The results of these studies and others by the National Institute of Industrial Psychology furnish most of the factual foundation for the book. They all point clearly to the ineptitude of the once popular phrase "the human machine," and hopefully to a better understanding of the human personality, in the broadest sense of the term.

The second chapter discusses fatigue and serves to show both the ramifications of the problem and the failure to apply quickly and widely in this war the knowledge gained from research during and after the last one.

The effects of the environment on the worker are then presented; the *material* factors being light, temperature, noise, hours and the *psychological* factors, the group, mental atmosphere and people in authority. In the reviewer's opinion this discussion of psychological factors and a later chapter (VI) on temperaments are the best parts of the book, although based on the least secure scientific evidence. Such evidence as there is, however, the author lets speak for itself. This is far more effective than the popular variety of psychological advice on how to develop personality. From her illustrative descriptions of behavior or "misbehavior," one can hardly fail to agree with her statement that "the person in authority who is not suited as a human being to his work is a tragedy."

Chapter III deals with vocational guidance and selection, and contains also a pertinent section on selection for management and one on training. Chapter V gives a brief but sensible account of the uses and implications of time and motion study. Chapter VI, as indicated, deals with temperaments and such methods as are now available, admittedly crude, for assessing them. Chapter VII and VIII discuss motives for work and measures of human well-being, and Chapter IX gives many good hints on methods of investigating.

The lack of an index seems unfortunate in a book entitled a handbook, but is partially offset by the subheads under chapter headings in the table of contents. The task of making research methods and findings understood and put to practical use is not an easy one, but this book deserves much credit as an attempt by an author who is herself a thoroughly scientific worker. Few readers, either laymen or scientists, will find it a waste of time, and most will find it worthwhile and refreshing.

PAUL S. ACHILLES

PSYCHOLOGICAL CORPORATION

REPORTS

SPONSORS OF WORLD EXPLORATION

BRITAIN'S Royal Geographical Society was founded in 1830; its origins, however, may be traced back at least to 1788. Its immediate forerunner was the Raleigh Dining Club, which served as an informal meeting place for travelers. At that time there was a widespread interest in exploration, following the check caused by the Napoleonic wars, and linked with the expansion of the Western nations.

This led to the cooperation of members of the Raleigh Club and other geographers in the foundation of the society on a broad basis. Four hundred members joined in the first year, and in the following year it absorbed the African Association, founded by Sir Joseph Banks in 1788. Among those active in its establishment was Sir Roderick Murchison, distinguished for his geological work in Russia, and later president for sixteen years.

After being housed in various quarters of London, the society was established at 1 Savile Row for many years (1871–1913), but its growth required larger quarters, and the present house in Kensington Gore was purchased in 1912. Through the generosity of its supporters, the society was able to mark its centenary in 1930 by considerable additions to the house, giving it for the first time its own lecture hall, to hold nine hundred persons, and better accommodation for the library and map room. At the outbreak of World War II there were approximately six thousand members.

The library now contains about eighty thousand volumes, including early narratives of travel and the reports of later exploration, books on survey, geographical science and related subjects, and the periodical publications of the geographical societies of the world. An extensive subject catalogue of all additions to the library is maintained for the use of students. The map collection includes the maps issued by nearly all the national surveys throughout the world—a total of over a quarter of a million maps in sheets. It is especially rich in early atlases, and has a large collection of photographs and lantern slides. The map room is open to the public, and the library deals with many requests for information both from members and from the public.

The objects of the society were clearly defined from the first; the diffusion of geographical knowledge; the formation of a library and map collection; assistance and advice to travelers and the maintenance of relations with similar bodies at home and abroad. For the first half century its energies were directed almost exclusively to the promotion and encouragement of exploration.

This period coincided wtih the great age of African exploration and, as befitted the successor of the African Association, the society was especially active in that continent. It organized—or was particularly identified with—Dr. Livingstone's expeditions of 1858 and 1866, the Livingstone relief expedition (1873–6), under V. L. Cameron, which explored the Congo basin, and the two journeys of Joseph Thomson in eastern and central Africa, in 1879 and 1882.

Support was also given to H. Stanley's Emin Pasha relief expedition, which marked the close of the classical era of African exploration. Despite this preoccupation with Africa, the other continents were not neglected; one of the earliest and most successful travelers who received support was Sir Richard Schomburgk, the explorer of British Guiana. In the main, however, the society's share was to advise travelers, to lend instruments and to bestow recognition on outstanding work.

After the great African journeys, the interests of the society largely through the influence of Sir Clements Markham were directed to the Antarctic, and as a result British scientific work in that region was revived at the close of the century, and has since continued with few breaks. In cooperation with the Royal Society, and with the support of the government, the British national Antarctic expedition was organized in 1901. Under the command of Captain R. F. Scott, the expedition achieved much success, exploring large areas of the polar plateau, and returning with valuable scientific observations. This work was continued by Scott's later expedition, on which he and his companions died on the return from the South Pole.

In the twenty years from 1919 to 1939 the character of exploration changed to same degree: spectacular journeys through previously unexplored territory tended to give place to more intensive study of little known areas by teams of scientists. There remains, however, particularly in the polar regions, much exploration to be carried out.

Two notable polar expeditions were supported by the society. The British Arctic air route expedition, 1930–31, from its base in East Greenland, besides much exploratory work, obtained information on flying conditions in the Arctic and on the meteorology of the ice cap, and perfected new developments in the technique of Arctic travel. The British Graham Land expedition, 1934–37, composed largely of members of the Greenland party, and profiting from its experiences, did much to extend knowledge of that area of the Antarctic, discovering and mapping King George VI Sound and disproving the existence of Stefansson Strait.

