Professor Brill further says in his concluding paragraph, "The true leaders in the sciences now appear since the smaller countries are no longer handicapped by their small populations." A statement qualified by the remark that leadership in science is shown, as far as it can be determined on a basis of Nobel Prize winnings and population alone, would be acceptable. As it stands, the conclusion goes beyond the scope of the data. There is an implication of qualitative excellence in science for the small nations, which has not been demonstrated. A comparison of the qualitative excellence of small and large countries in scientific effort and "production" would necessitate consideration of so many factors that the problem would become similar to that of comparing the economy of a large and small nation, a well-near or completely impossible task.

The Nobel Prize covers only part of science. Some workers who are veritable architects of the structure are never considered because they are outside the field of experimental science. The great Linnaeus or even Darwin would not be eligible to-day, although the effect of the latter's doctrines probably transcends any other influence on human thought advanced since the beginning of Christianity. Sir John Murray, co-father of oceanography with Mathew Maury, would not have been eligible. Henry Fairfield Osborn once said of Cope that he probably had a greater grasp of vertebrate zoology than any man that ever lived. Nevertheless, Cope could not have won the Nobel Prize. It is not necessary to go to years before the prize for examples. The vast panoramic story of the genealogy of the elephants and other related animals, unfolded by Osborn, did not gain for him the Nobel Prize, though certainly he would have been a grace to any body of scholars. Johan Hjort, the Norwegian, was not eligible, notwithstanding the fact that he is often referred to as the founder of modern fisheries biology, a subject of vast economic importance. A great explorer is a scientist as much as any other in the field. Norway had Amundsen, but no Nobel Prizes. Geologists, explorers, engineers, oceanographers, meteorologists, many biologists, the social scientists and even pure mathematics are not considered by the Nobel Prize committee. It is not my purpose to even faintly insinuate that there is an injustice in this situation, for there is none. Nobel had every right to define the fields for his awards, and he was probably wise in separating and limiting them as he did.

Due to their size and area alone, large countries are prone to have proportionately more than small countries of exploring and field expeditions, geologists, foresters, students of conservation and a greater variety of students of the various greater variety of plant and animal groups, to mention a few. Such workers must all be considered in evaluating the leadership of a nation in science. The five greatest natural history museums in the world are in the United States, England and France. These matters, too, should bear weight in the judging of such leadership.

It is interesting that the top six nations in Professor Brill's Table I, including Germany and Britain, have not been ravaged by war at home, prior to 1940, since the time of Napoleon; whereas France and Belgium, lower on the list, but close neighbors of the winner nations, have been called the cockpits of Europe. The top four nations have not been at war, except for a slight altercation between Holland and the Sultan of Sumatra, since Germany fought Denmark over Schleswig-Holstein in 1864. Germany and Britain have supported large war machines during the time considered, 1901 to 1939, and Germany has suffered a great defeat. In spite of this handicap her rank is fairly high. Would Germany be the leader had she been at peace? War and peace certainly have something to do with the question under discussion, but these factors could legitimately be considered as partial causes for the superiority of the small nations and not merely handicaps of those affected adversely.

It is also interesting to note the clustering of the prize winners in northern, Teutonic or semi-Teutonic, Europe. Accepting these tables as partial indicators of leadership in science, it is clear that things have changed since the days when the "Noble Romans" of post-medieval Italy gave the renaissance of learning and art its initial push. At that time the "Aryans" to the north were busy with other matters, but eventually the influence spread to them and even to the "subhuman Slavs," in the person of Copernicus and others. It is clear in the long view that no claims for racial superiority are due, regardless of how well proven a momentary national superiority in science is.

In conclusion, the leadership or qualitative excellence of a nation in the field of science is dependent on many things, and it can not be determined solely by considering the relationship of Nobel Prizes to the population. Nobel Prizes are partial indicators of scientific leadership, but their use as a complete measure is unwarranted.

Professor Brill's tables brought out several interesting and significant facts not mentioned here. It has been my wish to clarify one question raised and not to detract from his worthy findings.

GORDON GUNTER
GAME, FISH AND OYSTER COMMISSION,
ROCKPORT, TEXAS

FESTSCHRIFT OF PROFESSOR EMBRIK STRAND

AN outstanding contribution to zoological literature is the publication of a Festschrift by the University of Latvia in honor of Professor Dr. Embrik Strand

on his sixtieth birthday. This Festschrift is in more than one way a record-work within the zoological literature in that it contains contributions from a larger number of coworkers than is usually the case in such special publications, that these contributions come from all parts of the world, that they represent a larger number of zoological fields than in any other zoological festschrift, and that it does not contain the works of the beginner, but only works of already well-known scientists. Without doubt, it will be a pleasure to all American biologists to read about this monumental publication, and a number of them, indeed, may be eager to obtain a set for their departments' libraries, at least.

