DR. F. L. RANSOME, formerly geologist of the U. S. Geological Survey, has resigned from the faculty of the University of Arizona and has accepted the professorship of economic geology at the California Institute of Technology, Pasadena. W. P. Woodring, of the survey, has been appointed professor of invertebrate paleontology.

DR. LAURENCE IRVING, of Stanford University, has been appointed associate professor of physiology in the University of Toronto.

DR. J. H. MUIRHEAD, professor of philosophy at the University of Birmingham, England, and Bedford College, London, will serve as visiting professor of philosophy at the University of Southern California in the second semester.

DR. D. L. MACKINNON has been appointed as from August 1 to the chair of zoology in the University of London, tenable at King's College.

DR. JULIUS RUSKA, professor of the history of science at the University of Heidelberg, has been appointed director of the recently established Institute for the History of Science at Berlin.

DISCUSSION

A NEGLECTED NOTE BY A NEGLECTED MAN

IN the course of a study being made on some of the chemical and physical properties of hydrofluoric acid,[1] a somewhat extensive review of the literature was instituted. It was of interest during this work to consider the historic development of this acid from the time of its discovery.

This search has been rewarded by the uncovering of a note that to my knowledge has not hitherto been recorded. None of the treatises on historical chemistry or mineralogy, nor any of the extant bibliographies of the literature on this acid that I have had the opportunity of perusing has made any mention of this reference.

The note referred to appears as a short (eleven pages) appended section to the second edition of Dr. John Hill's treatise "Theophrastus's History of Stones. With an English Version and Notes, etc." London, 1774.[2] This note (pages 267 to 278 incl.) is, no doubt, based on a communication, or a series of communications, between the author and Karl Wilhelm Scheele, who announced his discovery of hydrofluoric acid in 1771 (Vetensk. Acad. Handl. 1771).

This note is entitled "Observations on the new Swedish acid and of the stone from which it is obtained." This note is of much interest in that it so completely and accurately describes the production and properties of hydrofluoric acid and the mineralogical and chemical properties of fluorite.

The "observations" are divided into two sections, the first dealing "Of the mineral acid in general" and the second "On the stone from which the Swedish acid is obtained." Many interesting and remarkably accurate observations are included in these few pages. It may be of interest to give the details of the experiment:

> The Process by which I tried the Substance was this:
>
> Two Pounds of the green Kind of the Stone were powdered, and put into a Glass Retort;
>
> Two Pounds of Oil of Vitriol were added to this;
>
> And a Quart of Spirit of Wine was put into the Receiver.
>
> No Heat, nor Ebullition whatsoever, followed the Mixture for some Time; and in the End but little.
>
> The Vessels were closed; and kept in a Reverberatory Furnace for fourteen Hours.
>
> The Fire was slow at first; else the Matter would have risen over.
>
> No phosphorescent Light was visible at any Time.
>
> The Fumes were some Times visible, in the Receiver; at others not. Whereas in the marine Acid they are never visible; unless Air be admitted.
>
> They were elastic; and had a Smell like those from Spirit of Salt.
>
> The Surface waved, and rose a little; and there was on it an icy, and gelatinous Substance.
>
> The upper Part of the Receiver became covered with a thin stony Crust.
>
> The *Swedes* speak of a Crust of absolute Flint, upon the Surface of the Liquor in the Receiver. But they put Water there: This was the same Substance; And it remained fix'd on Part of the Receiver: While Part was displaced; probably by some light Vapour from the Spirit of Wine.
>
> The Corrosion of the Glass of the Retort seems to be an Effect of that peculiar Sublimation which rises in the Distillation; nay, and begins to rise, even without that Operation; For watching attentively the Effect of mixing the vitriolic Acid with the Stome, I perceived, that tho' they seemed to meet without any Effervescence, yet by Degrees there appeared a slight Commotion; which increased for a considerable Time, and, during which, this

[1] Berliner and Hann, SCIENCE *61*: 498 (1925).

[2] Printed for the author, in St. James's-Street and sold by L. Davis, in Holborn; Norse, in the Strand; White, in Fleet-Street; Cater, in Holborn; Bell, in the Strand; Fletcher, at Oxford; Woodyear, at Cambridge; and Bell, at Edinburgh. 385 pp., 8°.

This also appeared in a separate reprint the same year; the only alteration being the renumbering of the pages. 16 pp., 8° (pages 1 to 5 are the title and cover pages). This is also printed for the author and sold by B. White, in Fleet-Street; and J. Robson, in Bond-Street.

