arbitror libertatem. Neque me præterit, quantas opes nobilitatis solus, impotens, inani specie magistratus, pellere dominatione incipiani, quantoque tutius factio noxiorum agat quam soli innocentes. Sed præter spem bonam ex vobis, quæ metum vicit, statui certaminis advorsa pro libertate potiora esse forti viro quam omnino non certavisse. Quamquam omnes alii creati pro jure vestro vim cunctam et imperia sua gratia aut spe aut præmiis in vos convortere, meliusque habent mercede delinquere quam gratis recte facere. Itaque omnes eoncessere jam in paucorum dominationem, qui per militare nomen ærarium, exercitus, regna, provincias occupavere, et arcem habent ex spoliis vestris : quum interim more pecorum vos multitudo singulis habendos fruendosque præbetis, exuti omnibus, quæ majores reliquere; nisi quia vobismet ipsi per suffragia, ut præsides olim, nunc dominos destinatis. Itaque concessere illuc omnes : et mox, si vestra receperitis, ad vos plerique.

Classics,-III.

GREEK COMPOSITION.

Three hours.

Translate into Greek Prose-

And as to the celestial bodies generally, he dissuaded men from investigating too closely the divine economy of the heavens; for he held that such matters were beyond human ken, nor did he think that any one who sought to clear up points which the gods themselves did not wish to divulge, was acting acceptably to them. He said, too, that a person who was over-anxious about such matters ran the risk of even going out of his mind, just as Anaxagoras did, who prided himself greatly upon his ability to explain the divine economy. For he, when he asserted that fire and the sun were identical, ignored the fact that men stare into the fire without inconvenience, but cannot even look upon the face of the sun; and that those who are exposed to the sun's rays are tanned by them, but that fire does not produce the same effect. Neither did he perceive that of the productions of the earth none can come to maturity without sunshine, but that they all wither and perish when exposed to the heat of the fire. And, again, when he asserted that the sun was a fire-heated stone, he forgot this, that a stone neither shines in the fire nor retains its heat for any lengthened period; whereas the sun is, and continues to be, the most luminous of bodies throughout all time.

Translate into Greek Iambics-

All places that the eye of heaven visits Are to a wise man ports and happy havens : Teach thy necessity to reason thus; There is no virtue like necessity. Think not, the king did banish thee; But thou the king : Woe doth the heavier sit, Where it perceives it is but faintly borne. Go, say I sent thee forth to purchase honour, And not, the king exil'd thee : or suppose, Devouring pestilence hangs in our air, And thou art flying to a fresher clime. Look, what thy soul holds dear, imagine it To lie that way thou go'st, not whence thou com'st.

Classics.--IV.

LATIN COMPOSITION.

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Four hours.

Translate into Latin Prose-

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The chiefs of a tribe, whether they were one or many, fixed their dwelling on the tops of isolated hills, or where a high table land terminated abruptly in precipitous cliffs : here (interthey made their followers construct walls for their defence, and within this fortified precinct they lived with their families and their personal attendants, and here also they made a place of worship for the gods of their fathers. Below, at the foot of the hill, rose the dwellings of the rest of their dependents, the keepers of their flocks and herds, or the cultivators of their lands, who for their own security were glad to live under the protection of the castle of their chief. If several of these little tribes united to form one people, they would sometimes occupy a spot where several eminences were to be found, near to each other, yet distinct; and each of these would form a separate $\kappa \omega \mu \eta$, or village, appropriated to a separate tribe, while all together composed the city of the united people. Sparta was an instance of a city thus formed out of a cluster of distinct villages; and, according to some opinions, Rome was another. But in general the original city consisted properly of one fortified enclosure, on commanding ground, which contained the habitations of the chiefs and their immediate dependents, with the temples of their hereditary gods; while the dwellings of the rest of their dependents were built without the walls, either at the foot of the hill, or scattered over the surrounding country.

