elongation, torsion. Find the law of force and displacement, stress and strain.

Problem.—Find mathematical expressions for the motion of a free particle under such a law of force.

Take ee' as the path, with center c. Let h equal the acceleration at unit distance from c; and let the acceleration at any point in the path be directed toward c and vary as the distance from c.

$ce = a$, *amplitude.*

$ek = a.h$

$cp = x$, a variable, *displacement.*

then

$\frac{1}{2}a.a.h =$ work from e to c.

$\frac{1}{2}x\frac{x}{a}a.h =$ work from p to c.

$\frac{(a^2-x^2)h}{2} =$ work from e to p.

$= \frac{1}{2}V^2$, velocity squared, if work was done on unit mass.[1]

$$V = \sqrt{h}\sqrt{a^2\left(1-\frac{x^2}{a^2}\right)} = a\sqrt{h}\sin\theta,$$

$$\theta = \cos^{-1}\frac{x}{a}.$$

To construct this geomerically and determine the constant $a\sqrt{h}$.

For any point, p, with $cq = a$, construct θ pcq, by bringing q into the perpendicular from p.

Take qr perpendicular to cq, $= a\sqrt{h}$ on some scale (which need not be known).

On qr make the right triangle qsr, $r = \theta$.

Then $qs = a\sqrt{h}\sin\theta =$ velocity at p in the simple harmonic motion.

Let $T =$ the *period,* the time of a complete vibration, from e to e' and back to e; and let $t =$ any portion of time.

If cq is given a uniform angular velocity $2\pi/T$, that is, θ is made to vary uniformly with time, the component of q's motion parallel to p's path will at every instant equal the motion of p. The linear velocity of q, $2\pi a/T$, is equal to the constant $a\sqrt{h}$. θ is at any instant (reckoning time from leaving e) equal to $2\pi t/T$.

Hence, for velocity at point, p, in simple harmonic motion,

$$V = \frac{2\pi a}{T}\sin\frac{2\pi t}{T}.$$

From this the equation for acceleration can be obtained. Phase and epoch can be defined and introduced into the equations.

I. Thornton Osmond.

[1] Unit mass was taken to simplify work in getting the form of the equations. The relation of mass to simple harmonic motion should be determined and put in the formulæ. Though only two or three of the text-books under consideration make any allusion, even, to mass.

THE BRITISH ASSOCIATION AND AFFILIATED AND CORRESPONDING SOCIETIES.

The report of the council of the British Association presented at the South African meeting the following resolution, from the conference of delegates, was referred to the council by the general committee for consideration and action, if desirable:

(i.) That a committee be appointed, consisting of members of the council of the association, together with representatives of the corresponding societies, to consider the present relation between the British Association and local scientific societies.

(ii.) That the committee be empowered to make suggestions to the council with a view to the greater utilization of the connection between the association and the affiliated societies, and the extension of affiliation to other societies who are at present excluded under regulation 1.

This resolution, having been referred to a committee, consisting of Dr. E. H. Griffiths, Sir Norman Lockyer, Professor Meldola, Mr. F. W. Rudler, Mr. W. Whitaker and the general officers, to consider and report thereon to the council, the committee made the following recommendations:

I. (i) "That any society which undertakes local scientific investigation and publishes the results may become a society *affiliated* to the British Association.

(ii.) "That the delegates of such societies shall be members of the general committee.

(iii.) "That any society formed for the purpose of encouraging the study of science, which has existed for three years and numbers not fewer that fifty members, may become a society *associated* with the British Association.

(iv.) "That all associated societies shall have the right to appoint a delegate to attend that annual conference, and that such delegates shall have all the rights of those appointed by the affiliated societies, except that of membership of the general committee."

II. The committee further recommend that the council request the corresponding societies committee—

(i.) "To collect information as to the societies of the United Kingdom who might become associated societies under rule 1.

(ii.) "To consider and report on the question of 'A Journal of Corresponding Societies' referred to in Principal Griffith's Report."

III. The committee also recommend—

"That the council, in nominating a chairman of the conference of delegates, should choose one of their own body."

On the recommendation of the corresponding societies committee, the following resolution, remitted to the committee and embodying subsequent amendments, has been adopted by the council:

BY-LAW.

I. (i.) "That any society which undertakes local scientific investigation and publishes the results may become a society *affiliated* to the British Association.

(ii.) "That the delegates of such societies, who must be or become members of the British Association, shall be *ex officio* members of the general committee.

(iii.) "That any society formed for the purpose of encouraging the study of science, which has existed for three years and numbers not fewer than fifty members, may become a society *associated* with the British Association.

(iv.) "That all associated societies shall have the right to appoint a delegate to attend the annual conference, and that such delegates shall be members or associates of the British Association, and shall have all the rights of those appointed by the affiliated societies, except that of membership of the general committee.

II. "That the corresponding societies committee be requested to collect information as to the societies of the United Kingdom who might become associated societies under rule I. (*corresponding societies*).

III. "That in nominating a chairman of the conference of delegates, rule VIII. (*corresponding societies*) be allowed to stand."

THE NEW MUNICH CLINIC.

THE completion of the new University Clinic in Munich for nervous and mental diseases marks an important epoch in the progress of humanity, no less than in the history of medicine. From the time when William Griesinger, forty years ago, planned the first modern hospital for the insane, the leading authorities in Germany have labored to perfect the plans and organization of institutions of this class, with the result that the Munich Hospital will serve for years to come as a model to be copied by other nations. Whether the clinic is judged by the opportunities it affords for the observation and treatment of nervous and mental diseases, by the provision it makes for the instruction of students or by the facilities it offers to those engaged in the scientific study of the brain, it stands unique. Without detracting from the remarkable advances made during the past fifty years in surgery, pathology and bacteriology, it may be affirmed that no greater progress has been recorded in the history of medicine than has occurred in psychiatry during the period that began when Pinel, in the wards of the Salpêtrière first removed the chains from the insane, and that culminated in Germany in the movement that has rendered possible the completion of the Munich Hospital. Nearly forty years have passed since university and state authorities in Germany, influenced largely by the teaching of Griesinger, realized that the study of the brain, with a view not only to the discovery of the means for the prevention of insanity, but also to determine the most efficient methods of increasing the power to think and act normally, includes the discussion of many problems as important to mankind as the enquiry concerning the origin and spread of infectious diseases or the growth of tumors. The plans for the hospital in question are not entirely of recent creation; they represent the experience gained in the construction of twenty-two hospitals of similar type which exist in the German empire, and of which not a single example is yet to be found in an English-speaking country.

As an excellent general description of this