of the adult females was found to be in the vicinity of 100 per cent. under certain conditions. Immersion and dusting with the bacterial spores fruits previously sprayed with water appeared to offer more promise than spraying alone.

Within a few days after the infection the pygidia of the scale often become distorted. Evolution of gas and a more or less general browning of the insect often occur simultaneously. Vegetative cells of the bacterium, as well as its spores, can be observed in the contents of the general cavity. Saprophytic fungi frequently invade the diseased or dead insect.

A detailed article containing experimental data has been submitted to *Phytopathology*.

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PRO AND CON EVOLUTION IN CONTEMPORARY GERMANY

THE attacks on evolution, discussed under the above heading in SCIENCE, 93: 40, 41, have been also contradicted in two articles of the German monthly *Der Biologe* (year 9, fasc. 12, December, 1940, which was received here in May, 1941).

The first of those articles, by the geneticist, F. Schwanitz (*l.c.*, pp. 407–413), bearing the title "Ein Kreuzzug gegen die Abstammungslehre" ("A Crusade against Evolution"), deals with the "Sonderheft" (4/5, vol. 37, April/May 1940) of "Natur und Kultur," particularly with Otto Muck's essays, which are harshly refuted and stripped of any scientific significance.

The second article, entitled "Immer wieder: Abstammung oder Schöpfung?" ("Again and again: Evolution or Creation?"), by Chr. von Krogh (*l.c.*, pp. 414–417), who recently[1] participated in the German scientific discussion on "Menschwerdung" (origin of man), deals chiefly with an anti-evolutionary pamphlet of H. Frieling,[2] one of the contributors to the aforementioned special publication. Von Krogh rejects it for both scientific and philosophical reasons, claiming that Nordic man always believed in unity of body and soul, whereas dualism is assigned to Eastern conception of life.

OTTO HAAS

THE AMERICAN MUSEUM
OF NATURAL HISTORY

CARL FRIEDRICH GAUSS'S DESCENDANTS IN AMERICA

GAUSS, who is probably one of the four greatest mathematicians who ever lived, was twice married. By his first wife he had two sons (Joseph, 1806–73, and Louis), and by his second also two sons (Eugene, 1811–96, and Wilhelm, 1813–79). Louis died in childhood. Joseph was an engineer, and in 1836 and 1837 he was sent by his government to the United States to study railway construction in the New World. Eugene came to the United States in 1831 and enlisted as a private in the U. S. Army for five years. In 1840 he settled in St. Charles, Mo., married, and had a family of seven children. His younger brother Wilhelm came to this country in 1837, immediately after his marriage to a niece on his mother's side of the astronomer Bessel. For about a score of years he was engaged in farming in Missouri. Thereafter he entered the wholesale shoe business in St. Louis, in which he continued until his death. Of his eight children six were living in 1899. In January, 1935, one of these children, Joseph H. Gauss, was still living, and dean of the Brookes Bible Institute of St. Louis. Other descendants are in Colorado and California. Most of the information given above, and much more, may be found in *C. F. Gauss und die Seinen. Festschrift zu seinem 150. Geburtstage,* herausgegeben von H. Mack, Braunschweig, 1927, and in two articles by Professor Cajori: (a) "Carl Friedrich Gauss and His Children," SCIENCE, n.s., v. 9, 1899, pp. 697–704; and (b) "Gauss and His American Descendants," *Popular Science Monthly,* v. 81, 1912, pp. 105–114.

This supplies information requested by a correspondent, Sir Joseph Larmor, in your issue for May 30, page 523.

R. C. ARCHIBALD

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SCIENTIFIC BOOKS

MATHEMATICS

Gap and Density Theorems. By NORMAN LEVINSON. American Mathematical Society Colloquium Publications. Vol. 26. New York, 1940. viii + 244 pages. $4.00.