Translate into Latin Hexameters-

Ye elves of hills, brooks, standing lakes, and groves; And ye that on the sands with printless foot Do chase the ebbing Neptune, and do fly him, When he comes back; you demi-puppets that By moonshine do the green sour ringlets make, Whereof the ewe not bites; and you, whose pastime Is to make midnight-mushrooms; that rejoice To hear the solemn curfew; by whose aid (Weak masters though ye be) I have bedimm'd The noontide sun, call'd forth the mutinous winds, And 'twixt the green sea and the azur'd vault Set roaring war: to the dread rattling thunder Have I given fire, and rifted Jove's stout oak With his own bolt: the strong-based promontory Have I made shake; and by the spurs pluck'd up The pine and cedar : graves at my command, Have wak'd their sleepers; op'd, and let them forth By my so potent art.

Or, Translate into Latin Elegiacs-

A thousand songs on tuneful echo float,

Unwonted foliage mantles o'er the trees;

And hark ! the horns proclaim a mellow note,

The hunters' cry hangs lengthening on the breeze. Beneath their coursers' hoofs the valleys shake :

What fears, what anxious hopes, attend the chase ! The dying stag seeks refuge in the lake;

Exulting shouts announce the finish'd race. Ah happy days! too happy to endure!

Such simple sports our plain forefathers knew : No splendid vices glitter'd to allure;

Their joys were many, as their cares were few. From these descending, sons to sire succeed;

Time steals along, and Death uprears his dart; Another chief impels the foaming steed,

Another crowd pursue the panting hart.

Classics.--V.

• Three hours.

GENERAL QUESTIONS.

1. Translate and comment upon the following passages :----

(a) 'Επί ἄρχοντος Πολυκλέους, μηνός Βοηδρομιώνος ἕκτη ἐπὶ δέκα, φυλῆς πρυτανευούσης 'Ιπποθωντίδος Δημοσθένης Δημοσθένους Παιανεὺς εἰσήνεγκε νόμον εἰς τὸ τριηραρχικόν.

(b) Περι γόμφους πυκνούς περιείρουσι τὰ διπήχεα ξύλα, και ζυγὰ ἐπιπολῆς τείνουσι αὐτῶν ἐσωθευ δὲ τὰς ἁρμονίας ἐν ῶν ἐπάκτωσαν τῷ βύβλω. πηδάλιον δὲ εν ποιεῦνται και τοῦτο διὰ τῆς τρόπιος διαβύνεται.

(c) οι μοι τάλας ἀλλ' οὐχ ὁ Τυδέως γόνος

οὐδ' ούμπολήτὸς Σισύφου Λαερτίου

ού μη θάνωσι τούσδε γαρ μη ζην έδει.

(d). ἰδόντες δὲ οἱ Πελοποννήσιοι κατὰ μίαν ἐπὶ κέρως παραπλέοντας καὶ ἤδη ὄντας ἐντὸς τοῦ κόλπου τε καὶ πρὸς τῷ γῷ ἀπὸ σημείου ἑνὸς ἄφνω ἐπιστρέψαντας τὰς ναῦς μετωπηδὸν ἔπλεον, ὡς εἶχε τάχους ἕκαστος.

2. Accentuate and arrange metrically—

(a)

ουτος πρωτογονων ισως οικων ουδενος υστερος παντων αμμορος εν βιω κειται μουνος απ' αλλων, στικτων η λασιων μετα θηρων εν τ' οδυναις ομου λιμω τ' οικτρος ανηκεστα μεριμνηματ' εχων βαρη.

3. Translate and comment upon the following passages :----

Porro autem Geta

Ferietur alio munere, ubi hera pepererit.

Porro autem alio, ubi erit puero natalis dies;

Ubi initiabunt.

(b) Ea pietate omnium pectora imbuerat ut fides ac jusjurandum proximo legum ac pœnarum metu civitatem regerent.

(c) Heus tu Rufio, verbi caussa, cave sis mentiaris. Clodius insidias fecit Miloni? Fecit. Certa crux.—Nullas fecit. Sperata libertas.—Hi centum dies penes accusatorem cum fuissent ab eo ipso sunt producti.

(d) Præterea regem non sic Ægyptus et ingens

Lydia, non populi Parthorum et Medus Hydaspes

Observant.

