and interrelated. His literary style is turgid, verbose, obscure, but this is a necessary and sufficient reason for a modern edition, with the proper *apparatus criticus* of interpretative notes.

Of the extraordinary fitness of the editor for his task, it is almost unnecessary to speak. A brilliant Goethe scholar and *Goetheforscher* in his youth, Sudhoff is known to physicians as the Paracelsus scholar *par excellence*. His whole life of investigation at the Institute of Medical History at Leipzig, his vast researches in medieval medicine, have been nothing else than preliminary to this work, which (at the age of 68) he regards as his swan-song.

Professor Sudhoff's plan is to issue the work in fifteen volumes, containing all the MS. material, and to be sold by subscription at a flat rate per volume. Librarians and scientific men may obtain further details by writing to Professor Karl Sudhoff, Institut für Geschichte der Medizin (38 Talstrasse), Leipzig, Germany.

F. H. GARRISON

THE VALUE OF TILTH IN AGRICULTURE

THE remarks of Mr. L. S. Frierson relative to the above question (SCIENCE, September 2, 1921, p. 193) have just come to my attention. Bechhold's work, which I quoted (SCIENCE, July 22, 1921, p. 74), indicates that evaporation draws salts toward the surface; but rain rather than light cultivation is the main factor returning them toward the roots, although of course cultivation helps.

An essential in cultivation is the breaking of the surface crust or skin, and Mr. Frierson says that, contrary to my hypothesis, this comminution of the upper surrface of the soil "more or less perfectly *stops evaporation, and thus conserves the store of soil water.*"

This claim of Mr. Frierson is quite contrary to all engineering and practical experience. The way to dry wet clothes is not to roll them up, but to spread them out and expose a large surface to the air. The breaking of a crust or skin, with increased exposure of fresh surfaces causes, or tends to cause, *increased* evaporation. Indeed Bechhold says that the cooling effect of talcum and similar dusting powders is consequent upon the fact that they give the skin more free surface for evaporation.

Unless direct experimental evidence to the contrary is produced, I must maintain my view that cultivation, by increasing surface evaporation, tends to bring upward subsurface water and salts, and thus aid plants in dry weather.

JEROME ALEXANDER

NEW YORK, JANUARY 7, 1922

CASTS OF FOSSIL VERTEBRATES AT STUTTGART

TO THE EDITOR OF SCIENCE: The director of the Stuttgart Museum (Württemburgische Naturalien Kabinett) in Germany has offered for sale a series of casts of fossil vertebrates from originals in that museum. Most of these are of great teaching and exhibition value, and owing to exchange and economic conditions in Germany, the prices are extremely low. The American Museum has purchased the series and received the shipment in excellent condition. The quality of the casts varies, some are excellent, others only fair, but I desire to call attention of those who are interested to the opportunity both to secure some very useful casts at small expense and to aid in continuing the work of one of the leading paleontological museums of Germany. For information write to Dr. Martin Schmidt, director of the Stuttgart museum.

W. D. MATTHEW

THE RAY SOCIETY

TO THE EDITOR OF SCIENCE: May I be permitted to express the thanks of the Council of the Ray Society to Professor G. H. Parker for his timely letter published in SCIENCE of November 25, 1921? I should like also to take this opportunity of apologizing to our American subscribers for the continued delay in the issue of our publications, a delay which is due entirely to the difficulty of executing the elaborate colored plates for Prof. W. C. McIntosh's "British Marine Annelids." The first part of the fourth (and final) volume of this work will form the issue to subscribers for 1920 and will, it is hoped, be ready within the next few months. The second part, completing the work, is already in hand and will form the issue for 1921. Subscriptions for each of these

years can still be received up to the date of publication.

W. T. CALMAN,
Secretary of the Ray Society
1, MOUNT PARK CRESCENT,
EALING, LONDON, W. 5,

QUOTATIONS

THE NEW CHEMISTRY

THE service, at once scientific and humanitarian, of Dr. Charles Baskerville, who died last week, is illustrative of what the science of chemistry is undertaking for the alleviation of human suffering. Dr. Baskerville's special researches had to do with the causes and prevention of occupational diseases and with the purifying of ether as an anesthetic. These are, however, but suggestive of the innumerable researches in which his brother chemists of every land in this new age of their science are seeking not only to heighten industrial productivity, but to promote and conserve the health and strength of human bodies.

During the war, when it became necessary to use poison gas to fight poison gas, the ablest American research chemists were called to the country's defense. The recent action of the Washington conference gives hope that choking and wasting vapors will not again sweep over fields or stain the skies, and that such another service as these chemists were called upon to give will never again be asked of a benign science that will now have freedom to devote its entire attention to benefiting men, women and children.

That this is more than a vague, visionary hope is intimated by the recent report of a committee of the American Chemical Society, under the chairmanship of Dr. Charles H. Herty. It is a clarion summoning of the chemists to come to the battle against disease. In the war the development of means of defense was not left to haphazard discoveries by isolated chemists. The best-trained workers in systematic research were brought together and were kept in daily—almost hourly—conference, where they were joined by pharmacologists and experimental pathologists, until the problems upon which the fate of nations depended were solved. But while war claimed its sacrifice in millions of lives, "disease each year claims its tens of millions." The new problems give this science a more urgent, poignant call. And the committee, contemplating the ravage of disease, puts this question: "Can we not bring to these problems the same methods so successfully employed in the solution of the means of making war?"

Several centuries ago the chemist and the physician cooperated. Then they separated, the chemist turning toward industrial production. Now it is being realized that, though the bacteriologists and pathologists have accomplished wonders, they have "definitely reached a point where they must turn to the chemists for the solution of many of their most important problems." Not only are the chemists' medicaments needed for the cure or alleviation of certain specific diseases, but their advice is needed as to the acceleration or retardation of chemical reactions that take place in the body. The myriad battles with avoidable or preventable disease there go daily on. The lesson of the war intimates what victories may be expected in these battles from the cooperation, under ideal conditions of time and research, on the part of those whose science touches these very issues of life.

Dr. Baskerville, not only by his own researches, but also and especially by developing and equipping what was perhaps the best series of chemical laboratories in the United States and by organizing a department which has given tuition to hundreds of young men for service in this science, made his lasting contribution, though his studies and researches and teaching here are over. It will be remembered, however, that but a few weeks before his death, after years of intimate study of the atom, he said that "there is something that cannot be explained on a purely materialistic hypothesis." So the quest goes on.—The New York *Times*.

SPECIAL ARTICLES

A CONVENIENT METHOD OF DETERMINING THE BRIGHTNESS OF LUMINESCENCE

HAVING recently had occasion to measure the brightness of various fluorescent substances I tried out for this purpose an optical pyrometer.