the deepest regret, that young men who are soon to be in places in the world where they have no books, and where the keenest exercise of the powers of observation, and the judgment of facts are demanded, should in so many cases have no opportunity, or next to none, either in school or college, for the acquisition of a training upon which the success of their life-work, in the larger number of professions and occupations, is dependent.

It is to be hoped that one needs only to mention such objects as these, to bespeak for this new association the sympathy and support of all naturalists and earnest workers in science.

At the concluding session of the meeting just held, the society elected the following officers: president, Professor Alpheus Hyatt, curator of the Boston society natural history; vice-presidents, Prof. H. Newell Martin, Johns Hopkins university, Prof. A. S. Packard, jun., Brown university; treasurer, Prof. William B. Scott, Princeton college; secretary, Prof. Samuel F. Clarke, Williams college.

At the same session, a constitution, which had been drawn up by a committee of three, was read and adopted. In it the object of this society is stated to be "the association of working naturalists, for the discussion of methods of investigation and instruction, laboratory technique and museum administration, and other topics of interest to investigators and teachers of natural history, and for the adoption of such measures as shall tend to the advancement and diffusion of the knowledge of natural history in the community."

Membership in the society is limited to instructors in natural history, officers of museums and other scientific institutions, physicians, and other persons professionally engaged in some branch of natural history. Any member may present to the executive committee names of candidates for membership, but only those candidates who are approved by the executive committee may be elected to membership by a majority of the members present at any meeting of the society. The annual fee for membership is two dollars.

The officers are elected by ballot at the annual meeting of the society, their official term commencing at the close of the meeting.

The five officers of the society constitute the executive committee, who are to recommend to the society, from time to time, such measures as they may deem expedient for the purposes of the society.

The proposed meetings of the association are to be held only in the New England and Atlantic states north of Virginia. They are not fixed to one locality, but are peripatetic; and it is intended to have them held in different college and university towns, to facilitate means of illustration.

The annual meeting is to be held on the second Wednesday of March in each year, unless otherwise ordered by the executive committee; and special meetings may be appointed at any time by a vote of the society or of the executive committee. The second meeting, for instance, is to be held in New York during the next Christmas holidays.

It is also declared to be the policy of the society, by correspondence and otherwise, to encourage the formation, and co-operate in the work, of societies of similar name and object in other parts of the country. We are informed, indeed, that a request for the formation of such an organization in the west has already been received, and favorably reported on.

We understand that some objections have been raised to the formation of a society distinct from the American association; but it will be evident from this sketch of its plan, that at present it is neither general enough in its object, nor broad enough in its geographical field, to permit of working in connection with the larger organization.

THE MATHEMATICAL TRIPOS IN THE UNIVERSITY OF CAMBRIDGE.

IN January of this year the list of successful candidates for mathematical honors at the University of Cambridge was published under new rules, which provide, among other things, that the names shall be finally arranged alpha-

betically, and not, as heretofore, in the order of merit.

Under the old system, the tripos examination began generally on the first Monday in January. Two papers were set on each of the first four days of that week; then followed an interval of ten days, during which the work of the candidates was examined, and a list of those who had "acquitted themselves so as to deserve mathematical honors" published; finally, all such persons, but no others, were admitted to the rest of the examination, which consisted of a five-days' further test in the more difficult parts of mathematics and natural philosophy.

The names of all the candidates previously declared to be deserving of honors were then arranged in the order of merit, determined by the work of all the nine days, "into three classes of wranglers, senior optimes, and junior optimes;" and this list, which, of late years, generally contained about a hundred names, was then published in the Senate House.

The regulations[1] for the mathematical tripos examination directed that in no book-work paper of the first six days should be contained more questions than well-prepared students might be expected to answer within the time allowed for the paper; but they sanctioned the introduction, in all the subjects, of "examples and questions, by way of illustration or explanation, arising directly out of the propositions themselves." This last rule enabled the moderators and examiners to attach a rider to almost every question, and thus to increase the length of the papers far beyond what even the ablest man could write out properly in the time allowed.

An examination of the papers of the last ten years shows, that, in the fifteen papers devoted each year exclusively to book-work, most of the questions were such as a very well read man might have met with in the course of his studies; but that a very large proportion of the riders must have been new to all the candidates, and of such a nature as to test very effectually the power to do new work which the men had gained.