- 4. Write full notes on the Grammar of the following :---ή ἀπορία τοῦ μὴ ἡσυχαζειν -- ἐγὼ μὲν ἤδη καὶ πάλαι νεὼς ὑμοῦ στείχων ἂν ῆν σοι --- διὰ ἐτῶν πεντακοσίων --- ῶδε γὰρ ἠπείλησε Κρόνου παῖς εἰ τελέει περ --- eoque melioribus usuras viris, quod adnisurus quisque sit, ut quum suam vicem functus officio sit, patriæ expleat desiderium --- Quin sic attendite judices --- spicula-que exacuunt rostris.
- 5. Scan these lines; and name the metre of each :---
 - Sin spreverit me plus quam opus est scito sciet.
 - Atque hominem propero invenire ut hæc quæ contigerint sciat.
 - Atque Ephyre, atque Opis, et Asia Deiopea.
 - όδ' ἐπείγει γάρ κατά πρύμνην.

ύπν' όδυνας άδαής, ϋπνε δ' άλγέων.

προύφάνη κτύπος.

6. Parse these verbs :— $\epsilon i \rho \gamma \dot{a} \sigma \omega$, $\dot{\epsilon} \pi \eta \upsilon \delta \dot{\omega} \mu a \nu$, $\ddot{\eta} \nu \epsilon \iota \kappa \epsilon$, $\kappa a \tau a \pi \tau \dot{\eta} \tau \eta \nu$, $\tau \epsilon \tau \dot{a} \chi a \tau a \iota$, creduas, faxo; and write a note on the form of each.

7. Discuss the etymology and formation of αίμορδαγής, διώρυξ, ἰκέτης, κοινός, οὐδενόσωρα, πολυφροσύνη, τανηλεγής, χειμών; and of Arethusa, decempeda, immunis, interpres, narro, præmium, sedulus, sublimis.

8. Where and what were Achelous, Ardea, Cænina, Gargarus, Helice, Œta, Pangæus, Thymbra.

9. Give a very brief account, with dates, of Amasis, Cleon, Ennius, Cn. Flavius, Hesiod, Manlius.

- 10. Distinguish haud, non; $\mu \eta$, $o \dot{v}$; $\epsilon \ddot{\iota} \pi \epsilon \rho$, $\epsilon \ddot{\iota} \gamma \epsilon$; num, nonne. Construct brief sentences to illustrate the distinction you draw. What etymology would you assign to $o \dot{v} \nu$ and aut?
- 11. The following words have been identified :— $\dot{\eta}\omega_{\varsigma}$, Aurora; $\ddot{\epsilon}\pi \circ \mu \alpha \iota$, sequor; $\nu \epsilon \phi \circ \varsigma$, nimbus; $\kappa \tau \dot{\alpha}_{\varsigma}$, sons.

Explain fully the identification in each case, and support it by the analogy of other words similarly differing.

- 12. Write notes on-
 - (a) The Greek Games; ἄξονες: ἔγκτησις.
 - (b) Spolia opima; Dictatura; heres ex besse.

Classics.--VI One hour.

History of Greece to the end of the Peloponnesian War

27

1. Give a brief sketch of Hellenic life in the Heroic Period.

- 2. Detail briefly the course of the Persian invasion of Greece from the crossing of the Hellespont.
- 3. Arrange in chronological order the chief events between the battle of the Eurymedon and the Thirty years' Truce.
- 4. Give some account of the 7th year of the Peloponnesian War.

Classics.-VII.

One hour.

HISTORY OF ROME TO 202 B.C.

- 1. Give a brief outline, with dates, of the war with Pyrrhus.
- 2. "Quotiens a patribus armata plebes secessisset." Give, with dates, a brief account of the chief of these, and of the causes that led to them.
- 3. "Ibis Liburnis inter alta navium, amice, propugnacula."
 - Explain. Give some account of the Illyrians, and the Illyrian war.
- 4. How was the Revenue of Rome raised?

8.

5. Name with its date one important event in Roman History associated with the name of Archimedes, P. Decius Mus, Q. Fulvius Flaccus, C. Licinius Stolo, C. Pontius, Terentius Varro.

English.

Three hours.

MARSH & SMITH-The Student's Manual.

