honours or award system, for which members could easily devise, if they wished, some substitute arrangement.

These thoughts are prompted by the annual, and somewhat gratuitous, reminder by the Council that it 'strongly deprecates organised canvassing' on behalf of candidates 'who understand the attitude and one which may well inhibit good representatives from coming forward, since it effectively denies them means of making known their views. Yet without some inflow of independent members there is considerable danger of the Council becoming progressively more and more remote in its views from the membership as a whole.

Perhaps also, the time is ripe for an open debate on the composition and structure of the Council. For a steering body, it seems heavy with past-presidents and perhaps bogged down also with too long a tail of area, board and division representatives. This, of the other hand, has been very poorly represented. Maybe we need to break the string up into a 'council of elder brethren' (with a kind of 'House of Lords' function), a vigorous council and an annual congress that can exchange on policy matters. If it should turn out that what members finally regard as desirable is as the IEE constitution or the Charter, these are things which we can talk about having changed.

There is already evidence of a rift between members and the Council (or its spokesmen) on the subject of protection for engineers in their employment. An official view seems to be developing that an engineer, or scientist, can act in a highly objective professional manner even when his career, or economy, is threatened, and that there is a valid field therefore for the IEE to intervene using powers given in its byelaws that members' other problems can be brushed aside. In fact, however, such a view is contrary both to shrewd observation and to justice. Lord Snow, in his address,* reminds us: 'Various kinds of fear distort scientific judgment, just as they do other judgments.' And to this back up, current neuropsychological research is showing that, in any case, reason and emotion cannot be separated.†

Thus the lofty detachment of the IEE from the emotional problems of the engineer is a misguided one, and one that may be doing serious damage to the profession. In particular, it is likely that at least some of the recent spectacular failures in engineering design, which have brought the image of the profession to its lowest ebb, have had their origins in the work of engineers, if they had felt free to act as they thought fit, would never have accepted. It does no service to the profession or to the United Kingdom to close this situation to continue.

Closely associated with this situation is the question of remuneration. All history teaches us that no amount of beneficence by anyone will entitle him to more than a pauper's grave unless he is able to insist on a fair return. And to be able to do this, he must, in general, join in with his kind; otherwise he is simply replaced. Society, as we know it, expects this, and for engineers in a fact of grandeur to disdain it is simply to have no confidence is found, by more accurate measurement for example, to be misplaced, the existing theory is replaced by a more accurate one (that of Newton or Einstein). Thus science tentatively answers the question 'how', but the question 'why' leads apparently to an infinite regression of which science, ex hypothesis, will never reach the first term. The heyday of the philosophico, as opposed to the scientific, approach to natural phenomena (including dreams!) was from the 15th to the 19th century, when the thoughts and beliefs of the majority of people in Europe were dominated by religious dogmas, none of which rested on observations of the real world, animate or inanimate, and most of which have now been swept into limbo by the advance of science.

Science is based on destroying illusions, and in so doing has made our material existence far happier and our opportunities for self development far more numerous than in any previous century. To maintain its integrity, the enthusiasm of research should not, and does not, have the slightest respect (or disrespect!) for humanity's superstitions, since the results of research are neutral. How mankind uses these results depends on the extent to which one branch of science—psychology—is successful in analysing human motivation, and thereby directing our activities on the national and international scene to ends which involve co-operation rather than competition, by the peaceful rather than destruction.—Yours faithfully,

J. H. WALKER
AEI Ltd., PO Box 1, Bhopal (MP), India 27th June 1969

The engineer in society

Dear Sir—As my guests and I went round the exhibits at the IEE Conversazione this year, we all became extremely conscious that very few of the staff on the stands could describe the nature and purpose of their equipment in terms which non-technical people could understand. I believe this is a widespread inability among engineers to communicate with laymen, and that this is a major obstacle to improving the status of the engineer.

