

for the estimation of the radioactivity of mineral waters. A considerable amount of attention is paid to the biological, as distinguished from the bacteriological, examination, and a large number of excellent figures are given of the various species of organisms likely to be met with in waters of various types.

The least satisfactory section is that dealing with the bacteriological examination of water. In particular, the detection and enumeration of the *B. coli communis*, to which so much attention is paid in this country, is treated in an extremely inadequate manner.

Highways and Byways in Lincolnshire. By W. F. Rawnsley. With illustrations by F. L. Griggs. Pp. xx+519. (London: Macmillan and Co., Ltd., 1914.) Price 5s. net.

THIS book maintains the high reputation of the series to which it belongs. Mr. Rawnsley has throughout supposed the tourist to be travelling by motor, and has accordingly said very little about footpaths. Lincolnshire, he says, teems with splendid churches, and that is the first impression received after looking at the admirable illustrations which Mr. Griggs has provided. But attention is by no means confined to ecclesiastical architecture, for the book abounds in anecdotes, gossip, and quaint information. We read that Sir John Franklin, the famous arctic navigator, and Major James Franklin, who made the first military survey of India, were born at Spilsby in this county. On the road from Spalding to King's Lynn the author tells us he passed a field with an unfamiliar crop of stiff purplish plants which showed where the cultivation of *Isatis tinctoria*, the woad plant, which added so much to the attractiveness of our earliest British ancestors, was still kept going. Or, again, at Tothby a plague-stone is to be found, and we are given a bright account of how sufferers from the plague in the seventeenth century were fed without spreading infection. The book will appeal not only to Lincolnshire people, but also to all who love the English countryside.

Les Coordonnées intrinsèques. Théorie et Applications. By Dr. L. Braude. (*Scientia*, No. 37.) Paris: Gauthier-Villars, 1914. Pp. 100. Price 2 francs.

ALTHOUGH quite good in its way, this book does not present any very striking features. It may best be described as a collection of problems most of which could be worked out as exercises by any fairly good English mathematical student. Intrinsic equations are here obtained for the usual well-known plane curves, such as cycloid, catenary, equiangular, spiral, and they are applied to the study of associated loci such as roulettes, Mannheim's curves, pedals, or involutes and evolutes. In England this work is commonly studied in courses rightly or wrongly described as "advanced calculus," but it may be useful to teachers and others to have a book of reference in which the subject is treated separately and in greater detail than in our calculus text-books.

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LETTERS TO THE EDITOR.

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Accumulated Rainfall at Excessive Rates.

IN the *Monthly Weather Review* a table (No. II.) is regularly published giving accumulated amounts of precipitation when the rates equal or exceed:—

Duration	5	10	20	30	60	minutes.
Rate per hour	3.00	1.80	1.20	1.00	0.80	inches.

Unfortunately the headings and the entries are not consistent; and the purpose of the table is defeated by a tabular arrangement in which sense is sacrificed for space. The table misleads American meteorologists, even those of us familiar with the arrangement; and it is therefore not to be wondered at that the most eminent of climatologists, Dr. Julius v. Hann, read for a five-minute interval 4.19 in. of rain when the actual fall was 0.13 in. at Oklahoma, June 30, 1913 (*M.W.R.*, 41-7: 1129, July, 1913).

Prof. Hann directed attention in the *Meteor. Zeitschrift*, of which he is editor, to this remarkable rate (*Meteor. Zeits.*, vol. xxxi., part 4, p. 196), stating that it was the heaviest rainfall on record, and gravely adding that the rate, 21.3 mm. was most remarkable, and that it was scarcely conceivable that so much water could fall from the sky in five minutes.

Dr. Hann should not be held responsible for the error. A correction has been published in a recent number of the review, but few will see it, and in the confusion incident to the war it may escape general notice. We are likely, therefore, to meet the statement in years to come that official records show a rainfall of the rate given above.

With the hope of preventing future misunderstandings, I have appealed to the chief of the Weather Bureau to alter the table, and have further urged that now is an opportune time to abandon the use of inches in measurements of precipitation and use the millimetre. Is it not also high time that British rainfall was expressed, if not indeed measured, in millimetres?

Accumulated amounts at excessive rates are of interest to engineers, and it might be well to substitute for the present values, which are arbitrary and confusing, the following rational units:—

Duration	...	1	5	10	60	minutes.
Rate per hour	...	1	5	10	20	mm.

I add the heaviest known rainfalls and rates with the hope that some of the readers of NATURE will amend.

	Rate per hour	Actual duration of rate
Baguio, P.I., July 14, 1911	... 49 mm.	24 hours
Campo, Cal., August 12, 1891	... 219 "	80 minutes
Guinea, Va., August 24, 1906	... 470 "	30 "
Curtea de Argrea (Roumania), July 7, 1889	... 615 "	20 "

ALEXANDER McADIE.

Blue Hill Observatory, October 12.

Fizeau's Experiment and the Principle of Relativity.

SIR JOSEPH LARMOR has kindly pointed out to me that it is incorrect, in the interpretation of Fizeau's experiment, to assume that the velocity of propagation of light is the group velocity, so that I must withdraw