sulfur to 40 or 50 per cent. gave a slower release of nicotine and decreased its efficiency.

E. R. DE ONG

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SCIENCE AND INDUSTRY

IN his speech at the annual dinner of the American Philosophical Society, Professor Lawrence J. Henderson congratulated the society upon the fact that it is not allied and almost in partnership with industry and business, but that it adheres to truth for its own sake and feels no need to advertise its wares and thereby cheapen them.

While no true scientists would ever have other than the *very highest respect* for those who pursue truth *simply* for the sake of truth, they will have *at least equal respect* for those who not only pursue truth for its own sake, but who are also keen to apply the results of their researches for the benefit of mankind, whether it be in the fields of medicine, chemistry, physics or other branches.

On the very page (477) whereon is printed Professor Henderson's address is the conclusion of a paper by Dr. A. S. Hitchcock, who states:

> Finally, I believe strongly that scientists as a class should carry their scientific attitude into the realm of affairs outside the world of science.

JEROME ALEXANDER

THE ARGENTINE WEATHER SERVICE

A FEELING of justice to others leads me to call attention to a mistake by Dr. Harvey W. Wiley in SCIENCE of May 9, 1924, p. 423, where he says of Professor Frank H. Bigelow, "He accepted a call from Argentina to organize the weather service of that country."

The weather service of Argentina was organized by Dr. Benjamin Gould in 1872. In 1876 Mr. Walter G. Davis became director and built the service up from small beginnings to one equaling if not excelling in most ways the meteorological organizations of Europe and North America. He retired in 1915 after 39 years of service and the directorship was assumed by George O. Wiggin.

Under Mr. Wiggin the Argentine Service began forecasting the weather from solar data, using more especially the solar heat measurements of the Smithsonian Institution, and now has a solar observatory of its own fully equipped and manned. It thus becomes one of the leaders of the world in this line.

Bigelow was invited to Argentina by Mr. Davis and his work was scientific research and the application of mathematics to meteorology and not administration.

H. H. CLAYTON

CANTON, MASS.

May 28, 1924.

SCIENTIFIC BOOKS

Chronologia Medica. A Handlist of Persons, Periods and Events in the History of Medicine. By SIR D'ARCY POWER and C. J. S. THOMPSON, New York, Paul B. Hoeber, IV, 278 pages, 84 portraits, $3.50.

THE name of Sir D'Arcy Power, one of the most estimable and worthy of living physicians, is a guarantee for the commendable intention of this book. If we venture to point out sundry slips and blunders in its execution, it is in the hope and belief that "corrective action," in the military sense, will make the second edition what it has every right to be, *viz.*, a reliable as well as useful manual for the student, practitioner and medical librarian. The idea of a chronologic panorama of the progress of medicine is not a new one; indeed, from the eighteenth century onward, medical chronologies of varying merit have been prepared and published at intervals by Sprengel, Choulant, Isensee, Pagel, Aschoff and others. In most of these, the contemporaneous happenings in secular and scientific history are printed, flush with each medical item, across two or more folded pages, necessitating a large format. The present arrangement is tandem, making a compact, handy *vade mecum,* confined to medical items alone. As the writers intimate, a medical chronology is but the skeleton or scaffolding of medical history, whence, in order to "clothe the skeleton" and give a "semblance of vitality" to dry lists of dates, many of the items have been set off by explanatory paragraphs. The authors are of opinion that dates help to fix the outstanding events and personalities of medical history in the mind of the student, at the same time reminding us that, in the earlier periods, such dates can be only approximations at best.

The chronology begins with the Assyro-Babylonian God Ea or Oannes (*circa* 5000 B. C.), who heads a list of medical divinities of Mesopotamia, Egypt, India, Persia, Greece and Rome. The chronology, as such, begins to assume practical shape with Greek medicine on page 13. The first thing noticeable in these earlier pages is that not all the gods and physicians listed are of essential importance, so that this part of the work is a bit cluttered up with those "unfamiliar names" which, in the dictum of Coleridge, "are non-conductors, stopping all interest." The unsophisticated student or the hard-worked doctor, looking for "values" in ancient medicine, will derive small consolation from such shadowy meaningless personalities as Esmun, "son of Synyk," Nenekhsekhmel, Wa T'o and Hua T'o, Syennis the Cypriote, Numenios of Herakleia, "who wrote a poem on fishing," or Uranius, "more famous for his conceit than his medical skill." Toward the later periods, the selection of significant names is almost beyond re-