We should be giving much more thought to making good this deficiency, which is not tackled in our education or training.—Yours faithfully,

R. C. WINTON
224 Creighton Avenue
East Finchley, London N2
29th June 1969

Weights and measures

Dear Sir—The recent definition of SI units (May 1969 E & P, p. 164) strongly suggests that the kilogramme is the unit of mass (and not of weight). In view of this, and the statement by Spencer that weight is a concept which should never have been thought of, would it not be more consistent if the corresponding change could be accepted in the title of the Conférence Générale des Poids et Mesures (CGPM)? I would suggest simple omission of the words 'Poids et' ('weights and'), since 'masses' (as measurements) is already broad enough to include mass.—Yours faithfully,

K. J. YOUNG
Crowthorne, Berks. RG11 1E3
7th June 1969

Science and philosophy

Dear Sir—Under the heading 'The parting of the ways', you criticise scientists for ignoring the question 'why the universe began at all' and you deplore 'the departure of science from philosophic considerations' (April 1969 E & P, p. 148). I believe that this reflects a widespread attitude and one which may well inhibit engineers underlines the urgency of the problem. The fact that things have gone so far emphasises the need to look closely at the future direction of the IEE.

Of course there are dangers in this: we have sometimes tendency to develop anti-social tendencies and exploit their power. However, it would be nice to think that engineers, with their high social purpose and knowledge of control theory, could find the right balance and show others also how to do so.—Yours faithfully,

IAN M. ROSS
100 Broadway, Letchworth, Herts.
31st May 1969

Therapeutic electricity

Dear Sir—B. J. Hammond's article (June 1969 E & P, p. 190) was extremely interesting, as I experienced electroconvulsive therapy (e.c.t.) in 1964. In my case it was successful, but with many patients suffering from mental illness (now termed 'psychiatric disorder') under the welfare state, as the Department of Health and Social Security (D.H.S.S) (and its offspring the UK Ministry of Social Security) e.c.t. is not always the answer. I feel that the fact that e.c.t. is only 50% successful should be emphasised. Psychiatric treatment is a function of the individual's particular metabolism, and, to date, there is no scientific (or medical) method of establishing whether a patient should be treated by drugs or by e.c.t. Statistics show quite clearly that psychiatrists know it, expects this, and for engineers in economy, is threatened, and that there is a valid field therefore for the IEE to intervene using powers given in its byelaws that members' other problems can be brushed aside. In fact, however, such a view is contrary both to shrewd observation and to justice. Lord Snow, in his address,* reminds us: 'Various kinds of fear distort scientific judgment, just as they do other judgments.' And to this back up, current neuropsychological research is showing that, in any case, reason and emotion cannot be separated.†

Thus the lofty detachment of the IEE from the emotional problems of the engineer is a misguided one, and one that may be doing serious damage to the profession. Thus science tentatively answers the question 'how', but the question 'why' leads apparently to an infinite regression of which science, ex hypothesis, will never reach the first term. The heyday of the philosophico, as opposed to the scientific, approach to natural phenomena (including dreams!) was from the 15th to the 19th century, when the thoughts and beliefs of the majority of people in Europe were dominated by religious dogmas, none of which rested on observations of the real world, animate or inanimate, and most of which have now been swept into limbo by the advance of science.

Science is based on destroying illusions, and in so doing has made our material existence far happier and our opportunities for self development far more numerous than in any previous century. To maintain its integrity, the enthusiasm of research should not, and does not, have the slightest respect (or disrespect!) for humanity's superstitions, since the results of research are neutral. How mankind uses these results depends on the extent to which one branch of science—psychology—is successful in analysing human motivation, and thereby directing our activities on the national and international scene to ends which involve co-operation rather than competition, by the peaceful rather than destruction.—Yours faithfully,

J. H. WALKER
AEI Ltd., PO Box 1, Bhopal (MP), India 27th June 1969

Using the correct fuse

Dear Sir—I read the original letter on this subject (April 1969 E & P, p. 137) and thought that it was a pity that engineers do not understand people. In the case cited by P. Thurlow (July 1969 E & P, p. 295) where the lady assistant was quite right from her point of view, and I wonder if Mr. Thurlow stopped and thought about it. If engineers on design work understood people, there would not be so many blunders in design. I have been in engineering since my boyhood days, mostly on design, and I am now 73. Ordinary people think only about the continuum of service from the electrical apparatus, and to them a fault is an accident or greater risk. They also think that engineers should proportion everything properly.—Yours faithfully,

G. L. PAYNE
Flat 3, 9 Enkel Street, London N7
4th July 1969

* GRASATAYN, E.: 'Towards a better understanding of human emotion', Impact of Science on Society, July 1968


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