pine should be regarded as applicable to either *Chimaphila corymbosa* Pursh., or *C. occidentalis* Rydb., the two species into which *C. umbellata* Nutt. has been split up in the "North American Flora."

There is, of course, room for discussion as to the best method of procedure to adopt. Many botanists—especially those who are never called on to name plants for the general public—are quite satisfied with the Latin names alone, and from them in all probability no assistance can be expected in devising English names. The subject is one that might well be discussed at some conference of American botanists, as it mainly concerns ourselves alone.

J. ADAMS
CENTRAL EXPERIMENTAL FARM,
OTTAWA, CANADA,
November 21, 1916

### PROPULSION BY SURFACE TENSION

TO THE EDITOR OF SCIENCE: In November, 1911, I described in your columns a little motor boat which I supposed to be novel. A wooden boat only a couple of inches long, was provided with a stern consisting of a slab of soap, and when placed on clean still water moved about with noticeable rapidity.

I have just learned that M. Henri Devaux constructed an absolutely equivalent craft many years ago (*La Nature,* April 21, 1888). His boat was made of tinfoil and the "propeller" was a scrap of camphor attached to the stern.

Pray allow me to tender to M. Devaux my apologies and compliments.

GEORGE F. BECKER

## SCIENTIFIC BOOKS

*A Sylow Factor Table of the First Twelve Thousand Numbers.* By HENRY WALTER STAGER. Carnegie Institution of Washington, 1916. Pp. xii + 119.

Dr. Stager's tables are intended to furnish the possible number of Sylow subgroups for all groups whose order does not exceed 12,000. For every number within that limit are listed all the divisors which are of the form $p(kp+1)$, where $p$ is a prime greater than 2 and $k$ is greater than zero. In determining the possible number of Sylow subgroups such divisors must be known before further methods are applicable. Thus from the table we learn that 1,080 is divisible by $3(1 \times 3 + 1)$, $3(3 \times 3 + 1)$, $3(13 \times 3 + 1)$, $5(1 \times 5 + 1)$, $5(7 \times 5 + 1)$ and $5(43 \times 5 + 1)$. From these results we know that for a group of order 1,080 there may be 1, 4, 10 or 40 subgroups of order $3^3$ and 1, 6, 36 or 286 subgroups of order 5. The exact number is to be determined by other principles of group theory. The table also gives the expression of each number up to that limit as products of powers of primes.

The making of tables, a tedious and apparently mechanical task, is of the highest importance in all branches of science. It is likely that more fundamental theorems have been discovered by the examination of listed results than by any other means. This is certainly true in the theory of numbers, and it is possible that workers in the theory of groups have not made enough use of this method of investigation. The construction of tables for the theory of groups is especially difficult on account of the great complexity of the material. Only brief tables have hitherto been undertaken and it is to be hoped that Dr. Stager's work in this direction may be the beginning of a systematic campaign in this important field.

The construction of an extensive table almost always brings to light hidden relations, suggesting new theorems for investigation. In Dr. Stager's table certain numbers are noted which have no divisors of the sort indicated above. Such numbers seem to resemble primes in many ways, and in particular their "curve of frequency" seems to run roughly parallel to the corresponding curve for primes. Dr. Stager has made a study of these numbers, and has added a list of them up to the limit of his table.

The author is to be congratulated upon the completion of so important and formidable a piece of work. While the reviewer has, of course, not checked over any part of the table he has the utmost confidence in the accuracy of the list. The printing has been done by the photographic methods employed by the Carnegie Institution in the publication of the Factor Tables and the List of Primes. Both the author and the publishers deserve the gratitude of every lover of science in putting in the hands of mathematicians results of such permanent value. D. N. Lehmer

University of California

*Feeding the Family.* By Mary Swartz Rose. New York: The Macmillan Company, 1916. Pp. xvii + 449, illustrated.

Many factors contribute to the welcome such a book as this will doubtless receive. World conditions are forcing a searching analysis of food supplies. Any discussion of the subject, however, whether for the purpose of conserving existing supplies by reducing waste or of increasing the supply by stimulating production, must be based on an understanding of the relation between food materials and bodily needs, for the food requirement of 10,000,000 families is but a simple multiple of the food requirement of one family. There is a growing disposition, too, among those who set for themselves serious tasks in life to be restive under small ailments which curtail working hours and reduce efficiency. There is a demand, therefore, for a working knowledge of personal hygiene, including simple, rational, well-founded rules for eating. At the same time great new avenues for instruction are opening and home economics, including the subject of foods, is being introduced in places undreamed of a few years ago. It has been made part of the instruction in universities and primary schools and is being taught in remote mountain regions by extension methods and in crowded city tenements by visiting housekeepers. This is creating a demand among instructors for reliable handbooks. At the same time it is creating a great body of intelligent housekeepers in private homes and in public institutions who are ready and anxious to make those fine adjustments between food supplies and family needs without which nation-wide or world-wide campaigns for the conservation of food must be largely ineffective.

Those who approach the subject most intelligently often find that they must use one language—that of calories and protein—in discussing bodily needs, and another—that of bread and butter, or bacon and eggs—in planning meals or in buying food. Only the fortunate few who, of course, include the writer of the book, use both languages with equal facility. Most people need two-part dictionaries of food, by means of which they can change from the language of calories and protein to the language of bread and butter, and back again, if necessary. Such dictionaries are, to be sure, not entirely new. Many books have given 100-calorie portions in terms of common food materials and have recorded in convenient form the food values of many common dishes. Years ago Mrs. Richards put much of this material into chart form for use in the kitchen. The time, however, was not ripe then for such information and the plans were never much elaborated. Now to meet new needs Mrs. Rose has presented a large number of carefully worked-out tables, the fruit of years of study and of teaching. By use of them the reader finds not only the weight, but also the volume, of common foods that it requires to furnish a definite amount of nourishment. We find, for example, not only that it requires 2½ ounces of creamed salt codfish, made after a recipe given in the book, to provide 100 calories of energy and that 32 of the calories would be supplied by protein, but also, what is of even greater value to the housekeeper, that this amount would measure about one-half of a cup. Again we find that a familiar recipe for cottage pudding would make two loaves, 6 by 4 by 1¾ inches in size; that it would weigh 24.3 ounces; that it would supply 2,100 calories; and that a 100-calorie portion would be a slice 1¾ by 2 by 2½ inches in size. In general, every provision is made for adjusting food supply to food requirement.

The food requirements of persons of different ages and occupation are carefully presented, and family dietaries are worked out.

The subject of prices is subordinated to that of food values. This is fortunate, for food values are permanent while prices fluctuate