The following scientists have contributed one or more papers:

de Mello-Leitâo (Rio de Janeiro), Michaelsen (Hamburg), Spassky (Nowotscherkassk, U.S.S.R.), Birula (Leningrad), Roubal (Banská Bystrica, C.S.R.), von Boetticher (Coburg), Bakalov (Sofia), Szalai (Budapest), v. Kolosváry and Szalai (Budapest), Obenberger (Praha), Monti (Milano), v. Kolosváry (Budapest), Kratochvil (Brunn), Spaeth (Wien), Rosca (Cernauti, Rumania), Lallemand (Uccle, Belgium), Allgén (Jönköping, Sweden), Breuning (Wien), di Caporiacco (Firenze), Boschema (Leiden), Oudemans (Arnhem), Hrabe (Brno), Verity (Firenze), Balthasar (Bratislava), Hoffer (Brno), Špaček (Trautenau), Knowlton and Smith (Logan, Utah), Esaki (Fukuoka, Japan), Yasumatsu and Okabe (Fukuoka), Yasumatsu (Fukuoka) and Maidl (Wien), Fletcher (Rodborough, England), Paulian (Paris), d'Almeida (Rio de Janeiro), Arlé (Rio de Janeiro), Kôno (Sapporo, Japan), Marcu (Cernauti), Strauhal (Wien), Silvestri (Napoli), Thienemann (Plön, Holstein), Tian-Shanskij and Bogatshev (Leningrad), Popov (Leningrad), Ochs (Frankfurt a. M.), Uhmann (Stollberg), Obraztsov (Kijev), Rotarides (Budapest), Crosby and Bishop (Ithaca), Cros (Algérie), Mottl (Budapest), Blauvelt (Ithaca), Werner (Wien), Berio (Genova), Heberdey (Graz), Lenz (Plön), Beier (Wien), Millot (Paris), Sheljuzhko (Kijev), André (Paris), Husiatinschi (Cernauti), Goecke (Krefeld), Wagner (Budapest), Augener (Hamburg), Gregor (Brno, C.S.R.), I. Szabó (Budapest), M. Szabó and I. Szabó (Budapest), Sieber (Wien), Ermolajev (Orel, U.S.S.R.), Röber (Dresden), Zavattari (Roma), Miller (Zilina, C.S.R.), Whitley (Sydney), Turati (Milano), Polimanti (Perugia), Thomas (Bruxelles), Zirngiebl (Leistadt, Saarpfalz), Danilowitsch (Kiew), Denis (Douchy, France), Renouf (Cork, Ireland), J. E. W. Ihle and M. E. Ihle-Landenberg (Amsterdam), Mayer [Brno (Brünn) C.S.R.], Pittioni (Wien), Redikorzev (Leningrad), Charitonov (Perm, U.S.S.R.), Petrusewicz (Wilno, Poche (Wien), Liebke (Hamburg), Teyrovsky (Brno), (Hofrat, Wien), Plavilstshikov (Moskau), Gerasimow (Leningrad), Schlesch (Kopenhagen), Husiatinschi (Cernauti), Kormos (Budapest), Hofeneder (Innsbruck), Masi (Genova), Schenkel (Basel), Iredale (Sydney), Holik (Prag), Ferreira et Perez (Porto, Portugal), Mariani (Palermo), Nomura (Fukuoka, Japan), Niepelt (Zirlau, Germany), Schultz (Lippe, Germany), Szent-Iványi (Budapest), Wnukowsky (Nikolaew, U.S.S.R.), Poche (Wien), Liebke (Hamburg), Teyrovsky (Brno), Kaszab (Budapest), Sivickis (Kaunas), Molitor (Perchtoldsdorf/Wien), Balogh (Budapest), Neu (Istanbul), Clément (Innsbruck), Drensky (Sofia), Móczár (Budapest), Kleiner (Budapest), Papp (Debrecen, Ungarn), Hajóss (Budapest), Auber (Wien), Holm (Uppsala), Czerny (Kremsmünster), Yasumatsu (Fukuoka), Vasvári (Budapest), and Bernhauer (Horn, Nieder Österreich).

The Festschrift consists of 5 volumes of about 3,350 pages; it contains 194 contributions of 130 workers, 98 plates, 687 text-figures, many tables and over 2,000 citations. Surely this "Festschrift" is a library which not only every young zoologist, but even older professional biologists may study with profit.

H. P. K. AGERSBORG

CENTRALIA, ILL.

QUOTATIONS

SCIENTIFIC SOCIETIES IN WAR TIME[1]

IN times of peace London is unquestionably the focus of the scientific life of the British nation and Commonwealth. The reason is not that London is the seat of the metropolitan university, though this, by its system of external degrees, is also in a special sense the central university of the Empire; moreover, it enfolds within itself many special institutions, like the Schools of Economics and of Hygiene and Tropical Medicine, which are themselves imperial centers for special branches of science. Nor is it that London is the seat of the chief national scientific departments, like that of Scientific and Industrial Research, or the Medical and Agricultural Research Councils. London had attained its position as the national scientific center long before these modern bodies had been constituted, and before the University of London had come to be comparable, in size and influence, with the older Universities of Oxford and Cambridge (though as a center of medical teaching London had long been pre-eminent). During two centuries and more in which the venerable sister universities were still unrivaled except by each other, as centers of learning and research, their scientific members found a common meeting ground in London, in the rooms of the Royal Society: and during the nineteenth century London became the center also of many more specialized scientific societies.

[1] From *Nature*.