ciated the fact, or think we have, that there is advantage in facing this issue. We have accordingly provided the means for making it possible in each discipline, including medicine as the study of disease, or pathology, to use the English designation, to bring discipline and person together. He who is interested in anatomy may, and usually does, profess anatomy; he who is interested in physiology may, and usually does, profess physiology; he who is interested in disease may and, if we are to get on with knowledge of it, should profess medicine.

Professor Evans is well aware that medicine is the mother of the sciences. He knows how chemistry, anatomy and physiology all had their inception in the world's general interest in disease. So they began. They grew and soon conquered provinces of their own. That is the meaning of the separate institutes these disciplines now so often possess. But now, although physiology has made itself independent, Professor Evans still harbors fears. He fears to cut the guiding strings of the alma mater, lest physiology lack nourishment. And like many, especially modern, children he fears lest the ancient mother be too feeble intellectually and too powerless, having reared and weaned her children, to be able to continue to order and to develop her own house. But the situation is just this: having learned as it were and indicated to her many offspring how they might best set up houses of their own, medicine is at length free to cultivate her own garden. In America in a tentative and prayerful way, despite many hardships and much misgiving, we in medicine are at work upon our proper domain—proud meanwhile of the children of medicine and when we require it, as naturally we often do, eager for their support. But we want to be so equipped ourselves as to be able to cultivate our own garden. What we mean by this is that the idea is dawning that the study of disease is, or may be, something not necessarily coextensive with practice; that it may be pursued as a phase of disinterested learning. There is in short a difference between the practice of medicine and the academic study of disease just as there is a difference between academic physics and practical engineering. Both interests are essential; both have legitimate human value, though they engage the attention of individuals differently equipped.

Professor Evans believes that "the physician's duty with regard to it [disease] is a threefold one: he must diagnose, prognose and treat." And concerning the "two important principles" of treatment he has this to say concerning the support medicine receives from physiological knowledge:

> One is that the consequential alterations which take place in the course of the disease are of the nature of adaptations which tend to restore the function to normal; these adaptations take the form of increase or diminution of some particular factor, of hypertrophy or atrophy often of some definite organ, always of some function—it is, in fact, the *Vis medicatrix* of the older physicians, the underlying principle of expectant treatment. The other principle is that nearly all positive measures of treatment, including drugs, produce their effects by augmenting or restricting some function or other.

This undoubtedly is one way of regarding the happenings in a diseased body. But may not another one also be urged, one which has indeed been urged by me in the paper to which I have referred. The view which is there taken is that a disease, instead of being merely a quantitative deviation from health, is a collection of new phenomena, a new complex, and is sufficiently different to be regarded as a qualitative change. Whitehead has illuminated this point of difference between quantity and quality when he says that "In the past human life was lived in a bullock cart; in the future it will be lived in an aeroplane; and the change of speed amounts to difference in quality." So it is in disease. And if this is so, whose business is its study so much as it is that of the physician devoted to this pursuit, in our case the university professor of medicine, whose it has always been since there have been university professors, and who brings to its contemplation his undivided interest?

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PRELIMINARY NOTE ON THE LIFE HISTORY OF HYMENOLEPIS CARIOCA

EXPERIMENTS on the life history of *Hymenolepis carioca* have established in a preliminary way that one of the dung beetles, *Aphodius granarius,* serves as an intermediate host. Beetles fed with eggs of this tapeworm developed cysticercoids in the body cavity and tissues, and when such infected beetles were fed to chicks some of these birds showed the presence of *H. carioca* ante mortem and post mortem; control birds under the same conditions but not fed infected beetles remained free from all helminths.

Previous studies in the published literature report the development of this tapeworm in chicks fed wild stable flies presumably naturally infected, but in these experiments larval stages were not found and the evidence that the stable fly is a host is incomplete. The results reported here are important in view of the work based on results from feeding wild insects to chicks kept in fly-proof cages, or attempts to raise chickens free from tapeworms by using screened enclosures, since such small beetles as

Aphodius are capable of passing through a screen that will keep out flies. A complete account of the experiment will be published elsewhere.