- 1. What do you mean by the Analysis of Sentences as distinguished from the Parsing of Words? Analyse fully and precisely the following :—" Many languages are so copious and so flexible, that the same thing, or nearly the same thing, may be said in several different forms ; but there are few, if any, in which the range of expression is so great as in English."
- 2. Anglo-Saxon is sometimes spoken of as a distinct language from English. Criticise this view.
- 3. What traces are there of an intrusive Danish element in English?
- 4. Write notes on the following :---"Grain of Sarra." "Tenpenny silver." "Pair of stairs." "Woe worth the day." "A shepstere's shere." "While the ark was a preparing."
- 5. And on the etymology of aneal, archaism, book, bribe, commodore, eagle, nadistou, scroll, stereotype, vermillion.
- 6. By actual counting of words, what appears to be the per-centage of so-called Anglo-Saxon words used by English writers? Does such a mode give a fair representation of the importance of the alien elements in our speech?
- 7. "Thus in the Anglo-Saxon Gospels, for prophet we have ——; for scribe ——; for scpulchre ——; for centurion ——; for baptize ——; for synagogue ——; for resurrection ——; for disciple ——; for parable ——; for treasure —; for Pharisee ——; for repentance ——." Supply the words omitted, and if you can, explain their etymology and formation.

"Wen thou bilevest all thyn one

Thenne myht thou grede and grone."

From what poem of about what date is this taken? Give the various interpretations that have been suggested for it.

9. "The English didè would therefore correspond to the Sanscrit dadhau, I placed." State and exemplify the law according to which these words are identified.

10. What was Euphuism, and why so called? Illustrate by examples the meaning of the word.11. Give a brief sketch of the Translations of the Bible into English.

12. From what works of what poets, and of about what dates, are the following taken ?

- (1.) Ourselves we do not owe.
- (2.) Come, pensive Nun devout and pure.
- (3.) Our birth is but a sleep and a forgetting.
- (4.) How sleep the brave, who sink to rest By all their country's wishes blest.
- (5.) Britons never shall be slaves.
- (6.) Hark the herald angels sing Glory to the new-born King.

French.

Three hours.

MOLIÈRE-Les Fourberies de Scapin. GRAMMAR AND COMPOSITION.

1. Translate—

Scapin. Monsieur, la vie est mélée de traverses; il est bon de s'y tenir sans cesse préparé; et j'ai oui dire, il y a long-temps, une parole d'un ancien, que j'ai toujours retenue.

Aryante. Quoi?

Scapin. Que, pour peu qu'un père de famille ait été absent de chez lui, il doit promener son esprit sur tous les fâcheux accidents que son retour peut rencontrer : se figurer sa maison brûlée, son argent dérobé, sa femme morte, son fils estropié, sa fille subornée; et ce qu'il trouve qui ne lui est point arrivé, l'imputer à bonne fortune. Pour moi, j'ai pratiqué toujours cette leçon dans ma petite philosophie; et je ne suis jamais revenu au logis, que je ne me sois tenu prêt à la colère de mes maîtres, aux réprimandes, aux injures, aux coups de pied au cul, aux bastonnades, aux étrivières; et ce qui a manqué à m'arriver, j'en ai rendu grâces à mon bon destin.

Argante. Voilà qui est bien, mais ce mariage impertinent qui trouble celui que nous voulons faire est une chose que je ne puis souffrir, et je viens de consulter des avocats pour le faire casser.

Scapin. Ma foi, monsieur, si vous m'en croyez, vous tâcherez, par quelque autre voie, d'accommoder l'affaire. Vous savez ce que c'est que les procès en ce pays-ci, et vous allez vous enfoncer dans d'étranges épines.

