on April 16, aged seventy-nine years, bequeathed to the Mineralogical Museum, Cambridge, such of his books and scientific apparatus as his successor, or the demonstrator for the time being, may select; the balance to be offered to Bedford College for Women, London, to select such books as may be useful to the students.

We learn from *Nature* that in order to commemorate the great services made to polar exploration by the late Dr. W. S. Bruce, leader of the Scottish National Antarctic Expedition, a fund has been raised by subscription, the proceeds of which will be awarded biennially "for some notable contribution to natural science, such as to zoology, botany, geology, meteorology, oceanography and geography, the contribution to be in the nature of new knowledge, the outcome of a personal visit to the polar regions on the part of the recipient." The award will consist of a medal, inscribed "Exploration of Polar Regions" and on the reverse "For Valuable Services," modelled on that designed by Dr. Bruce to commemorate the return of the *Scotia*, with in addition a sum of money. In the making of the award, preference will be given, other things being equal, to an explorer of Scottish birth or origin, and to one at the outset of his career as an investigator. The Royal Society of Edinburgh has been asked by the subscribers to accept and has accepted custody of the Bruce Memorial Fund, and awards will be made by a joint committee representing that society, the Royal Physical Society and the Royal Scottish Geographical Society. The first award will be made in 1926.

UNIVERSITY AND EDUCATIONAL NOTES

By the will of the late Dr. J. William White, formerly John Rhea Barton professor of surgery in the University of Pennsylvania, the university receives a bequest of $150,000, the income of which is to be devoted to a chair of research surgery. The incumbent, when appointed, will be attached to the surgical staff with clinical facilities in the University Hospital.

By the will of Mrs. Gertrude Baldwin Woods, wife of Dr. James Haughton Woods, professor of philosophy at Harvard University, $20,000 is left to establish the James H. Woods fellowship in philosophy at Harvard University, and $25,000 is left to Oberlin College to establish a Baldwin lectureship pertaining to art.

Dr. Richard B. Moore, of the University of Cincinnati, formerly chief chemist of the U. S. Bureau of Mines, has been appointed dean of the school of science of Purdue University.

Dr. H. W. Manter, assistant professor in the department of zoology of the Louisiana State University, has resigned to accept a position at the University of Nebraska. The vacancy created by the resignation of Dr. Manter has been filled by the appointment of Dr. Roy L. Mayhew, of Des Moines University, Iowa.

Dr. A. M. Hjort, of the Research Laboratories of Parke, Davis Company, Detroit, has been appointed a professor of pharmacology on the faculty of the Dartmouth Medical School.

Dr. Fritz Paneth, professor of inorganic chemistry in the University of Berlin, will give a series of lectures on radioactivity at Cornell University during the coming academic year.

Dr. Norman E. Woldman, formerly research engineer for the American Bosch Magneto Corporation, Springfield, Mass., is now assistant professor of chemistry and metallurgy at the Postgraduate School of the Naval Academy at Annapolis, Md.

Dr. E. A. Spessard, instructor in biology at the Harrison Technical High School, Chicago, Ill., has been elected professor of botany and head of the department of biology at Ouachita College, Arkadelphia, Arkansas.

E. B. Verney, who has for the last four years held a Beit Memorial Fellowship, has been appointed professor of pharmacology in University College, London.

At the University of Cambridge, Mr. T. C. Hodson has been appointed reader in ethnology in succession to Dr. A. C. Haddon.

DISCUSSION

WAS PAUL GULDIN A PLAGIARIST?

Students of engineering and pure mathematics usually become familiar with the name of Guldin during their college days as a result of the very useful so-called Guldin's theorem, which states, among other things, that the volume generated by a plane figure rotated about a straight line is equal to the product of its area and the length of the circumference of the circle described by its center of gravity. In view of this familiarity it is naturally of unusual interest to such students to find statements in various places which reflect discredit on Guldin's integrity. One of the most forceful statements along this line appears on page 433, volume 1, of the recent "History of Mathematics," by D. E. Smith, and reads as follows:

Two other Swiss mathematicians of the 17th century deserve mention,—one a genius, the other a plagiarist. The genius was Jobst Bürgi. . . . The other Swiss writer

was of a different character. He was a professor while Bürgi was a watchmaker; his name has been known for three centuries, while Bürgi's has been almost forgotten; but he was a plagiarist, while Bürgi was a genius. Paul Guldin began his work as a goldsmith.