The great honor which has been always attached to the senior wranglership has given rise to the sharpest rivalry for first place; and this rivalry has extended to the tutors as well as to the candidates themselves. With the names of the six or eight men who stand highest in the list of wranglers, some of the daily papers have been in the habit of printing short accounts of their lives, and of giving the names of the teachers who prepared the men for the examination.

As a result of this, the most famous tutors were said to refuse all students who did not give promise of getting a good place in the list of honors; and those young men who were so fortunate as to secure the services of one of the celebrated 'senior-wrangler manufacturers' were more carefully looked after and trained than are the race-horses for the Derby.

There has been a continual struggle between the examiners and the tutors. The former have attached, each year, difficult and ingenious riders to comparatively easy book-work questions; so that in many cases the connection between the two is by no means obvious. The latter have tried to send up candidates so well read, and so well trained in the solution under pressure of new problems, that the amount accomplished should depend only upon the rapidity with which the student could write.

Let a person who has not had the benefit of this coaching attempt to write out one of the easier tripos[1] papers in a time equal to that originally allowed for it, and, whatever he may think of the wisdom of requiring a student to be prepared for examination in so many subjects at one time, he must get a profound respect for the ability, the attainments, and the *physical endurance*, of those who get places in the tripos. As far as one can judge from such accounts of the lives of higher wranglers as appear in the newspapers, the more ambitious students have, of late years, come up to the university with a good knowledge of analytic geometry, differential calculus, and mechanics. They have then spent nearly three years — studying in vacation as well as in term-time — in a special preparation for the examination for honors, and finally have been subjected to the terrible strain of writing the nine-days' papers. One cannot wonder that many students broke down in the course of preparation, and that many others succeeded in getting high rank at the price of lasting ill health.

Mr. Todhunter, in his 'Conflict of studies,' was one of the first to raise his voice against the system; but he was soon joined by others, who argued that the test of the students' powers would be quite as effective, and the evil results of the preparation fewer, if there were an interval of several months between the examinations in the more elementary subjects

[1] Cambridge university calendar for the year 1879, pp. 25–28.

[1] The tripos papers for each year make a quarto pamphlet, which may be had of Messrs. George Bell & Sons, Cambridge warehouse, 17 Paternoster Row, London. Price two shillings.

and in those of the last few days. Finally, after a good deal of agitation, a new system of regulations for the mathematical tripos examinations, to go into effect after January, 1882, was made and published in 1879. By these new rules, the whole examination is made to consist of three parts of three days each. The examination in part I., which is to begin on the Monday before the first Sunday in June, will be confined to Euclid, arithmetic, ordinary algebra, and the first three sections of Newton's Principia, with the elementary parts of trigonometry, geometrical conics, statics, dynamics, hydrostatics, optics, and astronomy. As Mr. Besant remarks in the 'Students' guide to the University of Cambridge,' however, "the word 'elementary' simply implies that the subjects in question are to be developed, as far as they can be, without the aid of the elaborate machinery supplied by modern analysis. In other words, the methods of pure geometry and ordinary algebra and trigonometry are to be the only instruments employed; and the effect of this restriction is, in many cases, to make the treatment of mathematical ideas more difficult, and to call out a more direct and powerful application of intellectual energy." From the results of this examination, the moderators and examiners are to publish a list of persons who have acquitted themselves so as to deserve mathematical honors; and these persons only are to be admitted to the examination in part II., which is to begin on the Monday after the second Sunday in June, and to cover algebra, trigonometry (plane and spherical), theory of equations, easier parts of analytic geometry (plane and solid, including curvature of curves and surfaces), differential and integral calculus, easier parts of differential equations, statics (including elementary propositions on attractions and potentials), hydrostatics, dynamics of a particle, easier parts of rigid dynamics, easier parts of optics, and spherical astronomy.

The moderators and examiners are then to publish a list of the candidates, taking into account parts I. and II., and arranging the men, in the order of merit, into three classes of wranglers, senior optimes, and junior optimes. The wranglers only are to be admitted to the examination in part III., which is to begin on the first Monday of the next January, and to cover the advanced parts of the following subjects: —

Group A. — Differential equations; calculus of variations; higher algebra; theory of equations; plane and solid analytical geometry; finite differences; higher definite integrals; elliptic functions; theory of chances, including combination of observations.

Group B. — Laplace's and allied functions; attractions; higher dynamics; Newton's Principia, bk. I., sects. ix., xi.; lunar and planetary theories; figure of the earth; precession and nutation.

