imperfect senses are incapable of accurately reflecting objective reality, so we are excluded from the possibility of any real knowledge.

For such a philosophical standpoint carried to its logical conclusion, truth and untruth, objective fact and illusion, scientific knowledge and primitive superstition, are all equally valid, and the scientist accepting these views is automatically led to empiricism and pragmatism. With Dewey, he is forced to believe that knowledge is an instrument which depends on our interests and advantages, and he eventually develops a completely cynical approach to his subject. It is especially the great complexity, the enormous number of mutually interconnected processes in living matter, together with the comparative lack of success of medical investigation when superficially compared with the so-called exact sciences—physics, chemistry, and mathematics—which make the medical worker particularly liable to adopt such an attitude.

Thus there has arisen in biology on the one hand a neo-vitalism which claims that the living organism is "unknowable" and that all we can do is lead a despairing "hand-to-mouth" existence of accumulating more and more facts in a strictly empirical manner. On the other hand, the superficial appearance of exactness and logic of the physical sciences has stimulated some medical men to "impose" on medicine the principles and methodology of these sciences, in the mistaken impression, which Prof. Jefferson appears to share, that "the only sciences which have succeeded in producing immediate conviction and durable results are mathematics and those in which mathematics enters to a very great degree." The latter medical workers (among whom we cannot include Prof. Jefferson, in my opinion one of the truly great figures of contemporary medicine) seek to explain biological phenomena as mere extrapolations of physico-chemical phenomena, and mechanically attempt to reduce biology to physical, chemical, and mathematical terms. Thus we constantly see, for example, medical workers attempting to obtain from statistical assessments information which such procedures are incapable of producing. They forget that from statistics we are unable, by means of them alone, to come to any other than purely quantitative conclusions; that for conclusions which involve qualities other additional methods of investigation and reason are necessary. Unfortunately we have not sufficient space to illustrate further the exact manner in which the philosophical conceptions described above operate in present-day medicine, but we may profitably examine the epistemological basis of these conceptions.

Views such as those held by the phenomenologists and the pragmatists have as their basis the isolation and exaggeration of but one aspect of human knowledge—the fact that it is limited. Knowledge is limited and relative because it is an "endless approximation to external reality," and because every theory depends on the limits set by the historical experience of social practice. Knowledge advances in a contradictory manner, but scientific experience, handed down from one generation to another, is each time enriched by new scientific discoveries and is all the time increasing the possibility of adequate knowledge of objective reality. By exaggerating and isolating one aspect of knowledge—its limitations, its relative-ness—the phenomenologists and pragmatists distort it and produce a sterile and despairing empiricism.

In fact, biological phenomena, sociological principles, etc., are no less real and "exact" because they cannot be expressed in terms of physics or mathematics. Biology, however, has considerably lagged behind the development of the latter sciences because, by reason of its subservience to outmoded philosophical systems, it has remained in the stage of the empirical collection of facts, a stage which physics, for example, has long since outstripped. All sciences proceed through this empirical stage in their development, but in order to make further advances they have also to construct fundamental principles, generalizations derived from the facts, which give to the science an operable theoretical basis. As Walshe has said, the season of synthesis of the innumerable available facts of medicine is long overdue, and one may add to this that this season will not appear until medicine rids itself of scientific pragmatism.

One last point: I strongly disagree with Prof. Jefferson's comparison between that giant of philosophy, Bacon, and Wilfred Trotter. The latter, whose philosophical stature has in my opinion been greatly exaggerated by medical men, has not written anything of which I am aware which can be compared either in originality of thought, lucidity of exposition, or logical development with Bacon's philosophical works. His eminence as a medical philosopher is mainly derived from "the flatness of the surrounding country."—I am, etc.,

London, S.W.3.

A. MCPHERSON.

Pyopericardium

SIR.—Lieut.-Col. A. L. Wingfield (March 6, p. 451) concludes his interesting report of a case of pyopericardium treated with apparent success by aspiration and penicillin instillation by saying: "The final outcome remains conjectural, but eventual pericardial symphysis appears inevitable, although there are no signs of it at present."

This statement helps to perpetuate the great confusion of thought concerning chronic pericardial disease, for although it must be agreed that diffuse adherence (symplysis) between the two layers of serous pericardium is probably an inevitable sequel to recovery from a pyopericardium, such adhesions do not produce symptoms or signs during life.

I think it is probable that the author means that there are no signs of chronic constrictive pericarditis (Pick's syndrome), which is the best definition employed to describe thickening and loss of elasticity of the pericardium with consequent limitation of diastolic filling of the heart (chronic cardiac tamponade). Tuberculous infection, usually healed, is thought to be the most common cause of this syndrome, but there may well be a risk of its occurrence following suppurative pericarditis treated successfully by penicillin without drainage, although so far as I know it has not yet been reported. Further experience should decide this point: meanwhile it would appear unwise to dogmatize on the future of the operation of pericardiectomy.

"Adherent pericardium" is still used indiscriminately to describe (1) simple adhesions between the pericardial layers which do not cause symptoms or signs, (2) chronic constrictive pericarditis which causes chronic cardiac tamponade, and (3) mediastino-pericarditis (adhesions between the pericardium and the chest wall) which is supposed to cause massive enlargement of the heart but is probably not an entity at all.

It isn't fair on the student.—I am, etc.,

London, W.1.

OSWALD S. TUBBS.

The Colonial Medical Service in Aden

SIR.—Of late much attention has been focused on health services. Having very recently returned from Aden, where we served in the R.A.F.V.R., we consider that a little open criticism of the backward conditions under which the Colonial Medical Service has to work in that colony should be laid before your readers. We do not desire that this should be interpreted as a deterrent to any doctors intending to join that service, but rather that it should stimulate rapid action in the matter of improvement or at the very least acquaint your readers with undoubted facts with which the Colonial Office cannot but be acquainted.

For a period of approximately six months we acted as surgeon and anaesthetist respectively at the Civil Hospital in Aden when that hospital possessed neither; and for the whole of our tour in Aden we were associated in many ways with the Colonial organization from our respective positions as officers in charge of the surgical and medical divisions at the R.A.F. Hospital. Let it be stated here that we do not gainsay our fortune in being allowed such access to medicine nor the friendly and co-operative way in which we were treated by all the staff at the Civil Hospital, who, working under dreadful conditions with difficult patients, did sterling work. We merely criticize existing inadequacies.

The population of Aden is in the neighbourhood of 80,000, a great increase having taken place during the recent war. Hospital accommodation was hopelessly small—so much so that even the acceptance of only emergencies necessitated patients being on the floor between beds. The existing "wards" were outdated, unequipped, and impossible to keep clean; one lavatory basin sufficed for roughly 70 patients. Lack of accommodation, inadequacies of design, and out-of-date equipment meant that even with the best will in the world the overworked staff could not keep the place or the patients clean. Dirt and flies abounded—the latter despite the fact that in other parts of Aden with similar surrounds flies were considerably less common than in this country. There were no out-patient departments worthy of the name, and the majority of surgical out-patients were seen outside and dealt with as well as such a situation permitted. When it was necessary to examine them more thoroughly they had to be laid on the operating table in the minor theatre, dirt and all. Patients waited in the sun. The main operating theatre was just adequate in size, but it was not until a strong letter was written by one of us that air-conditioning was instituted. Previously two fans over the table circulated the air, while an open window overlooking the dirty active town acted as a ventilator.