Most public attention has perhaps been attracted to the several Mount Everest expeditions, organized in partnership with the Alpine Club. The first expedition explored the northern approaches to the mountain, and found the route which has been used by all later expeditions, and successive parties have climbed to some 300 meters of the summit. These expeditions have trained many men in exploratory mountaineering and have resulted in much scientific knowledge of the area and in valuable observations on physiological reactions to extreme altitudes.

The Karakoram range has also been the scene of several expeditions, including that led by Lieutenant Colonel Kenneth Mason in 1926, when photogrammetric methods of survey were employed, and of later expeditions led by E. E. Shipton. Mention must also be made of the numerous expeditions to the Libyan Desert conducted by members of the society, which resulted not only in valuable topographical knowledge, but in the evolution of methods of desert travel later used successfully during the war.

The other type of expedition has largely been organized by younger members of the universities, a development marked by the foundation of the Oxford University Exploration Club in 1927. The society has assisted these by advice in the preparation of their plans and on equipment, by financial grants and loan of instruments, and by the publication of their geographical results and maps. Among the expeditions organized by the O.U.E.C. may be mentioned those to Spitzbergen and North East Land, West Greenland, British Guiana, the New Hebrides and Borneo. Similar work has been done by Cambridge men in the Canadian Arctic, East Greenland, the Great Barrier Reef of Australia and the West Indies.

In normal times the society provides instruction in field survey for travelers, and assists with the compilation of their observations on their return. It is also able to put them in touch with experienced travelers in the area in which they propose to work. The society's publication, "Hints to Travellers" (11th ed., 2 vols., 1935, 1938) largely embodies this collective experience.

Thus though the society has not recently undertaken direct responsibility for particular expeditions, it lends its support to those whose plans it has approved, and this approval is often instrumental in obtaining further support. Finally the two gold medals given annually by King George VI, on the recommendation of the society, confer recognition of outstanding work and serve as encouragement to further effort.

The geographical results of the expeditions mentioned, and of many others, are published in the *Geographical Journal*. This also includes papers on technical subjects read at meetings of the society, reviews of new publications and notes on current

geographical work. The publications also include a technical series and reproductions of maps and charts of historical interest.

The society has always been concerned in advancing British cartography by maintaining a high standard of draughtsmanship and lettering and by employing modern methods of reproduction for the maps accompanying papers in the *Geographical Journal,* and special maps published from time to time. The map of Europe and the Middle East recently prepared for the British Council embodies several developments in this field. The advice of the society is at the disposal of official departments when requested, and has been formally submitted, *e.g.,* as evidence to a committee considering the future of the Ordnance Survey.

Similarly the society has contributed much to raise the level of geographical education and to secure the recognition of geography as an independent discipline at the universities. Its initiative resulted in the foundation of schools of geography at Oxford in 1899 and at Cambridge in 1903.

During the war the work of the society has naturally been curtailed in some directions, but despite damage to the house by enemy action its main features have been maintained. Many members have been able to apply their geographical experience and training in the national interest. The library and map collection have been constantly used by service and other government departments and by representatives of the Allied nations. At the society's meetings, subjects concerning post-war planning have been discussed from the geographical aspect.

The basis of the society's work thus lies in the association of those directly qualified for exploration, travel and research with the general body of members who are interested in the geographical background of countries and peoples, and who by the support of the society enable it to advance geographical knowledge. The Society can thus act as the recognized representative of all British geographers, serve as a repository of experience and information, and encourage adequate standards in the science.

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SPECIAL ARTICLES

RECOVERY OF EQUINE ENCEPHALOMYELITIS VIRUS (WESTERN TYPE) FROM CHICKEN MITES[1,2]

DURING the past fifteen years three immunologically distinct types of equine encephalomyelitis virus have been discovered, and the importance of these viruses as a cause of disease in man is now well established.[3, 4, 5] An epidemic of encephalitis occurred among horses in Texas during the summer and fall of 1944, together with at least three human cases due to the Western equine virus.[6]

A recent article by Smith, Blattner and Heys[7] concerning the isolation of the St. Louis encephalitis virus from chicken mites prompted us to conduct epidemiological investigations. The similarity in the mode of transmission of equine encephalomyelitis and St. Louis encephalitis is evidenced by the fact that neutralizing antibodies against both viruses have been demonstrated in the serum of fowl. Only recently Hammon and his associates[8] demonstrated neutralizing antibodies against equine encephalomyelitis virus in the serum of chickens in the Southwest. In correlated field and laboratory studies made in the State of Washington, antibodies to both St. Louis and Western equine viruses were found in as high as 50 per cent. of apparently healthy domestic fowl. It seemed likely, as pointed out by Smith and her associates,[7] that some blood-sucking vector which does not necessarily bite man was transmitting the disease to fowl. Furthermore, evidence is conclusive that reservoirs of equine virus exist in wild and domestic animals (including birds), and at least two blood-sucking insects have been found in nature harboring the virus.[9, 10]

With the cooperation of two local veterinarians, a survey was made in Dallas County, Texas, to locate farms and ranches where known cases of equine encephalomyelitis had occurred. With this information available, chicken mites (*Dermanyssus gallinae*), fowl ticks (*Argus persicus*) and sera from barnyard fowl were collected from nine of these ranches and

[1] Preliminary report.

[2] These studies are being supported by a grant from the Rose Lampert Graff Foundation, Los Angeles, Calif.

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[9] W. McD. Hammon, W. C. Reeves, B. Brookman and E. M. Izumi, SCIENCE, 94: 328, 1941.

[10] C. H. Kitselman and A. W. Grundmann, *Kans. Agric. Exper. Sta., Tech. Bull.,* No. 50, p. 1, 1940.