

erhält man wieder die Grundgleichungen

$$i^2 = j^2 = k^2 = -1; \quad ijk = -1 \text{ etc.}$$

Mit Hilfe dieser Symbole lassen sich die Quaternionen selbst in determinantenähnlichen Formen schreiben.

Schg.

J. J. WALKER. Solutions of two questions (5803, 6674).
Ed. Times XXXVII. 46-47, 57.

Bestimmung der Lage gewisser Kreise als Übungsaufgabe
für Anwendung der Quaternionen. Wn.

F. GRAEFE. Einige Sätze über abwickelbare Flächen
abgeleitet mit Hilfe von Quaternionen. Hoppe Arch.
LXIX. 1-18.

Der Verfasser leitet zunächst eine grössere Reihe von Sätzen ab, welche die Krümmung der Flächen im Allgemeinen betreffen, und giebt dann eine ausführliche Theorie der abwickelbaren Flächen. Die Einfachheit der Formeln, welche aus dem Wegfall der Coordinaten resultirt, ermöglicht dem Verfasser die Lösung complicirter Aufgaben und die Aufstellung einer Reihe von Sätzen, deren allgemeinsten mit der Frage zusammenhängt: Wie muss die Curve $\varrho = f(u, v)$ der Fläche $\varrho = f(u, v)$ beschaffen sein, damit die geradlinige Fläche

$$\varrho = V(\alpha f + \beta u + \gamma v f) + (\alpha f + \beta u + \gamma v f) i$$

eine abwickelbare Fläche ist? (wobei $\alpha, \beta, \gamma, a, b, c$ Functionen von v sind). Diese Frage gedenkt der Verfasser in einer späteren Arbeit zu beantworten. Schg.

D. PADELETTI. Su un calcolo nella teoria delle dinami analogo da quello dei quaternioni. Nap., Rend. XXI. 111-119.

Dem „Vector“ der Quaternionen, welcher eine Strecke von

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E-FRATERNITIES.

Resting Figures in Regard to Them.

Below some statistics showing the various fraternities as regards. We do not wish to anticipate the trespass upon its ground; but it is large an element of college society to be neglected in a college paper. Efforts have been made to ascertain the number of fraternities existing below and we believe they are correct. There are a number of fraternities existing by individual members but not by the latter are given below:

—Resident Graduates, In Facultate 2; Undergraduates, Seniors 2; 8; Freshmen 3; Total Under-

3. PHA.—Resident Graduates, In Facultate 4; Undergraduates, Seniors 3; Sophomores 5; Freshmen 7; graduates 19.

ETA PHI.—Resident Graduates, In Facultate 5; Under Graduates, Seniors 4; Sophomores 6; Freshmen 21.

PSILON.—Resident Graduates, In Facultate 1; Undergraduates, Seniors 5; Sophomores 4; Freshmen 17.

PPA EPSILON.—Resident Graduates, Undergraduates, Seniors 1; Juniors 3; Freshmen 3. Total Under-

2. ETA CHI.—Resident Graduates, In Facultate 3; Undergraduates, Seniors 6; Sophomores 3; Freshmen 13.

ETA PI.—Resident Graduates, In Facultate 4; Juniors, 5; Freshmen, 2; Total Under-

—Resident Graduates, In Facultate

Sibley College.

We publish the following as another example of the thoroughness and care of details which is so evident in the new regime at Sibley:

The Senior class will be expected to present to the Professor of Mechanical Engineering, at the close of the present term—on or before examination day—a memorandum of the title of thesis to be prepared during the spring term or earlier, with such statement of the proposed method of treatment as may be given at the time. Neither the subject nor the method of treatment need be considered as absolutely settled by this action; but both may be subject to revision, with the approval of the Director, should good reasons arise for such change. At the end of the winter term, it will be expected that each member of the class expecting to graduate will present a more complete statement of his plan, and, if possible, a very full outline, in the form of a Table of Contents, of his work. It should be remembered that even the whole spring term gives much too restricted a period in which to do such work as the majority of the class will be likely to desire to do. The material should be collected during the intervening time, and the whole work fully planned, leaving only the writing out, and necessary revision, to be done at the close of the college year. No good student is likely to be thoroughly satisfied with his work however much time he may give to it.

R. H. THURSTON, Director.

Christian Association.

