SCIENTIFIC SERIALS.

The Mathematical Gazette, No. 4 (Macmillan).—This is the first number of the enlarged series. We are glad to find that the support accorded to the first year's issue has been sufficient to warrant this enlargement; but to make the *Gazette* a success, and not a drag upon the funds of the Association, it is imperatively necessary that a much larger measure of support should be rendered by the general body of mathematical teachers. The opening paper is one on algebra in schools, which was read before the Association at its annual meeting in January of this year. In this article the author, Mr. Heppel, drawing upon his wide experience as a "coach," states that when pupils have come to him he has found that the work in algebra has usually to be done all over again. The reason of this appears to him to be "the ever-growing divergence there is between the conception of the nature and objects of algebra that dominates school teaching and the conception that regulates the application of algebra to more advanced mathematics." Many of the suggestions are likely to be useful, and we commend them to the notice of our brethren in the craft of teaching.—Mr. T. Wilson contributes a note on mathematics for astronomy and navigation, in which he suggests that the elements of spherical trigonometry might occupy a more prominent place in school teaching than they do, and to cover all ages he winds up with, "let no one despair that he is too old for mathematics."—Mr. Rouse adds a second chapter to his previous interesting article on conics.—"Some old text-books" is a review of John Ward's "The Young Mathematician's Guide" (1747), by Mr. J. H. Hooker, which brings before us matter that was served up for the food of students in the time of "good Queen Anne." The rest of the number is taken up with more extended articles (than before) entitled notes, solutions, new questions, and titles of new books. These latter pages should be of general interest, as they are likely to be useful both to students and teachers.

Bulletin of the American Mathematical Society, series 20, vol. i. No. 6, March 1895.—The notice of "Arthur Cayley," pp. 133–141, which opens this number, is a warm appreciation of the character and writings of our great mathematician, by Dr. Charlotte Scott, and is due to her "intense admiration for his work and personality, and to the fact that for the last fourteen years" she has "been privileged to know him and experience his kindness." It is the fullest account we have yet read, and has many more points of interest for an Englishman than Signor Brioschi's *éloge*, which is naturally confined more closely to an appreciation of his mathematical work. One extract we must make:—"Any sketch of Prof. Cayley is self-condemned if it leaves out of account the child-like purity and simplicity of his nature, the entire freedom from the professional touchiness on the score of priority to which mathematicians are as liable as other men. He was ever ready to say what he was working at, to indicate the lines of thought, to state what difficulties he was encountering . . . but his greatness and his simplicity cannot be enshrined in anecdotes. —Prof. Osgood (pp. 142–154) in "The Theory of Functions," analyses, chapter by chapter, Dr. (now Prof.) Forsyth's brilliant work on "The Theory of Functions of a Complex Variable," and winds up thus:—"The book is not one that can safely be put into the hands of the immature student for a first introduction to the study of the theory of functions. But the student who is already familiar with the elements, and who has acquired some degree of critical power, will find its pages incentive to valuable work in this wide field."—A short note follows on the introduction of the notion of hyperbolic functions, by Prof. Haskell, which was read before the Society at its December (1894) meeting.—The second summer meeting of the Society is to be held at Springfield, Mass., on August 27.

Internationales Archiv für Ethnographie, Band vii. Heft iv. 1894. This part commences with a long and thorough study (in German) on the hair-cutting customs of the Southern Slavs, by Friedrich S. Krauss. Several songs are reproduced in the original, which are also translated into German. In this study two elementary ideas of mankind are met with, but imbued with the local colour of the Southern Slavs, and varied in tint according to the stage of culture. Hair-cutting is a means of adoption into kinship, and also as a redemption from the sacrifice of the body or life to the spirit of disease. It is a rite performed for social obligations and for good luck.—Prof. P. J. Veth concludes his exhaustive account (in Dutch) of the Mandrake, which is a valuable contribution to signature-lore or sympathetic magic. The most interesting of the "Notes" is an illustrated communication by A. Herrmann, on the cupping and blood-letting appliances of the wandering gypsies.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, March 21.—"On the Diselectrification of Air." By Lord Kelvin, P.R.S., Magnus Maclean, and Alexander Galt.

§ 1. The experiment described in § 14 of our paper on the "Electrification of Air and other Gases by bubbling through Water and other Liquids" (*Roy. Soc. Proc.*, February 21, 1895), proves that air, electrified negatively by bubbling through water and caused to pass through a metallic wire gauze strainer, gives up some, but not a large proportion, of its electricity to the metal. We have now made a fresh experimental arrangement for the purpose of investigating diselectrification of air which has been electrified, whether positively or negatively, by other means than bubbling through water: with apparatus represented in Figs. 1 and 2, which is simplified from that of our former paper by the omission of the apparatus for electrification by bubbling, and for collecting large quantities of electrified air.

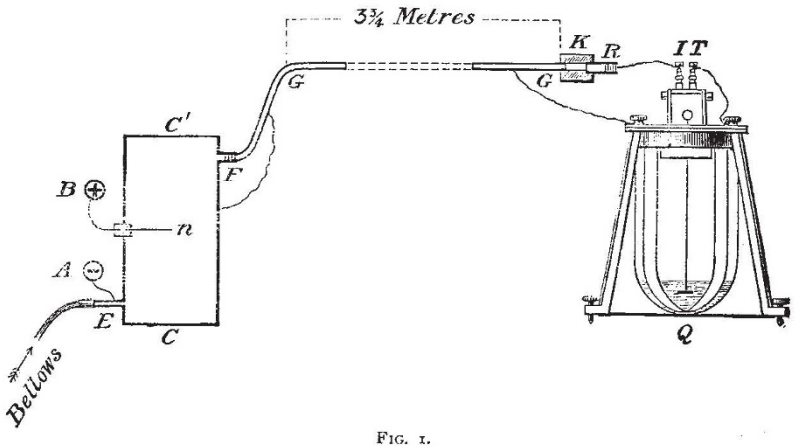

FIG. 1.

§ 2. In Fig. 1, A B represent the two terminals of a Voss electric machine connected, one of them to a metal can, C C' (a small biscuit canister of tinned iron), and the other to a fine needle, of which the point *n* is in the centre of the can. The wire making the connection to the needle passes through the centre of a hole in the side of the can, stopped by a paraffin plug. Air is blown from bellows through a pipe, E, near the bottom of the can, and allowed to escape from near the top through an electric filter, F, called the tested filter, from which it passes through a long block-tin pipe, G G, about 3¾ metres long and 1 cm. internal diameter, and thence through a short tunnel in a block of paraffin, K. From this, lastly, it passes through a second electric filter, R, into the open air. This second filter, which we sometimes call the *testing filter*, sometimes the *electric receiver*, is kept in metallic connection with the insulated terminal, I, of a quadrant electrometer, Q. The metal can and the block-tin pipe are metallically connected to the outer case and uninsulated terminal, T, of the quadrant electrometer.

§ 3. The testing filter or electric receiver consists of twelve discs of brass-wire cloth fixed across the mouth of a short metal pipe supported on the end of the paraffin tunnel in the manner

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