

the existence of perfectly free competition, and trace out what tends to happen in some particular case on this supposition. This is the form which our *investigations* must necessarily take; but it is one which may be discarded as soon as we have reached definite *results in regard to actual society*. The statement of what tends to happen under the conditions of free competition affords an admirable instrument of scientific investigation for modern society; but economists sometimes seem to insist that it is also a body of established truth about human society in general. It was when the methods of economic analysis were thus hypostatized into a body of dogmatic truth that Comte felt justified in condemning the 'pretended science' as merely 'metaphysical,' or, as I should prefer to say, 'transcendent,' since it parts company with actual experience and becomes a body of empty and formal statements. That economic truths would hold good in a planet where there was no wealth is an ingenious speculation, even if it does appear somewhat 'trivial';<sup>1</sup> but a truth which is so empty that it applies everywhere, can carry us but a little way in the explanation of actual phenomena anywhere. When we discuss the definitions of economic terms, not as the means of embodying new knowledge and improving our instrument of investigation, but as a mode of stating universal truths which have a mysterious 'reality' altogether apart from mundane phenomena, we are in danger of falling back into the 'metaphysical' stage of intellectual life in which scholastic science flourished.

Perhaps one might summarise this criticism of Comte's attitude towards economic science by quoting a favourite phrase of Professor Maurice's, and saying that he was right in what he asserted and wrong in what he denied. If we cherish a hope for the further progress of special science, and especially for advance in economic study, we shall wish to investigate the whole range of economic phenomena, and to attach full importance to the sociological conditions which underlie them; but we shall also welcome additional truth, when embodied in better definitions, as an improvement in our instruments for investigating the phenomena of modern life.

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*On the Advisability of assigning Marks for Bodily Efficiency in the Examination of Candidates for the Public Services.* By FRANCIS GALTON, F.R.S.

[The following communications to the Anthropological Section were ordered by the General Committee of the BRITISH ASSOCIATION, to be printed in extenso among the Reports.]

AN important paragraph occurs in the recently issued report of H.M. Civil Service Commissioners (xxxiii. p. 15). It runs as follows:—

'It was thought advisable, some years ago, to consider the possibility of making physical qualifications an element in the competitions for entrance into Woolwich and Sandhurst, and a joint Committee of this Department and the War Office drew up a scheme of competition which seemed easy of application. Circumstances caused it to be laid aside at the time, but on our recently bringing it again under the notice of the

<sup>1</sup> Marshall, *Present Position*, 24.

War Office we were informed that the military authorities did not think it necessary to introduce such a competition, being completely satisfied with the physique of the young men who came to them through our examinations. At the same time we may state that should any department in the public service be desirous of testing the physical qualifications of its officers more severely than at present, we anticipate that there would be no more difficulty in determining the relative capacities of the individual candidates in this respect than is experienced in the literary examination. Moreover, encouragement would be given generally to candidates to maintain a good state of health while preparing for the literary examinations, and any tendency to over-pressure would thereby be diminished.'

It is not easy to imagine a topic more suitable for the notice of the Anthropological Section than that which is suggested by these remarks. Anthropologists peculiarly concern themselves with the practice of human measurements, and with determining the most appropriate ways of discussing them. They occupy themselves with defining the bodily efficiency of individuals and of races, and in devising tests that shall give warning whenever growth and development are not proceeding normally. The curious and hardly accountable disregard of bodily efficiency in those examinations through which youths are selected to fill posts in which exceptional bodily gifts happen to be peculiarly desirable, must strike the attention of anthropologists with especial force, and they of all persons are best able to appreciate how much is sacrificed by its neglect.

What has just been said has no reference whatever to the pass-examinations now made by medical men in order to eliminate candidates who are absolutely unfit. The necessity for such pass-examinations is obvious. The reform now asked for is to give additional marks to those youths who, being fit for service, are at the same time exceptionally well fit so far as bodily efficiency is concerned.