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THE WORD CARIBOU

WITH respect to the etymology of the word *caribou* as given by Professor L. B. Walton in SCIENCE of October 12, it may be well to show the aboriginal origin of the term by quoting the late Dr. A. F. Chamberlain's brief article on the subject in the "Handbook of American Indians."[1]

> The word came into English from the French of Canada, in which it is old, Sagard-Théodat using it in 1632. Josselyn has the Quinnipiac form *maccarib* and the synonym *pohano*. The origin of the word is seen in the cognate Micmac *χalibu* and the Passamaquoddy *megal'ip*, the name of this animal in these eastern Algonquian dialects. According to Gatschet (Bull. Free Mus. Sci. and Art, Phila., II, 191, 1900) these words signify "pawer" or "scratcher," the animal being so called from its habit of shoveling the snow with its forelegs to find the food covered by snow. In Micmac *χalibu' mul-χadéget* means "the caribou is scratching or shoveling."

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QUOTATIONS

AWARD OF THE NOBEL PRIZE TO DR. CHARLES NICOLLE

THE recent announcement in the daily press that Dr. Charles Nicolle, director of the Pasteur Institute of Tunis, has been awarded the Nobel prize for medicine for 1928 in recognition of his work on typhus fever will be a source of gratification to all interested in the progress of medicine and to epidemiologists in particular. Dr. Nicolle's researches on the causation and prophylaxis of typhus, which have been carried on for nearly a quarter of a century, were first undertaken in connection with an epidemic which occurred in Tunisia in 1906–9, when he was able to show that the chimpanzee could be infected with the typhus virus by the injection of a small amount of blood from a patient in the acute stage of the disease. Subsequently he found that the lower apes could be similarly infected by inoculation of the blood of the chimpanzee, and that the infection could be transmitted from monkey to monkey by the bites of infected body lice. The demonstration of the louse as the agent in transmitting the disease was of far-reaching importance, and, like Dr. Nicolle's other investigations, it was confirmed by workers in the United States and in other countries. Dr. Nicolle also found that the guinea-pig could be successfully inoculated by injection of typhus blood. Although this animal showed no sign of disease as the result of inoculation except by a rise of temperature, it served a useful purpose in forming a storehouse of the virus for laboratory purposes. Of greater practical importance was Dr. Nicolle's discovery that injection of the serum of patients convalescent from typhus was able to confer an immediate though transient immunity to the disease. A similar protective quality in the serum of convalescents he also showed to be present in the case of undulant fever and also in that of measles some years before Degkwitz made the method popular throughout Germany. One of his latest contributions indicates that Dr. Nicolle, in collaboration with Drs. Sparrow and E. Conseil, is conducting experiments on active immunization against typhus whereby a more permanent immunity can be conferred. In addition to his article on typhus written in conjunction with Dr. E. Conseil in the "Nouveau Traité de Médecine" of Roger, Widal and Teissier, Dr. Nicolle is the author of numerous contributions on infectious diseases, including measles, influenza, chancroid and undulant fever.—*The British Medical Journal.*

[1] *Bulletin 30, Bureau of American Ethnology*, pt. 1, p. 206, Washington, 1907.

SCIENTIFIC BOOKS

Astronomy and Cosmogony. By SIR J. H. JEANS. Cambridge University Press, 1928.

THERE are some chapters in modern astrophysics which can hardly be easily digested by a mind trained in a rigorous spirit of classical astronomy and celestial mechanics. It is quite evident that in order to throw light on the enormous amount of astrophysical data accumulated within the last twenty years we have to penetrate mentally into the interiors of the stars and to draw a picture of stellar material, *i.e.*, matter in conditions of enormously high pressure and temperature. In applying here the physical laws and principles deduced and checked in the conditions of our "low pressure and temperature" environment we are certainly using a very dangerous extrapolation, thus violating the policy of the exact sciences. We use mathematical physics—that miraculous star boring and drilling machine—under the tacit assumption that this extrapolation is allowed by the general principle of uniformity and continuity of physical laws in