LETTERS TO THE EDITORS

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IN THE PRESENT CIRCUMSTANCES, PROOFS OF "LETTERS" WILL NOT BE SUBMITTED TO CORRESPONDENTS OUTSIDE GREAT BRITAIN.

Planning the Peace

THE excellent series of articles which have been published in NATURE on the applications of science to social problems encourages me to suggest that specific efforts should be made for planning the peace. It may seem to be an inappropriate time to embark upon this project. I have no wish to distract the attention of those who are actively engaged in the prosecution of the War; but there are others who, by reason of age, physical infirmity, and so on, are doomed to relative inaction. Many such, by virtue of special training, experience, good judgment, and brilliant intellect, might well be encouraged to collaborate in drawing up some indications of the lines which should be followed in the light of their knowledge and appreciation of the grievous errors of the past. At the present time, feelings run high, and the irrational impulses of mob psychology are no sound guide to either the conduct of the War or the making of the peace. It is all the more desirable, therefore, that the restraining influence of level-headed advisers should be marshalled in the interests of sanity.

Presuming that Great Britain emerges successful from the contest, the War will be won; for the demagogic autocracies of Germany and Italy contain within them the seeds of their own destruction, and there can be little doubt that public opinion in the Americas is gradually becoming convinced that the security of the States and the survival of liberty depend upon the victory of Great Britain. It has indeed long been the opinion of many that the survival of civilization, that is, of a corporate life founded on a basis of mutual goodwill, freedom of thought, and Christian ethics, depends upon the co-operation of the English-speaking peoples.

The problems to be considered are of the greatest variety and complexity. The effects of the Treaty of Versailles and the drift into war have demonstrated the blindness of our statesmen to the most elementary facts of individual and social psychology. The psychologist with a biological training is best fitted to explain the causes of war, of which the most fundamental are unhappiness and a sense of grievance. There can be no doubt that there will be a profound change in economic conditions after the War. We may look forward with satisfaction to the abolition of gross disparities in individual incomes; but the levelling process demands the most minute care to avoid the dangers of a communistic revolution. The recent admirable broadcast by the Right Hon. R. A. Butler exemplifies the help which we may expect to receive from the historian and the diplomatist.

Probably the best method of attacking the problem at the present time would be by a series of articles by selected authorities to be published in NATURE or elsewhere.

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Identification and Determination of Aromatic Compounds in Mineral Oils

OUT of the many methods suggested[1] for the quantitative determination of the total of aromatic constituents in mineral oils, none is suitable for giving information about the nature of these constituents. In recent systematic research[2] on the aromatization of aliphatic compounds, the method of side-chain oxidation has been used, which, however, is only of value if the number of carbon atoms in the side-chains is known and is not applicable to the fundamental hydrocarbons like anthracene, phenanthrene, naphthalene or benzene.

Ultra-violet spectrography provides an easy method of identifying and determining quantitatively aromatic hydrocarbons in a mixture with substances which show no selective absorption at all, or at least not in the same region as the aromatic hydrocarbons. For the following fundamental hydrocarbons, absorption bands exist which are characteristic, and the intensity of which is directly proportional to the concentration of the hydrocarbons: benzene, toluene, xylene, naphthalene, phenanthrene, anthracene. The bands to be used for their identification are listed in Table 1. The method may be only of limited value in two instances: dialkylbenzenes with identical positions of the alkyl groups but substituted with different alkyls may be indistinguishable; and alkylated polycyclics may exhibit spectra practically identical with those of the parent hydrocarbons. Apart from this limitation, we have been able to identify all the absorption bands observed for those fractions of Iraq petroleum and of a shale-oil of Palestinian origin which distil up to 200° at 0·1 mm. pressure with the bands of the above six hydrocarbons, so that no other constituents of aromatic character are present.

For the quantitative determination of these hydrocarbons, the intensity of the characteristic absorption bands for a given sample is compared, visually or by means of a microphotometer, with the intensity of the same bands for the standard substances in known concentrations. For these comparisons, the substances are either used in solution in (non-absorbent) light petroleum or in the gas phase. With this method, the following figures have been found

TABLE 1.

Benzene	2433,2375 A.
Toluene	2700
Xylene	2713,2739
Naphthalene	3100
Phenanthrene	2932
Anthracene	3570,3760

TABLE 2 (Iraq petroleum).

Benzene content	0·02 per cent
Toluene	0·31
Xylene	0·52
Naphthalene	0·30
Phenanthrene	1·36
Anthracene	1·76

TABLE 3 (Shale-oil)

Benzene content	0·16 per cent
Toluene	0·18
Xylene	3·20
Naphthalene	4·60
Phenanthrene	1·80
Anthracene	1·60