In Chapter IV the author pursues the relations between geometry and ethics in Aristotle's works. In nature there is no freedom and no choice, plants always generate plants of the same species, and so do animals; the essence remains the same. On the other hand, human beings in their behaviour can choose between good or bad principles. But once having done so their reactions will be determined just as from geometrical principles (axioms) the consequences follow with necessity. As example, Aristotle refers to the fact that an angle sum of 2 R in a triangle implies one of 4 R in a quadrangle, while an angle sum of 3 R, for instance, in a triangle yields 6 R in a quadrangle. In other words: the statement that the angle sum in a triangle is 2 R is a principle which can be replaced by a contradicting one. In the author's opinion such a claim could only be made by Aristotle if he was familiar with contemporary attempts to solve the parallel problem.

Chapter V considers the angle sum as essence, as raison d'etre, of the triangle. That is, here are studied the places where the philosopher touches on the question whether the concept 'triangle' is invariably connected with an angle sum of 2 R. This gives occasion to discuss certain aspects of Aristotelian philosophy and logic in general, and the position of principles and the role of syllogisms in the whole set-up of geometry in particular.

The subject of Chapter VI is the relation between the angle sum of the triangle and the straightness of its sides. Aristotle states (in order to illustrate the meaning of necessity) that if the sides are straight, the angle sum will be 2 R, and vice versa; and if the sum is not equal to 2 R, then the sides cannot be straight lines. He seems to have overlooked, however, that the definitions of a straight line known to him were not used when properties of geometrical figures were derived.

In footnote 282 (extending over more than two pages) the author discusses the amazing fact that none of the many scholars who studied Aristotle after non-Euclidean geometry had been developed (including such men as Heiberg and Heath) seems to have realized to what extent contra-Euclidean theorems are contained therein. It is true, Heath once wrote concerning a certain Aristotelian fragment: "It is as if he had a sort of prophetic idea of some geometry based on other than Euclidean principles, such as modern non-Euclidean geometries" - yet at once Heath added: "It is not possible that Aristotle could consciously have conceived such an idea as Riemann's." In the author's opinion, Aristotle effectively had the ideas of Saccheri who distinguished between geometries with an angle sum of less than, equal to, and greater than two right angles for a triangle. That none of these scholars should have become aware of this fact during the last century or so, the author comments with the words "eine tolle Geschichte!" Doubtless this shocking story, and the claim presented here on more than 170 pages, will give rise to further discussion.

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The art of philosophizing and other essays, by Bertrand Russell. Philosophical Library, Inc., 15 E. 40th Street, New York 10016, 1968. 119 pages. U.S. $3.95.

This book contains three essays: The Art of Rational Conjecture; The Art of Drawing Inferences; and The Art of Reckoning. The title essay seems to be missing.

(From the publisher's preface:) "The essays in this little volume, published here for the first time in book form, were written by Bertrand Russell during the

Second World War when he was less concerned with the stormy issues of nuclear warfare and the containment of Communist aggression, and more with the basic problems of philosophical research.

"The simplicity of Russel's exposition is astonishing, as is his ability to get to the core of the great philosophical issues and to skillfully probe the depth of philosophical analysis."

W.G Brown, McGill University

Gesammelte Abhandlungen, by Ferdinand Georg Frobenius. Edited by J-P. Serre. Vol. I, vii + 650 pages. Vol. II, 733 pages. Vol. III, 740 pages (with a complete list of all titles). Springer-Verlag, Berlin, Heidelberg, New York, 1968. U.S. $34.00.

For many years mathematicians all over the world complained of the fact that Frobenius' mathematical works had never been edited. Most of his 102 research papers had been published in relatively early volumes of Crelle's Journal, almost all those between 1871 and 1893, and from then on until 1917 in the Sitzungsberichte der Preußischen Akademie der Wissenschaften; both these periodicals are directly accessible only in rather extensive libraries. Reprints of the Akademie-papers have been for sale occasionally, but were exhausted rather fast. The continuing great interest in all the main subjects dealt with in Frobenius' many papers, although a great deal of his results are now standard material in text-books on group theory, linear algebra, differential equations, ordinary and partial, elliptic functions, will make this edition a must for all University libraries; the very reasonable price will enable many mathematicians to own the three volumes.

They contain all of Frobenius' published mathematical works in chronological order. No comment or analysis has been attempted for the new edition. The editor even states that "une telle analyse, en effet, eut été fort difficile a faire, et peu utile". "Fort difficile", yes, but "peu utile", no. It would have been extremely useful and desirable to have competent information on open questions mentioned in Frobenius' papers as well as some references to more recent work which either simplifies or extends Frobenius' proofs or results. However, any such attempt would certainly have postponed for many years the appearance of this edition; thus nobody will regret too much the absence of a commentary.

The first volume begins with a short essay "Erinnerungen an Frobenius" by C.L. Siegel who, as a young student, had attended two of Frobenius' lecture courses at the University of Berlin in 1915. According to these notes Frobenius influenced his students only by his splendid lectures, but not by personal contact. It might be mentioned that this essay is particularly interesting in so far as it reveals at least as much on its author as it does on Frobenius.

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