Group C. — Hydrodynamics, including waves and tides; sound; physical optics; vibrations of strings and bars; elastic solids.

Group D. — Expression of functions by series or integrals, involving sines and cosines; thermodynamics; conduction of heat; electricity; magnetism.

Taking into account the examination in part III. only, the moderators and examiners are to publish in three divisions, *each division arranged alphabetically*, a list of those examined and approved; but they may place in the first division any candidate who has shown eminent proficiency in any one of the groups given above.

It will be seen that this arrangement limits the sharpest rivalry to the work in the more elementary subjects, and taxes the strength of the students far less than the old system did.

The first examination under the new rules was held last June. On the work of the first six days, twenty-nine men were placed upon the list of wranglers. Of these, sixteen offered themselves for examination in part III. in January of this year. Fourteen of these were approved, and the names published in the three divisions provided for. In the first division were placed those who, in last June's list of wranglers, were 1st, 2d, 3d, 6th, and 22d. In the second division the 17th wrangler stood alone. In the third division were the 4th, 7th, two bracketed as 8th, 9th, 16th, 18th, and 19th in the wrangler's list. It will be seen that the last examination changed the order of the names very materially.

The following list of names, made out from an examination of the honor-lists since 1747, will show that a large number of well-known men have taken high rank in the tripos. An asterisk means, that, in the additional examination for the Smith's prize, the person took first place; a dagger is attached to the names of those who took second place.

Name.	Rank as wrangler.	Year.
Maskelyne	7	1754
Erasmus Darwin	21	1754
Archdeacon Paley	1	1763

Name.	Rank as wrangler.	Year.
Lord Ellenborough	3	1771
* Wollaston	1	1783
Malthus	9	1788
* Sir J. Herschel	1	1813
† Peacock	2	1813
† Whewell	2	1816
* Sir G. B. Airy	1	1823
* Challis	1	1825
Willis	9	1826
De Morgan	4	1827
Lund	4	1828
Snowball	7	1828
* Cavendish (Duke of Devonshire),	2	1829
Murphy	3	1829
* Earnshaw	1	1831
Dean Alford	34	1832
Archdeacon Pratt	3	1833
* Kelland	1	1834
† Bishop Colenso	2	1836
Walton	8	1836
Sylvester	2	1837
George Green	4	1837
Gregory	5	1837
O'Brien	3	1838
* Frost	2	1839
† Bishop Goodwin	2	1840
* Stokes	1	1841
* Cayley	1	1842
* Adams	1	1843
Goodeve	9	1843
† Parkinson	1	1845
* Sir William Thomson	2	1845
* Todhunter	1	1848
Westcott	25	1848
* Besant	1	1850
† Watson	2	1850
Wolstenholme	3	1850
* Ferrers	1	1851
* Tait	1	1852
† Steele	2	1852
Godfray	3	1852
* Routh	1	1854
* J. C. Maxwell	2	1854
Fawcett	7	1856
* Aldis	1	1861
Freeman	5	1861
* Strutt (Lord Rayleigh)	1	1865
W. D. Niven	3	1866
Stuart	4	1866
Niven (Cork)	1	1867
† Clifford	2	1867
† G. H. Darwin	2	1868
* Pendlebury	1	1870
* Greenhill	2	1870
J. W. L. Glaisher	2	1871
† Lamb	2	1872
Garnett	5	1873
* Burnside	2	1875
† Chrystal	3	1875
Glazebrook	5	1876

THE NEGRITOS OF LUZON.

THE Ajetas, or Negritos, number over thirteen thousand, inhabiting chiefly the wooded mountains of northern, southern, and western Luzon. They have a dialect of their own. They are probably the aborigines of the Philippines, if not Papuans who went there from the southern groups of New Guinea at a very early period. They are short in stature, about five feet, slim, with crisp black hair, which they wear as a bushy mop, uncombed because uncombable. They have not the very flat nose, ugly features, thick lips, and intensely black skin of the African; but their color is dark, lighter in the dwellers in the sunless forests, the nose flattened, eyes large and restless, with the sclerotic yellowish. When young, the form is graceful; but the extremes of hunger and repletion, with their almost exclusive vegetable food, give to the adults a protuberant abdomen and lank limbs. The old women look like hags. They have no fixed habitations, but wander in bands of fifty to a hundred wherever the supply of food is the richest. Their voices are shrill, and their gestures and agility monkey-like.

NEGRITO OF LUZON.

NEGRITA OF LUZON.