2. Translate—

Il est difficile de donner une idée des beautés horribles de la Via Mala. Ce défilé célèbre se compose de deux gorges étroites ou plutôt de deux profondes fissures au fond desquelles mugit le Rhin, et que separe l'un de l'autre une petite vallée paisible verdoyante, et placée là comme pour donner au voyageur les plus vives impressions du contraste. Dans cette fissure la route serpente tantôt serrée contre les parois du rocher, tantôt jetée au dessus d'un abîme ténébreux dont le fond échappe au regard, et d'où, en quelques endroits, le bruit même du fleuve, qui se tourmente et s'y brise, n'arrive pas jusqu'à l'oreille. De magnifiques arbres s'élancent de tous les points où il y a un peu de terre, et la gorge est si resserrée, qu'ils forment de leurs cimes qui se rejoignent de leurs branches qui s'entrecroisent, comme des dômes transparents qui ne laissent passer qu'un pâle reflet de lumière. Un peu plus loin, tout est pierre noire, lueur souterraine, et au silence succède un fracas infernal d'eaux invisible qui bondissent, déchirent et opposent fureurs à fureurs; il semble qu'on soit à mille lieues du monde et des hommes, et l'on ne peut se délendre d'une secrète horreur.

3. Translate into French-

Greedy boatmen come as far as this to beg of the traveller his preference for their boat. Vainly do we tell them that we want neither one, two, nor any of them. We have to undergo for two hours the entreaties and arguments of these importunate and industrious people. At last to get rid of them we enter the ferry-boat (bac) stationed here, and put an arm of the lake between us and them. From this point the country becomes more beautiful. Lake Lugano, with its lofty mountains, narrow gulfs, steep banks, and rich vegetation pleases us more than Como. It is true that at this time the sky is stormy, and the brilliance and movement of the clouds add an additional charm to the beauty of the view. While we are contemplating it from the heights of a rocky terrace, the thunder peals, and the rain falls for the first time since we left Geneva; but enough to make us reach the inn, panting and drenched.

4. Put into French-

н<u>с</u>і.

2 .

- (1.) Now they are both lazy, and therefore neither will succeed.
- (2.) You've a great wish to chatter. Talk then, what does it matter?
- (3.) That's what you ought to have thought of before throwing yourself into such a difficulty.
- (4.) Why have I not now the daughter whom Heaven took away from me, to make her my heir?
- (5.) Is there nobody who can tell me where I may find my master?
- (6.) Please Heaven, that in all this I have not my share.
- 5. Give the meaning and the etymology of aboyer, empêcher, goûter, oser, pendard, rouer, spadassin, vaurien.
- 6. What are the peculiarities of the French that Scapin puts into the mouth of his imaginary Gascon and Swiss?
- 7. Give the meaning of each of the following. Name any other French words similarly sounded, and give their meaning and the etymology of each :-Lis, près, sans, soi, sous, toi.
 - 8. The following words exemplify certain principles in the derivation of French from Latin. State these principles, and give other examples of their operation :—Autre, cheval, être, homme, père, roi.

Mistory of Bigland.

Two hours.

HALLAM—Constitutional History. 1642—1673.

1. "The second measure of Parliament" (after making a new Great Seal) "was of greater moment and more fatal consequences."

Describe it.

2. "The scheme of founding a new Royal Line failed."

- What were the inducements, and what the considerations, opposed to the adoption of such a course by Cromwell?
- 3. Give some account of the treaty of Newport. Why was it not fitted for the basis of a compact with Charles II.?
- 4. "The Commons were more mindful of the King's honor and their own than his nearest advisers."

Give a concise account of the proceedings connected with the Act of Indemnity to the beheading of Vane.

5. "So audacious a declaration was never before heard from the lips of an English King."

Give a full account of the Repeal of the Triennial Act.

6. "The period from the fall of Clarendon to Lord Danby's administration is generally reckoned one of the most disgraceful in the annals of our monarchy." Give a brief outline of it.

TASMANIAN COUNCIL OF EDUCATION.

Hobart Town, 4th April, 1872.

EXAMINATION FOR TASMANIAN SCHOLARSHIPS, 1873.

THE Council of Education have directed the publication of the following Scheme of Examination for the Tasmanian Scholarships for the year 1873.

The Regulations in regard to these Scholarships, together with a List of Subjects and Books which have been adopted by the Council of Education, are subjoined for general information.

By Order of the Council,

GEORGE RICHARDSON, Secretary.

SCHEME of Examination for the TASMANIAN SCHOLARSHIPS for the Year 1873.