My attention was called to this reprint, of which there is a copy in the Surgeon-General's Library at Washington, D. C., by Dr. L. L. Woodruff.

strange Sublimation of the Flores began to be made; and increased with it; even before any Fire was used. . . .

. . . After seven Hours a Hole was eaten thro' the Retort, and Fumes issued: But this was closed by a Crust formed of the matter within; and so well stopped, that no Vapour escaped. . . .

The final appearance of the retort and nature and properties of the products of the reaction are described. It is of interest that nowhere in this note is the term "hydrofluoric acid" employed; the mineral is on one occasion termed "fluor." Another omission for which no explanation is attempted, is the neglect of mentioning Scheele, his work, or the previously published observation. Throughout the text the only allusion made as to the original work is the term "the Swedish acid or stone." In this note Hill discusses the rôle of this acid as a "mineralizer" in ore deposits. This is also an uncredited observation and was "rediscovered" many years later. Many other novel and seemingly precocious notations are recorded.

The remarkable accuracy and extensiveness of these observations are to be marvelled at when one considers the many fields of learning in which Dr. Hill ably distinguished himself. Surprisingly little has been written concerning his life or accomplishments. Recently Dr. L. L. Woodruff, of Yale University, has published an excellent summary of this interesting man's career[3] for whom "One has but to turn the pages of London's print from 1750 to 1775 to meet his name." This short treatise gives a very clear, fair and intensely interesting outline of perhaps the most brilliant and least known character appearing in the history of science.

Dr. Hill wrote extensively on many subjects, completing an almost unbelievable number of treatises during his life. It has been said that "This gentleman may very justly be estimated as a phenomenon in literary history—he was perhaps one of the most voluminous writers that this or any other age has produced."

The diversity of his interests is indicated by the comprehensive number of subjects to which he made distinct contributions. His writings concern medicine, botany, zoology, astronomy, theology, philosophy, gardening, microscopy, pharmacology, animal husbandry, etiquette, mineralogy, naval and other histories, and in spite of all these studies he found time to edit *The British Magazine,* write a series of daily essays for a number of years, as well as publish several stories and plays. He was embroiled in innumerable polemics and wrote several satirical articles, one of the most interesting being "A Review of the Works of the Royal Society of London; containing animadversions on such papers as deserved particular observation," London, 1751, in which he ridicules some eighty original contributions to the society. This and several other articles of a similar nature made many his enemy, and yet one said, as Dr. Woodruff notes, "he was of all men I ever knew so mixed a character, none but himself can be his parallel."

[3] *The American Naturalist,* Vol. LX, 417–441 (1926).

J. F. T. BERLINER

WASHINGTON, D. C.

ORGANIC FERTILIZERS AND COTTON WILT CONTROL

IN a recent note (SCIENCE, n. s., Vol. 65, No. 1695, p. 616–617) H. R. Rosen refers to his experiments which indicate that no toxic effects are produced by *Fusarium vasinfectum* on cotton plants when organic nitrogen is used in the culture medium, and he suggests the possibility of field control of cotton wilt by the use of organic fertilizers. He states: "Orton's findings (U. S. Dept. Agr. *Farmers' Bul.* 333, 1910), which have doubtless acted as a deterrent in the use of organic fertilizers for the control of wilt, are based on very little experimental data, and his results are contradicted by the work of Fulton (La. Agr. Exp. Sta. Bul. 96, 1907). The writer has some data which seem to confirm Fulton's work."

The following quotations from the above-cited publication of W. A. Orton relate to the use of stable manure and other organic material in the practical control of cotton wilt where nematode root-knot is usually a complicating factor: "The application of stable manure has been recommended as a remedy for wilt. Our experience has been that in slightly infected fields this does give some relief, but that the wilt takes the field in the end in spite of the heaviest manuring. The use of stable manure in growing resistant varieties of cotton has been very profitable however." Under the caption "Combined treatment of wilt and root-knot" he enumerates the following among the essential principles to be observed in arranging a rotation of crops: "(1) To use crops immune to root-knot in order to starve out this pest. (2) To build up the fertility of the soil, and especially to increase the amount of organic matter or humus." Definite rotations of soil-improving crops are then suggested in detail.

My recommendation of stable manure for cotton wilt control was based on two seasons' tests at Baton Rouge, Louisiana, on land very heavily infested with *Fusarium vasinfectum* and lightly infested with root-knot nematodes. It was not put forward as a sole preventive, but was to be used in connection with other control measures, such as the use of wilt-resistant cotton varieties and a crop rotation to reduce infestation.