While a university professor of mathematics could not be justified for trying to prove that all the earlier successful workers in his field were men of excellent character it is interesting to note that well-known mathematical historians have recently succeeded in showing that at least some of these workers have been accused severely without sufficient evidence. The Italian historian, G. Loria, recently called attention to the fact that the reputation of his countryman, H. Cardan, has suffered unduly, and J. Tropfke expressed the opinion that Paul Guldin did not know that the fundamental theorem which bears his name, and which he used extensively, is found in a somewhat vague form in the works of the well-known Greek mathematician Pappus, who is supposed to have lived at the close of the third century of the present era, "Geschichte der Elementar-Mathematik," volume 7 (1924), page 41. As the fact that Guldin failed to give credit for this theorem is the sole ground for calling him a plagiarist and as other well-known mathematical historians have recently expressed the same view as Tropfke, it seems probable that one more noted mathematician is being exonerated from a very unfortunate stain, and hence those who are inclined to support the view that the study of mathematics has a decidedly wholesome moral effect on its devotees find that one more serious historical obstacle to this view has fortunately been removed by a more careful consideration of the evidence upon which the harsh judgment was based.

The case against Guldin is weakened not only by the fact that Pappus failed to state the theorem in question in its clear modern form but also by the fact that various other writers who lived at about the same time as Guldin seem to have made the same mistake as he made, notwithstanding the established fact that the work of Pappus in which this theorem appears was then receiving considerable attention. Among these writers is the noted astronomer Kepler, who gave examples which seem to imply that he knew this theorem. The fact that he failed to state it explicitly is explained by the custom of many early writers to give illustrative examples of a fundamental principle without stating it explicitly. This custom is seldom followed in modern scientific publications, but it has the obvious advantage of leading the thoughtful readers to make far-reaching discoveries for themselves and to formulate for their own use inspiring general theorems. According to the modern custom the reader is usually expected to supply only

details. The quotation noted above is a somewhat extreme instance of expressing conclusions for the reader instead of presenting the evidence and allowing him to draw his own conclusions. It is probable that many readers question the propriety of calling Bürgi a genius in a mathematical history in view of the elementary character of his contributions.

The world owes a great debt of gratitude to those who, like Cardan and Guldin, contributed powerfully towards the enlightenment of the human race, especially at a time when so few people took an active interest in scientific matters. It seems therefore to be very fitting that wide currency should be extended to results which tend to remove from their names unjust defamatory associations due to carelessness on the part of earlier writers. Personal shortcomings on the part of eminent contributors to the advancement of science have doubtless been magnified in many instances, and some of these magnifications are practically harmless, but before such severe personal criticisms, as some of those relating to Cardan and Guldin, are repeated the evidences upon which they rest should be carefully re-examined. Fortunately, this is being done now by various writers and it tends, in particular, to increase our sympathetic interest in Guldin in view of the unjust treatment which he seems to have received for a long time on the part of many writers. The present evidence tends to show that he was not a plagiarist.

<div align="right">G. A. Miller</div>

University of Illinois

The above criticism, expressed in some eight hundred words, may be set forth more clearly as follows: "Guldin's Law was original with him because Tropfke says so."

The added statement that "other well-known mathematical historians have recently expressed the same view" illustrates Professor Miller's habit of making general assertions without adducing any proof. It is an unfortunate habit and is probably one reason why his book reviews command so little attention. Doubtless another reason lies in the fact that he always seeks to show that every book is bad, that no author is a scholar, that no one is a master of style and that no historian goes to the sources. He illustrates the type of those who, as a French critic has expressed it, failing to succeed themselves, rail at those who "arrive."

Professor Miller, apparently desiring to strengthen his position, asserts that "Pappus failed to state the theorem in question in its clear modern form." Heath's rendering of Pappus is as follows: "Figures generated by a complete revolution of a plane figure about an axis are in a ratio compounded (1) of the

ratio of the areas of the figures, and (2) of the ratio of the straight lines similarly drawn to the axes of rotation from the respective centres of gravity." This certainly does not seem to lack clearness any more than does Guldin's "quantitas rotunda in viam rotationis ducta producit Potestatem Rotundam uno grado altiorem Potestate sive Quantitate Rotata."