I.-CLASSICS.

GREEK.—Thucydides, Book II.; Herodotus, Book II.; Homer's Iliad, Book VIII.; Sophocles, Philoctetes.

LATIN.-Virgil, Georgics, Book IV.; Terence, Phormio; Livy, Book I.; Cicero, Pro Milone.

Papers will be set for translation from English into Greek and Latin Prose, and from English Verse into Greek and Latin Verse.

ANCIENT HISTORY.—Questions will be given upon the historical and geographical allusions contained in the above-named Greek and Latin Books, and in the philology of the Greek and Latin languages. Candidates will also be examined in the first four Books of Smith's History of Greece and Liddell's History of Rome respectively.

II.—MATHEMATICS.

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; and Simple Differentiations.

III.-NATURAL PHILOSOPHY.

Elementary Statics, Dynamics, and Hydrostatics, as treated in Goodwin's Course of Mathematics.

IV.-MODERN HISTORY.

Hallam's Constitutional History of England, Chapters X. and XI.

V.-MODERN LANGUAGES.

The grammatical structure of the English Language, and French or German. Candidates may submit themselves for examination in either French or German, at their option.

FRENCH.—Passages will be given from Molière, Les Fourberies de Scapin, for translation into English, with questions on the parsing; also a passage from some other French author for translation into English, and from some English author into French.

GERMAN.—Passages will be given from Schiller's *Maria Stuart*, with questions on the parsing, and the historical and geographical allusions; also a passage from some other German author for translation into English, and from an English author into German.

NOTE. - The following values have been affixed to the several subjects of examination: --

								-				
1.	Classics	-	-	-	-	-			-	1500 Marks.		
2.	Mathema	atics and	Natura	ıl Philo	sophy	-	-		-	1500	"	
3.	Modern	History	-	-	-	-	-		-	250	"	
4.	Modern	Languag	es									
	(a.) E	nglish	-	**	-	-	-	250	2	500		
	(b.) F1	ench or	German	2 -	-	-	-	250	5	000	"	
		_										
	TOTA:				-	-	-		-	3750 Marks,		
											_	

It shall be essential to success that a Candidate gain at least 1650 Marks; of which either 900 shall have been gained in Classics or 750 in Mathematics.

BOOKS RECOMMENDED.

History of England, Hallam's Constitutional History, 3 vols., cr. 8vo, 18s., Murray. Arithmetic, Colenso, J. W., Swith, W., 7s. 6d., Murray.
 Arithmetic, Colenso, J. W., 4s. 6d., Longman.
 Algebra, Colenso, J. W., Parts I. and II., p. 1, 4s. 6d., p. 2, 6s., Longman.
 Trigonometry, Hall, T. G., 7s. 6d., Fellowes.
 Todhunter, J., 5s., Macmillan.
 Conic Sections A polytical Treatise on Conic Sections Todhunter, L. 10s. 6d.

Conic Sections, Analytical, Treatise on Conic Sections, Todhunter, J., 10s. 6d., Macmillan. Geometrical, Goodwin, H., Course of Mathematics, 15s., Deighton, Bell, and Co.

Differential Calculus, Todhunter, J., 10s. 6d., Macmillan.

Elementary Statics, Dynamics, and Hydrostatics, (Goodwin's Course of Mathematics), see above.

Mathematical Tables, 3s., Chambers.

Molière Les Fourberies de Scapin, Bell and Daldy.

Student's History of the English Language, Marsh, G. P., 7s. 6d., Murray.

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.

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,

- Chasses—Halibartons from Creek and Latin autors into English, Creek and Latin composition, Ancient History, Philology.
 Mathematics—Arithmetic, Algebra, Euclid, Plane Trigonometry.
 Natural Philosophy—Elementary Statics, Dynamics, and Hydrostatics.
 Modern History—The History of England.
 The grammatical structure of the English Language, and French or German, at the option of the Constitute 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 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 an University.

The Council will order to be paid by the Secretary, or an accredited agent in Great Britain, quar-terly, 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 College or University 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 College or University duties.

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

> JAMES BARNARD, GOVERNMENT PRINTER, TASMANIA.