Of course if the train runs *eastward,* the required supporting force will be *less* than if the train were at rest. In particular, if the eastward train-speed is about 16 V, S will be zero.

There are thus two speeds, one westward of about 18,700 miles per hour, and one eastward of about 16,700 miles per hour, at which the "weight" of the body as measured by an observer on the train (that is, the tension in the supporting string S) would be zero.

Edward V. Huntington

Harvard University,
November 22, 1919

AN ODD PROBLEM IN MECHANICS

To the Editor of Science: In a recent discussion the writer offered the following problem which seems to be new and of interest, judging from the answers and lack of answers.

Assuming the earth to be a perfect sphere, the net weight of a body on this earth is G—C, in which G is the force due to gravity and C the centrifugal force due to the rotation of the earth. Hence the net weight of a body at the equator when moving east at a velocity (relatively to the earth) equal to that of the surface of the earth, about 1,000 miles per hour would be G—4C, that is, less than when at rest, while when moving west at the same velocity it would be G, that is, greater than when at rest.

If therefore a flywheel were revolved at the equator with that circumferential speed and in a horizontal plane, the northern part moving east, it would seem to follow that it will tilt to the south, as the southern half should be heavier than the northern half. Due to a time lag the tilting might be to the southwest. It is here assumed that its gyroscopic tendency to get into a vertical plane has been duly counteracted and may be neglected.

Or stated in a different form, suppose a light disc be revolved at this speed in a vertical plane at the equator, and to have two equal symmetrically placed, heavy masses on its rim. When the plane of rotation is north and south it would be dynamically balanced, but when that plane is east and west it would seem to follow that the masses at the moment they are at the bottom would be heavier than when at the top and if so the disk would be unbalanced dynamically, vibrating with a period double that of the period of revolution. Its center of gravity would oscillate below its center of rotation.

It is acknowledged to be possible, theoretically at least, to move a mass so rapidly over the earth that G = C hence the net weight then is zero; it would then go on encircling the earth, if the air friction were eliminated; the moon is an illustration. At lower speeds therefore there should be a part of this loss in effective weight.

The two cases cited, if the results are as described, would afford a basis, theoretically at least, for a mechanical compass, like the gyroscope compass.

Carl Hering

Philadelphia,
October 27, 1919

QUOTATIONS

SCIENCE AND THE NEW ERA PRINTING COMPANY

Old wood to burn,
Old books to read,
Old wine to drink,
Old friends to cling to.

It takes a near-millionaire to burn "old wood" on his hearth these days; "old books" are the delight of the bibliophile, but are poor stuff in producing the wherewithal of a printing establishment; "old wine" will soon be only a hollow mockery—

But "old friends to cling to!" Ah! there is the kernel, the gem that glitters from the quadruplet!

All of which is just by way of introduction to an acknowledgment of one of the most gracious compliments ever paid to The New Era Printing Company.

As the year fast nears its close, it marks the twenty-fifth anniversary of The New Era Printing Company's production of Science, a magazine whose contributors embrace the

ablest men in all scientific lines in the world, and weekly finds its way through the mails to all parts of the Eastern and Western hemispheres.

From its distinguished editor, J. McK. Cattell, this morning a magnificent silver vase was received as a token of appreciation for The New Era Printing Company's efforts. With it came this letter:

SCIENCE,
Editorial Department.
GARRISON-ON-HUDSON, N. Y., Dec. 28, 1919.
THE NEW ERA PRINTING COMPANY,
Lancaster, Pa.

Dear Mr. Hershey: In order to express recognition of the admirable manner in which The New Era Printing Company has printed SCIENCE for twenty-five years, and of our friendly relations during this long period, I am sending a token of appreciation.

Sincerely yours,
J. MCK. CATTELL

From base to top the sterling silver vase measures twenty and one-half inches, and is modeled and embellished along exquisitely chaste lines. It is a Lebolt production, hand-hammered, of uncommon weight, and bears this inscription:

SCIENCE,
1894–1919.
To The New Era Printing Company.
In Grateful Appreciation.

The New Era Printing Company is constrained to a public appreciation of Editor Cattell's handsome remembrance. "Old friends to cling to!"—what more apt response or hope for the years to be?—The Lancaster *Daily New Era.*

SCIENTIFIC BOOKS

Fossil Plants. By A. C. SEWARD. Vol. IV. Pp. 543. Cambridge, University Press.

This, the concluding volume of the Cambridge text on fossil plants, is devoted to a consideration of the Ginkgoales, Coniferales and Gnetales. The final proofs were passed in the spring of 1918, but the printing was held up because of war conditions so that a number of recent contributions could not be considered. The method of treatment in the present volume is consistent with that of the preceding volumes and the same lack of balanced treatment is shown in the present work. To cite but a single instance of this, six lines are devoted to the remains of *Ginkgo* from North America although *Ginkgo* is exceedingly well represented in the Mesozoic and early Eocene on this continent.

As regards the subject matter, a chapter is devoted to the Ginkgoales, recent and fossil. The second chapter considers *Ginkgoidium, Czekanowskia, Feildenia, Phoenicopsis* and *Desmophyllum*—genera that are believed to belong to the Ginkgoales. The third chapter includes supposed Ginkgoalan genera of still more doubtful allegiance. The nine following chapters are devoted to the Coniferales. There is a rather full and excellent account of recent Conifers. These are grouped in the following nine families: Araucarineæ Cupressineæ, Callitrineæ, Sequoiineæ, Sciadopitineæ, Abietineæ, Podocarpineæ, Phyllocladineæ and Taxineæ. They are considered as probably monophyletic, the Araucarineæ being regarded as the most ancient and the Abietineæ as the most modern. There are some illuminating discussions of vascular anatomy and the view is expressed that the cone scales in the Araucarineæ are morphologically simple ovuliferous leaves, the double cone scales of the Abietineæ being derivatives of a simple form of sporophyll. *Mesembrioxylon* is proposed for the fossil woods formerly referred to *Podocarpoxylon* and *Phyllocladoxylon.* The final chapter is devoted to the Gnetales and is without noteworthy features.

Opinion will differ as to the necessity or desirability for some of the new generic terms that are proposed, *e. g., Ginkgoites* for *Ginkgo* leaves, on the ground that even in the Tertiary forms the confirmatory evidence of flowers and fruits is lacking: *Cupressinocladus* for vegetative shoots of conifers of a cupressoid habit: and *Pityites* for abietineous fossils of uncertain generic relationship. There is but slight profit in compounding confusion and although a conservative attitude is warranted in dealing with the vegetative remains