proach, but such names are invariably allocated, in the chronologic scheme, to dates of birth rather than to dates of achievement, with the fortunate exception of physicians of whom only the period in which they flourished is known. The very purpose of the chronology is defeated when we find Vesalius associated with 1514, the date of his birth, instead of 1543, the date of the *Fabrica,* or McDowell thrown into the eighteenth century (1771), when the whole interest of his life centers around his first ovariotomy (1809). We should not, however, quarrel with his arrangement were it possible to make it consistent throughout, but the orderly sequence of dates is frequently dislocated by such unaccountable entries as 1285 (top of page 62) or 1300 (near end of page 63). But it is in the actual spelling of names, notably inconsistencies in the rendering of names of men of similar nationality, that this attractive handbook stands mostly in need of revision. There is, as Victor Hugo said, a definite *"science des noms"* and the correct spelling of these, whether by poet, historian, bibliographer or chronologist, is coeval in importance with the effective use of significant names in verse or scientific prose. To misspell a well-known name renders the culprit liable to the challenge of Milton's Archangel to Satan: "Not to know *me* argues yourself unknown." In this regard the undersigned was once taken to task rather testily by a physiologist who excelled in another speciality, common to us all, namely, the proper spelling of one's own name.

In the chronology before us, such obvious slips as Ellil (p. 3), plague of Antonius (39), Guilelmo (64), Simon de Corco (64), Brunschweig (68), Mark Antonio (69), Heironymus Mercurialis (95), Merchettis (122), Leeuwenhoeck (126), le Blonde (153), Salvatore de Kenyia for S. De Renzi (202), Fiorravanti (263), and Gitolamo (263) may be mercifully charged up to printer's devil or proofreader. But we have in the same book such inconsistencies as Peter of Abano, Petrus ab Argelata and Pietro Andrea Mattioli, Nicholaus the Salernitan and Nicholas Prepositi (55). If it seems advisable to employ such Italianate forms as Salvino degli Armati or Luigi Rolando for Italians, then why such bizarre combinations as Alexander Benedetti (70), François Valleriola (83), Gabriele Falloppius (93), Constantine Varolio (100), Laurence Bellini (131), John Maria Lancisi (137), Andrew Verga (211) and Philip Pacini (212)? On p. 216, Karl Ludwig becomes Charles William Ludwig and the same carelessness is responsible for "Gasper Bauhine" (104), "Johann [Jean] Riolan" (109), "John Laurance Gasser" (157), "Mara Marat" (169) and "Peter Paul Broca" (222). The work terminates with useful chronologies of drugs and of foundations of universities. The list of drugs (245) culminates in two pyramidal absurdities, *viz.,* "d hyoscyaminé d' camphorsulphonate" and "d' hyoscyine hydrobromide."

It may be noted in passing that George Miller Sternberg was in no sense an epidemiologist, nor was Benjamin Franklin a physician, nor Alexander Kovalevsky a morphologist. On p. 30, it is not clear whether Poseidonius or Zopyrus "wrote on the bubonic or true plague." In a compact handbook, such loose statements as the following surely need reconsideration:

> He based his Methodism upon Epicureanism and so combated mysticism [p. 37].
>
> He was one of the fine flowers of the Eastern Empire when the Roman influence in the West was reverting to barbarism [p. 42].
>
> The teaching was considered to be subversive and led to a prolonged controversy [p. 73].

Excellent as are the portraits, it would be no sin of omission to drop out the caricatures of such great men as Pythagoras (14), Aretaeus (32) and Dioscorides (33), and no admirer of William Harvey can credit the atrabilious presentment on page 109. For practical reference purposes, the bothersome unscientific whim of printing pagination figures at the bottom of the page should be discarded in favor of the ordinary labor-saving practise. Nothing is scientific that leads to waste motion or dissipation of energy.

Apart from these defects, the handsome printing and format are what we have come to expect from the publisher (Hoeber), who will add to his reputation for artistic printing and business enterprise, if he will acquire a competent proofreader.

F. H. GARRISON

MANILA, P. I.

LABORATORY APPARATUS AND METHODS

AN APPARATUS FOR THE STUDY OF MICROORGANISMS IN CULTURE SOLUTIONS UNDER CONSTANT HYDROGEN ION CONCENTRATIONS

STUDIES in the changes produced by microorganisms in the hydrogen ion concentration of their culture medium have been made by a number of investigators in many different ways. The general method which has been followed, so far, consists in growing the microorganisms in some culture medium for different lengths of time and observing the changes produced therein. In the majority of cases, such cultures after being examined once were discarded, because of the danger of contamination; although in a few cases they may have been ex-