extant anthropoids, orang, gibbon, gorilla and chimpanzee are intended." He proceeds to cite Duckworth to prove that this is an error, and concludes, so far as one can judge of his meaning, that man and the anthropoids are "not genetically related"—an amazing *non sequitur*.

One may parallel his argument in some such form as this: The existing Nordic peoples are currently asserted to be descendants of primitive races of man. The evident implication is that the extant primitive races, negroes, Australians, Red Indians, and Polynesians are intended. But Professor Ripley has recently shown that none of these races, constituted as they now are, figured in the ancestral history of the Nordic race. This may relieve our anxieties lest we might be descended from savages. While we do not know as much about such creatures as we might, it is perfectly clear that there is nothing to the absurd tradition that we Nordics are descended from them or they from us. It appears to be a sound principle that groups showing inverse developments are not genetically related, and it is well known that the Nordics are unusually light-colored while the savage races are remarkably dark; that the high and straight nose of the Nordic and his blue eyes are not to be found in these so-called inferior races of mankind; while most of them display thick lips which do not appear in the Nordic race.

And so on—but this surely is a sufficient *reductio ad absurdum*. Who believes that the human race is descended from the *existing* anthropoid apes? Who ever did that knew anything about it? How could it be so? How could prehistoric human beings be descended from anthropoids still living, unless, like Rider Haggard's "She," they were endowed with eternal life to outlive their descendants? Surely the writer can not but know that the current assertion means and can mean only that man is descended from the same ancestral stock as the anthropoid apes. What that ancestral stock was like, and how far and in what directions its living descendants have departed from it, is the problem which the "scientists" (whom he puts in "quotes" apparently intended in some obscure derogatory sense) are trying to find out, by the inferential evidence of anatomy, physiology, and kindred sciences, and by the direct but as yet scanty evidence of paleontology and archeology.

The final paragraph opens with a curious sentence which I quote:

> Whether "scientists" are entitled to believe what they please or are to be guided by observations and verifications is perhaps an open question.

Possibly I am mistaken and Mr. Curtis means by "scientists" the followers of Mrs. Eddy. I don't know their principles very well, but very possibly they do consider themselves entitled to "believe what they please" irrespective of evidence other than the assertions of "Science and Health." But surely no scientific man—without quotes—thinks himself entitled to believe anything regarding science save upon the evidence of observations and conclusions made and verified by himself and others. Nor does anybody else. The attitude is not peculiar to science. It is the ordinary man's attitude towards the common world about us; and science has no other attitude than that.

It is difficult to see in this letter anything save an attempt to discredit theories which the writer, without knowing much about them, does not wish to believe. I can hardly suppose that many readers of Science will take the argument seriously, in spite of a not inconsiderable dialectic skill. But however appropriate in some theological journal it appears somewhat in the category of "eccentric literature" in its present surroundings.

W. D. Matthew

SCIENTIFIC BOOKS

Bibliography of William Henry Welch, M.D., LL.D., 1875–1917. Prepared by Walter C. Burket, M.D., with foreword by Henry M. Hurd, M.D. Baltimore, The Johns Hopkins Press. 47 pp. 4°.

This is a notable contribution to medical bibliography, in the special sense of the term,

which implies an exhaustive and accurate index of all the books and periodical papers under a given subject or author, as distinguished from the bibliophilic sense, in which a book, incunabula or manuscript is described, like an object in natural history, in such a complete and unmistakable manner that its identification is always possible from the description. The scattered scientific papers and the varied public activities of Professor Welch are here set forth, for the first time, in a strict chronological order, which will be most useful to future medical historians and biographers. No one, for instance, could gain any just conception of the versatile and genial scientific work of Virchow or Weir Mitchell who has not gone over the "Virchow-Bibliographie" of 1901 or the catalogue which Mitchell himself prepared in 1894. As much of the best scientific literature of medicine is buried in the endless files of medical periodicals, medical bibliography, as standardized by Billings and Fletcher, enjoys the status of firearms in the early days of the far West—"sadly missed when badly wanted." The Welch bibliography, as Dr. Hurd tells us in the preface, has required the investigation of years, and is now printed because the interruptions of the present war have prevented the publication of the collective writings. In the first half of Dr. Burket's list (1875–1900), we find the larger scientific contributions of Welch, the great laboratory physician, his early investigations of the pathology of pulmonary œdema (1875), glomerulonephritis (1886), the structure of white thrombi (1887), his Cartwright lectures on the pathology of fever (1888), his discoveries of the staphylococcus which infects the edges of wounds (1891), and (with Nuttall) of the bacillus aerogenes capsulatus (1892), now of immense moment in Europe as the cause of gas infection in gunshot wounds, his synthesis of the many nondescript diseases caused by this bacillus (1900), his experiments (with Flexner) on the effects of injection of diphtheritic toxins (1891–2) and his monographs on thrombosis and embolism (1899). In his later period, Welch has been content to see his pupils carry out investigations inspired by him, so that the latter half of the bibliography, while replete with contributions on purely medical themes, is characterized by those addresses on public occasions in which Welch always acquits himself with the grace and charm of some distingué French academician.

As one who has had latterly to devote much of his time to the public good, Welch, like Dr. Johnson's Mead, has "lived more in the broad sunshine of life than any man." Many of the papers listed in this bibliography are described as "unpublished," which perhaps accounts for the appearance of the bibliography before the actual collected writings. Among, these, it is to be hoped that the many charming extempore talks at the Johns Hopkins Historical Club will be included. On such occasions, Welch, when the humor strikes him, improvises delightfully upon a set theme, like some genial musician of the past. The well-known "Ether Day Address" on "The Influence of Anæsthesia upon Medical Science" (1896) was written out without preparation in a railroad car, as he traveled to Boston, a fair example of his habit of improvisation. The two addresses on the evolution of scientific laboratories (1896) and the interdependence of medicine and science (1907), the latter also written out *en route* for Chicago, are perhaps the most interesting of Welch's contributions to medical history. Here, as everywhere, he has furnished young and old with food for thought, and often with new ideas. Dr. Burket is to be congratulated on the excellence and accuracy of his work, which follows the bibliographic norms set by the Surgeon General's Library. It is a most timely contribution. In the present emergencies, no man has labored more zealously and faithfully for the welfare of his country than William H. Welch.

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SPECIAL ARTICLES

WHAT SUBSTANCE IS THE SOURCE OF THE LIGHT IN THE FIREFLY?

IN at least three groups of luminous animals (fireflies, ostracod crustacea and mollusks),