The meeting Tuesday evening was called to order at 7 o'clock and opened by the president with scripture reading and prayer. President Adams and Professors Thurston and Griffin were unanimously elected honorary members of the Association. The treasurer's report showed a balance in the treasury of about \$165. The finance committee reported all the subscriptions for refurnishing collected except about \$30. It was decided to publish an eight page monthly bulletin, to be devoted to Association news. Five numbers will be published during the remainder of the year at subscription price of thirty-five cents. It will be in charge of a corps of six editors consisting of the president and five members to be named by the executive com-

Professor Peirce's Lectures.

Professor C. S. Peirce will lecture before the Association of Engineers in the Engineering Building to-morrow afternoon at 2.30; subject Gravimetric Surveys. The lecture delivered by Professor Peirce before the mathematical seminary treated of the dynamics of connected pendulums,—an abstruse subject demanding a high order of mathematical attainments to follow the presentation of his subject. Owing to the presence of a large number of under-graduates in the Association of Engineers, the lecture before that body will present the methods employed by geodeticians for determining the figure of the earth as derived from pendulum observations. The subject is filled with interest from a historical and professional point of view. The lecture will be a popular one and the subject will be treated by its most distinguished investigator. Professor Peirce is the son of one of the most eminent mathematicians of this century and he has been engaged in the study of his subject during the past fifteen or twenty years.

A cordial invitation to attend is extended to all persons interested, with the assurance that they will listen to an interesting lecture upon a subject the importance and meaning of which are but little understood, while Professor Peirce's ready command of language, thorough acquaintance with the subject and pleasing delivery will make the occasion profitable and enjoyable.

—The programme of the Irving to-morrow evening will consist of an essay by Mr. Bodine; questions answered, Miss Smith and Miss Earl; reading of the budget; debate: Resolved that imposing demonstrations and extravagant eulogies in honor of personal achievements are ill methods of rewarding great men and should therefore be discouraged; to be debated in the affirmative by Messrs. Coray and Elliot and in the negative by Messrs. Dunham and Franklin. Election of officers for the ensuing term will take place and there should be a large attendance.

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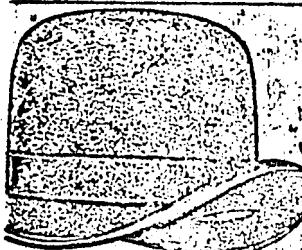
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—To-night at 7 o'clock there will be a meet-
ing of last year's SUN board in the Chi Psi
rooms. It is desired that every member be
present as important business is to be transacted.

—The ladies of Wells College presented the
Latin play, "Horatii et Curiatii" last Thursday
evening. The characters were all taken by
ladies who acquitted themselves in a highly ac-
ceptable manner.

—As yet no one has favored the SUN with any
of "The Beautiful Snow" poetry. We do not
write this as a reminder, but as an expression
of thanks to the thoughtful poet who has so
kindly spared the editor—and himself.

—Professor C. S. Peirce of Johns Hopkins
University will lecture before the Mathematical
Seminary, Room 33, White Hall, to-morrow at
3 p. m. Subject "Connected Pendulums." A
cordial invitation is extended to all interested.

—The Ball Committee of '87, reported at the
meeting of the class as being in favor of a ball,
and the class will now prepare for a ball that
will do honor to '87 and afford all who may
attend one of the most pleasant events of the
year.

—Our bus driver had Thanksgiving on the
brain Wednesday and forgot to leave the SUNS
at the business office, carrying them down town
again and returning them at the business office
too late to reach our readers who get the
paper at that place.

—Hon. J. W. Dwight, long a prominent man
in this state, and whose name was last fall men-
tioned in connection with the republican nomi-
nation for governor, died last Thursday. Mr.
Dwight and family attended the inauguration
and reception of President Adams and it is said
that a cold contracted at that time caused or
hastened his death.

—Why could not the students organize a
Toboggan Club. This would be most health-
ful recreation and furnish any amount of sport

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DECEMBER REVIEW.

The December Review, particularly designed for those who
wish to review rapidly, subjects for the January Entrance Ex-
aminations, and for those desiring to accomplish special objects, will
begin on Saturday, Dec. 19th, at Cascadilla rooms.
The Winter Term of Cascadilla School will begin at 3 p. m., on
Saturday, January 9th. The usual two hour evening classes for
University Students only, will be continued throughout the year.

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