cated natural selection as the sole cause of organic evolution and pronounced the inheritance of acquired characters to be impossible. Mr. Wallace called his book 'Darwinism.' In time these opinions were called the 'New Darwinism,' although some of them were quite at variance with those always held by Darwin up to his death.

A little later Dr. Romanes' book called 'After Darwinism' appeared, in which he amplified the views held by Darwin in a way to which, I think, Darwin himself would have agreed. This also has been called by some the 'New-Darwinism' with, as I think, a much better right to the title than those advocated in Wallace's book, which should have been called Wallaceism. I object to Mr. H. Spencer and others using the term New-Darwinism for Wallace's opinions; for, when it is shown that these are wrong, the unscientific public will naturally conclude that Darwin was also wrong, although he would himself have repudiated this New-Darwinism.

F. W. HUTTON.

CANTERBURY MUSEUM,
CHRIST CHURCH, NEW ZEALAND,
February, 21, 1900.

'THE ESKIMO OF SMITH SOUND.'

TO THE EDITOR OF SCIENCE: The attention of the readers of SCIENCE is specially invited to a pamphlet of sixty pages, published by the American Museum of Natural History, entitled 'The Eskimo of Smith Sound,' by A. L. Kroeber. The Smith Sound Eskimo stand ethnologically between those of Greenland and the Central Eskimo and form a transition from the latter to the former. The theory of Holm that the Angmagsalingmiut (East Greenlanders) reached their present abode by following the ice-bound shores of Northern Greenland, is held to be untenable. Again, in examining Kroeber's illustrations, the opinion long ago published by this writer that no unsophisticated Eskimo ever etched on bone, ivory or antler is sustained. The small amount of engraving present is evidently the work of steel tools.

But, most interesting of all the accounts in the pamphlet is that concerning the loss and recovery of the kaiak. These Smith Sound Eskimo were discovered by Sir John Ross, in 1818, and were afterwards visited by Franklin, Kane, Hayes, Hall and others. Now, none of the explorers saw kaiaks in the sound. The art of building them had apparently been forgotten, though the word 'kaiak' remained in the language. From the time of Ross abundance of material for the structure was at hand, the environment was there begging for kaiaks, but the culture-hero had to come and teach them their own lost art. Between 1868 and Peary's visit the Adlet (Ellesmere Land Eskimo) had furnished the culture-hero and now the fisherman recovers his skill. The arts of the Smith Sound Eskimo are clearly set forth and compared with the Central tribes of Boas, and the traditions given at length.

O. T. MASON.

A CHRONOLOGICAL INDEX.

TO THE EDITOR OF SCIENCE:—Every scientific writer who has read with open mind the entreaties of recent writers on the subject has already adopted the plan of giving the year (as well as the volume) of any journal to which he has occasion to refer; few people wish to look up the reference (only those who are about to write on the subject), but every one who reads the article at all is interested in knowing the date of the contribution to the subject referred to—often, in fact, the reference wholly loses its point from a lack of this knowledge. Since, moreover, there are still many scientific writers who do not belong to the above described category, I wish to suggest that it would be a work of very great value if some one would issue a finding list, covering several hundreds of the principal scientific journals, which would enable the reader to pass at a glance from volume to year. Such a list would involve very little trouble on the part of whoever would be so good as to make it up, and it would certainly be a very great convenience. It might be printed on separate cards for separate subjects, and the scientific reader could have these cards (or as many of them as interested him) always at his elbow.

If both year and volume cannot be given when articles are referred to (for economy of space—there can be no other reason), it seems

plain that the year is by far the more important of the two. The only inconvenience that could arise from not knowing the volume would be that in the case of those journals in which the volume does not begin with the year it might sometimes be necessary to take down from the shelf two books instead of one before the right place is found—an inconvenience of the very slightest kind. Of course every really virtuous scientific writer now gives his full references at the end of his paper, with year and volume both, and refers to them in the body of his paper thus — Déjerine-Klumpke, '94, III.— when the reference is to the third paper issued by Déjerine-Klumpke in the year 1894. Pending the attainment of perfect virtue on the part of writers (and also for the convenient reading of all articles of the past), I submit that a table of cross-references, such as I have described, would be a work deserving of heartfelt gratitude on the part of an overworked scientific world.

C. L. F.

[A chronological table giving the year in which each volume of 550 scientific journals was published is included in the 'Catalogue of Scientific and Technical Periodicals,' by Dr. H. Carrington Bolton, the second edition of which was published by the Smithsonian Institution in 1897.—Ed. Science.]

THE INTERNATIONAL CONGRESS OF MECHANICS.

To the Editor of Science: M. Marcel Delmas, 10 Boulevard Emile Augier, Paris-Passy, has charge of the report of the 'Congress de Mecanique de l'Exposition universelle,' in the department of applications of electricity to the various apparatus of haulage, hoisting, etc. (including cranes, elevators, winches, swing-bridges, pumps and other such mechanisms), and particularly desires information regarding the economic side of the matter. He requests that all, whether intending exhibitors or others, who are willing to assist in the collection of this data, send him, at the address given above, statements of costs of installations, of exploitation and incidental expenses, especially where a comparison can be made with costs of the older systems under similar circumstances. All publications and illustrations will be welcome, if authentic and exact in statement of facts and data.

R. H. Thurston.

NOTES ON PHYSICS.

LIQUID AIR.

C. Linde gives some interesting data on liquid air in the *Physikalische Zeitschrift* for January 6, 1900. He calls attention to the fact that the commercial use of liquid air depends in the first place upon the amount of energy consumed in its production and upon the length of time that the liquid can be kept before it is used. With small machines from 3 to 4 horsepower—hours are used per kilogram of liquid air, while the largest machine hitherto built, produces fifty kilograms of liquid air per hour and consumes about 100 H. P. This latter corresponds to an efficiency of 15% as compared with what a perfect thermodynamic machine would accomplish.

Small quantities (about one liter) of liquid air in vacuum jacketed and silvered vessels are lost by evaporation in about 14 days. In large tin vessels (50 liters) covered with hair felt about two liters per hour is lost by vaporization. The author gives data concerning the use of liquid air for refrigeration and for power. When extremely low temperatures are desired liquid air is perhaps the best possible means for producing it. On the other hand from twenty to forty times as much energy is consumed in producing moderate refrigeration by liquid air than is required in the ordinary ammonia refrigerator. Thus a kilogram of liquid air evaporated in a room reduces the temperature of the room only about as much as the melting of two kilograms of ice, and two kilograms of ice may be produced by the evaporation of 1/20 horsepower-hour or less.

When liquid air as evaporated at ordinary temperatures and used to drive a motor, the work developed by the motor is only about three or four per cent. of the energy consumed in the production of the liquid air. The author however points out special cases where the use of liquid air for power might be desirable.

The author mentions some experiments which have been made in the Simplon tunnel, now building, to test the usefulness of a mixture of liquid air or liquid oxygen and mineral oil