If the opinion of the military authorities quoted above be interpreted to mean that literary examinations are indirect tests of bodily efficiency, that view can be now shown to be erroneous. There has been a vast amount of lax assertion in reference to this matter, some having said that high intellect is often associated with a stunted and weakly frame, and others having pointed to instances in which high mental and high physical powers were connected; but it is only very recently that we have secured a firm and sufficiently large basis of facts for trustworthy conclusions. These are the various measures of Cambridge students made during the last two or three years, and discussed by Dr. Venn, F.R.S., in an excellent memoir recently published in the *Journal of the Anthropological Institute*. The number of those who were measured is 1,905, and they were divided into three classes—(1) high honour men, (2) low honour men, and (3) poll men (that is to say, those who did not compete for honours but took an ordinary pass degree). The result was that the physical efficiency of the three classes proved to be almost exactly the same, except that there appeared to be a slight deficiency in eyesight among the high honour men. Otherwise they were alike throughout; alike in their average bodily efficiency, and alike in the frequency with which different degrees of bodily efficiency were distributed among them. Therefore the fact that a man had succeeded in a literary examination does not give the slightest clue to the character of his physical powers, and an opinion that the present literary examinations are indirect tests of bodily efficiency must be considered erroneous.

The intellectual differences are usually small between the candidates who are placed, according to the present literary examinations, near to the dividing line between success and failure. But their physical differences are, as we have just seen, as great as among an equal number of the other candidates taken at random. It seems then to be most reasonable whenever two candidates are almost on a par intellectually, though one is far superior physically, that the latter should be preferred. This is practically all I propose. I advocate no more at present than the introduction of new marks on a very moderate scale, sufficient to save from failure a few very vigorous candidates for the Army, Navy, Indian Civil Service, and certain other Government appointments in which high bodily powers are of service. I would give the places to them that would be occupied under the present system by men who are far their inferiors physically, and very little their superiors intellectually. I am sure that every successful employer of men would assign at least as much weight as this to bodily efficiency, even among the highest class of those whom he employs, and that Government appointments would be still better adjudged than they now are if considerations of high bodily efficiency were taken into some account.

It is scarcely necessary to press my own views in detail as to the particular tests most easily available, several of which I actually employ at my own laboratory at South Kensington. They would include the well-known measures of strength, breathing capacity, agility or promptness, keenness of eyesight, and of hearing. In a subsequent short paper I propose briefly to discuss certain general principles that appear to me to underlie the construction of consistent scales of marks. It is sufficient now to say that I have not the least doubt as to the feasibility of constructing off-hand a valuable system of examination for immediate use, though it would be open to great improvement through experience. I would refer to the statement already quoted from the Report of the Civil Service Commissioners, in which they themselves, being experts in the general art of examination, also foresee no difficulty. The higher education of the country is now so pervaded by the spirit of athleticism, that it is not to be feared for a moment that any system of examination for bodily efficiency would become pedantic or fanciful. Many of the examiners in the present literary subjects are themselves past athletes. If the principle of considering physical merit in competitive examinations for Government appointments be once conceded, I am sure that we may safely trust the authorities to frame appropriate tests and methods. It is but reasonable to assume that they would proceed very cautiously at first, and gradually extend the system to its legitimate limit, whatever that may be, with increasing thoroughness.

My motive for bringing this topic before the British Association is the hope of obtaining a public recognition of its importance. Judging from the results of numerous private inquiries, I entertain no doubt that if the reasonableness and feasibility of the proposed reform were widely understood, a loud demand would arise from many sides, without arousing any opposition worth regarding; for the introduction of so salutary a measure. It would certainly be grateful to many parents who now lament the exclusively bookish character of the examinations, and are wont to protest against a system that gives no better chance to their own vigorous children of entering professions where bodily vigour is of high importance, than if they had been physically only *just not unfit* to receive an appointment.