ONE of the fundamental properties of the system of trigonometric functions (cos nx, sin nx), or of the equivalent system of exponential functions (e^{inx}), is the property of closure. It is precisely this property that makes them so important in problems of expansions of arbitrary functions in Fourier series. The natural question under what conditions this property is enjoyed by a more general system of functions ($e^{i\lambda_n x}$), has interested several earlier writers, among whom the name of G. D. Birkhoff should be mentioned. Several important problems in this direction were

[1] *Zeitschr. ges. Naturw.*, pp. 105–112, 1940.
[2] "Herkunft und Weg des Menschen. Abstammung oder Schöpfung?" Klett, Stuttgart, 1940 (113 pp.).

stated and solved by G. Pólya. A new impetus to the problem was given by the work of Paley and Wiener. The first part of the present book (Chapters I–IV) continues the work of Paley and Wiener, and extends it to a final form, in a certain sense. The method of Paley and Wiener, based on the consideration of Fourier Transforms in the complex domain, is successfully used by the author in treating various other problems of the theory of functions of complex variables. Such are problems connected with vanishing of Fourier Transforms, distribution of zeros and singularities of analytic functions, and the rate of growth of analytic functions (Chapters V–VII). In Chapters VIII and IX the author extends the work of Pólya concerning entire functions of zero order and shows that his results are in a certain sense the best possible. Finally in the last part of the book (Chapters X–XII) the author gives a considerable extension of a remarkable theorem of Hardy and Littlewood, where the convergence of a series is derived from its summability by a certain method, without any additional conditions on the terms of the series. Due to its technical character, the reading of the book is not very easy; however, the exposition is very clear and precise, and the reader who will stick to his job will feel greatly rewarded at the end.

Fourier Series and Boundary Value Problems. By RUEL V. CHURCHILL. ix + 206 pages. New York: McGraw-Hill Book Company. 1941. $2.50.

THE literature in English on the subject of partial differential equations of mathematical physics is rather restricted. Expositions of introductory but not entirely formal nature are practically non-existent, and the present book represents a welcome contribution in this direction. In the first two chapters the author discusses the notion of a boundary value problem for linear differential equations and derives some simplest differential equations of mathematical physics. In the next three chapters the author introduces the notion of orthogonal sets of functions, discusses properties of being closed and complete, and applies the general principles to the special case of trigonometric Fourier series. Simple fundamental facts concerning convergence of Fourier series and operations with Fourier series are discussed here, and the notion of Fourier integral is introduced. Chapters VI and VII give applications to solution of simplest boundary value problems of the theory of heat conduction and potential theory. Much attention is given to the question of uniqueness of solutions. Finally, in chapters VIII and IX the author introduces Bessel functions and Legendre polynomials and considers some applications to boundary value problems. Exposition is clear and "rigorous" as far as possible in a book of elementary character. The notion of Laplace transform is omitted although it seems quite desirable and worth mentioning. The author promises, however, another volume of a more advanced nature where further methods of solving boundary value problems will be treated.

J. D. TAMARKIN

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SOCIETIES AND MEETINGS

THE KANSAS ACADEMY OF SCIENCE

THE seventy-third annual meeting of the Kansas Academy of Science was held at Manhattan, Kansas, on April 3, 4 and 5, 1941, with Dean E. O. Deere, Bethany College, Lindsborg, Kansas, presiding. The Kansas Entomological Society, which is affiliated with the academy, held its seventeenth annual meeting on April 5. The following other state societies held their meetings in cooperation with the academy: The Kansas Association of Teachers of Mathematics, the Kansas chapter of the Mathematical Association of America, and the Kansas chapter of the American Association of University Professors. The Weather Crops Seminar, another affiliated society, held its meeting last November.

The academy program opened with a Thursday evening lecture under the joint auspices of the Kansas State College chapter of Gamma Sigma Delta and the academy by President W. M. Jardine, of the University of Wichita, who spoke on "Egyptian Agriculture."

After sectional meetings on Friday morning for Botany, Zoology, Psychology and Geology from 9 to 11 A.M., a general academy business meeting was held. Recipients of the six research awards for 1940 reported briefly on the results of their work.

More definite plans were made for the celebration of the seventy-fifth anniversary of the academy in 1943 at the Lawrence meeting. This "Diamond Jubilee Committee" is planning to prepare an extended report on the chief contributions to science by the various institutions of the state during the seventy-five years of academy activity.

Sectional meetings for Botany, Chemistry, Physics, Psychology, Zoology and a Geological field trip were held on Friday afternoon.

At the annual banquet on Friday evening, Dr. S. A. Nock, vice-president of Kansas State College of Agriculture and Applied Science, spoke appropriate words of greeting and gave a challenge of the times to science and scientists. Dr. J. T. Willard spoke on per-