The essence of Guldin's Theorem appears in the works of Pappus. These were published in 1588, 1589 and 1602, a generation or so before Guldin published (1641) his *Centrobaryca*, in which his version appeared (Lib. II, cap. VIII, 3). They were well known to scholars of that time as constituting the most important geometric work of the late Greek period. That a man like Guldin should have failed to know this important statement in such a well-known work is quite inconceivable.

As a bit of *obiter dicta* Professor Miller expresses his doubt about Bürgi's being a genius. Perhaps he was not; but in that case the critic would, of course, hold the same opinion as to Napier. Opinions differ.

Speaking of Professor Miller's reviews in general, the present writer does not believe that his method and purpose of book reviewing are worthy. He feels that a reviewer should set forth clearly and succinctly a statement of the purpose of a book, of the way in which this purpose has been developed, of the scholarship shown by the writer, of the style in which the work is written and of the kind of help that is given and the kind of readers who will find it of value. On the other hand, he should point out evidences of poor scholarship, of poor arrangement of material and of poor style, provided these are significant. The late Dr. Eneström did this admirably with respect to historical errors, and his criticisms, based upon the actual sources and expressed without any evidence of self-aggrandizement, have been of the greatest value. Unfortunately he left no successor.

A work with such a large number of items as the one from which Professor Miller quotes is certain to have numerous statements in the first edition that require modification. In the case of this work the changes will be made in the second impression. They will not, however, include any modification in the statement referred to by him.

DAVID EUGENE SMITH

CRYSTALLINE TETRAMETHYL MANNOSE

IN this laboratory a study of the action of dilute alkali on tetramethyl sugars is being made, with a view to determining the probable mechanism of the Lobry de Bruyn interconversion of simple sugars under the action of dilute alkali. In the course of this investigation it was found necessary to prepare a large amount of tetramethyl mannose, heretofore known only as a syrup. This was made by methylation of alpha methyl mannoside with dimethyl sulphate and sodium hydroxide and subsequent hydrolysis with hydrochloric acid. Purification by distillation in large quantity was found unsatisfactory and extraction with low-boiling petroleum ether was tried. This resulted in the formation of crystalline tetramethyl mannose. The sugar comes out of petroleum ether in transparent massive crystals, apparently of the monoclinic system. The downward mutarotation in water from a specific rotation of $+7.4°$ to $+2.4°$ indicates that the crystals are of the alpha form.

Oxidation with bromine gave a syrupy tetramethyl mannonolactone whose specific rotation in water changed from $+136.4°$ (init.) to $+62.8°$ (final).

Preliminary study of the action of dilute alkali on crystalline tetramethyl mannose indicates a partial conversion into tetramethyl glucose. Further investigation of this reaction and of the crystallography of the compound is now in progress.

W. LEE LEWIS,
RICHARD D. GREENE

NORTHWESTERN UNIVERSITY,
EVANSTON, ILL.,
JUNE 6, 1926.

ZOOLOGICAL NOMENCLATURE

THE secretary of the International Commission on Zoological Nomenclature has the honor to invite attention of the zoological profession to the fact that application has been made to the commission to suspend the rules in the case of *Sarcoptes* Latr., 1804, tsd. (Latr., 1810) *passerinus,* and to place *Sarcoptes,* 1804, in the Official List of Generic Names with *S. scabiei* as type.

The argument states that the application of the rules to this "transfer" case will result in greater confusion than uniformity, involving generic, subfamily and family names, and designation of diseases in human and comparative medicine. The suspension requested will result in validating internationally accepted (though erroneous) nomenclature in consistent use for more than a century in zoology, and in human and comparative medicine.

The secretary is familiar with the premises and in his report to the commission will state that he considers this a typical case in which suspension is justified. He will, however, delay announcement of final vote until about October 1, 1927, in order to give ample opportunity to interested persons to express their views for or against the suspension.

C. W. STILES
Secretary to Commission

HYGIENIC LABORATORY,
WASHINGTON, D. C.
AUGUST 3, 1926