

is as we all know who have served on committees, the opinion often of one man concurred in by others too indolent or tired or bored to look into the case thoroughly. How often the most efficient man on the committee is the astute but destructive critic who can see obstacles on every hand so clearly that he can not see the possibilities; who looking down an avenue of trees sees a wall of tree trunks and fails to realize that as you move forward there are wide open spaces between the trees.

It appears to most people a strange fact that army boards so generally turn down new and valuable inventions. General Anson Mills, for example, recounts in his autobiography how his cartridge belt (now universally used in all armies, I understand) "was submitted to every equipment board of the army organized between 1866 and 1879, but so wedded were the authorities to the use of ancestral methods that no board ever made favorable mention of my invention." This is a phenomenon traceable to the environment of committee organization and not to be explained on the ground of what is usually termed boneheadedness, and it is this environment factor which surrounds the proposed institution for invention that appears not to be appreciated by the originators of the scheme.

An institute devoted to a special field of knowledge which hires men to do research along those lines and gives them facilities and supports them is very different from one which covers practically the whole field of human knowledge and proposes to sit in judgment upon the ideas of the poor inventors.

DAVID FAIRCHILD

CIRCULAR FREQUENCY

It would frequently be convenient if there were in common use a name for the letter n which occurs in the equation

$$y = a \cos nt$$

for simple harmonic motion. Mr. Jeans, in his "Theoretical Mechanics," p. 263, calls this n the *frequency* of the motion. This is unfortunate, because the term "frequency" is usually applied to the quantity $n/2\pi$. Professor Lamb, in his "Dynamical Theory of

Sound," p. 10, suggests the term *rapidity*. I recall a few years ago seeing some place the term *Kreisfrequenz*, which suggested that we should perhaps have a satisfactory name for this n if we were to call it the *circular frequency* of the motion. This term is longer than *rapidity*, but it has an advantage in that it naturally calls to mind that the n not only is proportional to the frequency of the motion but also represents the angular velocity of an imaginary particle in the reference circle.

ARTHUR TABER JONES

SCIENTIFIC BOOKS

The Conservation of Food Energy. By HENRY PRENTISS ARMSBY. Philadelphia, W. B. Saunders Co. 1918.

This little book of sixty-five pages contains a vast amount of information concerning the relative values of different feeding substances when they are given to farm animals. The method of estimating these values is new. Armsby states "Aside from the milk requirements of the very young animal, it has been demonstrated to be entirely feasible to produce good yields of milk or well fattened carcasses, not only of cattle and sheep but of swine as well, on a ration containing ample roughage to meet the requirements for maintenance, leaving the concentrates to be applied directly to the production of human food." This is a new view point, for T. B. Wood in England¹ believes that meal made from grain is the chief kind of fodder consumed by pigs. Armsby assumes that the maintenance diet of farm animals is at the expense of coarse fodder, grass, hay, straw, etc., and that the development of food value in the animals may be ascribed to the grain ingested. The grains considered are wheat, corn, barley, rye, oats, rice and buckwheat. When these grains are fed under the above conditions, between 15 and 24 per cent. of their energy may be converted into human food in the bodies of cattle and sheep, and between 36 to 61 per cent. when they are fed to pigs and dairy cows.

¹"The National Food Supply in Peace and War," Cambridge University Press, 1917.