Comments and Communications

Dramamine and Motion Sickness

I should like to comment on the two articles on motion sickness by Gay and Carliner and Strickland and Hahn that appeared in your April 8th issue (*Science*, 1949, **109**, 359).

Gay and Carliner's procedure of dividing the subjects into control and medication groups on the basis of the ship's compartments they occupied may be expeditious from an administrative standpoint but is hazardous experimentally. The various compartments of a ship are not subjected to the same degree and kind of motion. It is, therefore, difficult to ascribe the differences in sickness rates found in the several compartments solely to the medication employed. It is quite possible, for instance, that compartment 3-F was more conducive to causing seasickness than compartment 3-E. To have controlled this adequately, the investigators should have randomly divided the men in each compartment into the various experimental groups.

The procedure of using sick men in a placebo group to test the efficacy of a remedy in curing the already sick can be safely done only if a like number of sick men in the same group remain untreated or continue to receive placebos. Drs. Gay and Carliner, by neglecting this, left themselves without adequate controls and therefore one cannot determine with certainty to what extent the remission of symptoms was due to medication (Dramamine), change in weather and sea conditions, or to the phenomenon of adaptation. The latter is of great importance.

Studies of the efficacy of a remedy must be made under a variety of sickness rates and the results should be expressed as the percent protected for a given sickness rate. At placebo rates of between 20 and 30 percent—the rate apparently found in the Gay and Carliner experiment—it is not uncommon for medication such as hyoscine, or even certain barbiturates, to give high protection. With such moderate sickness rates in the controls this writer has, on occasion, found 0.6 mg hyoscine to give 80 to 90 percent protection. Therefore, on the basis of the single experiment reported, no convincing evidence is presented to indicate that Dramamine is any more effective than 0.6 mg hyoscine in preventing motion sickness. This is further borne out by the paper of Strickland and Hahn in which they report an experiment where 55.6 percent of the placebo group became sick. Under this moderately high sickness rate, 28.7 percent of a like number receiving Dramamine became sick, indicating that the medication gave protection to about 50 percent. With such sickness rates in the controls, 0.6 mg hyoscine has been shown to give similar protection (*Amer. J. Physiol.*, 1946, **146**, 458). Incidentally, this dosage of hyoscine has been demonstrated to be without any harmful side effects on the efficiency of combat men.

Therefore, until Dramamine, or any other proposed remedy, is tested under adequately controlled conditions, against hyoscine as well as a placebo, and under conditions of a variety of sickness rates in the controls, any claims as to its superiority as a preventive are apt to be premature.

Finally, the statement in the opening paragraph of the paper by Strickland and Hahn, "Investigations on motion sickness in the past have shown a paucity of controlled studies carried out on shipboard or on aircraft," leave many of us who were connected in one way or another with the Subcommittee on Motion Sickness of the Committee on Medical Research a little dismayed, to put it politely. An enormous amount of time and energy had been spent on this problem during the war and much was accomplished. Also, many had the satisfaction of seeing or hearing of the results of their studies being successfully applied in landing operations. These studies, sponsored by the CMR, were the subject of numerous reports to the Surgeon General. They are also to be found in many easily available scientific and medical journals. I and, I am sure, any of the members of the wartime Subcommittee on Motion Sickness of the OSRDcmr, would be glad to enlighten the Surgeon General's office on this matter.

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In Criticism of Chisholm's "Social Responsibility"

If no workable plan for peace can be based on the anomalous idea that social processes are the outcome of individual attitudes and decisions, then a retort seems badly needed to the endorsement (*Science*, 1949, **109**, 264) of the Chisholm article "Social Responsibility" (*Science*, 1949, **109**, 27). This fallacious individualism leads to *der Fuehrerprinzip*—the belief that personal leadership by "mature" or "socially minded" persons is the basis of an orderly human society.

Much more space than this note can command should be given to serious refutation of such an idea. In a world in which "the poor always ye have with you," individual responsibility is a preoccupation with keeping the wolf from one's own door. If our social setup is working badly it is because the rules of the game are badly designed to encourage and reward this acceptance of personal responsibility for one's own welfare (see "Individualism; True and False," chapter in F. A. Hayek's *Individualism and the economic order*, 1948).

The spreading of the idea that science is an "endless frontier" which can provide for any number of *Homo sapiens*, all of whom can survive as winners in the game of life if we can develop a race of "brother keepers," obviously begets anything but good sportsmanship in the

morale of those who are not winning their way into the promised land of milk and honey. Such utopian materialism is directly responsible for the current war psychology, for we are eternally looking for a scapegoat—always the other fellow is this dog in the manger—when we couple personal responsibility with the fact that the promised land is not in sight.

From a truly impersonal, scientific angle, we'd do well to think through these Malthusian problems, starting from the observation of Boulding (*Sci. Mon.*, 1949, 68, 239) on the fallacies of composition and aggregation which obscure the fact that "the real world . . . cannot be understood by any generalization from individual experience." Note how this agrees with the contention of Leslie White (*J. Wash. Acad. Sc.*, 1947, 37, 181–210; also *Sci. Mon.*, 1948, 66, 235) that the individual is the creature, not the creator, of his culture; which leads us to the conclusion that "there is now only one basic importance in the world . . . on which the very existence of the race depends" (in the interest of the scientific spirit we must now reverse the Chisholm *ex cathedra* statement)—"the importance of an [un-]emotional relationship between the people of the world," based upon a justice that is blindfolded to persons and is using only an insensate mechanism. The last word has not been said on Adam Smith's "unseen hand," not even by Hayek in his masterful discussion of how the money-price system controls "The Use of Knowledge in Society" (*Amer. Ec. Rev.*, Sept. 1945).

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Association Affairs

The thirtieth annual meeting of the Pacific Division, AAAS, was held in Vancouver, Canada, June 13–16, with 537 registered members and guests in attendance. This, the first Canadian meeting of the Pacific Division, was held on the campus of the University of British Columbia, and inasmuch as it came between terms, it was possible to house the delegates in the living accommodations normally available to students.

Campus cafeterias and the Faculty Club provided excellent meals, and larger gatherings such as the general reception and the biologists' dinner were competently handled in Brock Memorial Hall. The University Extension looked after registration and assignment of rooms, dispensed information, provided projection equipment where and when needed, and took care of other miscellaneous problems as they turned up. All of this made for a compact, well-integrated meeting, and pointed to much foresight and excellent organization by the local committee.

Scenery is, perhaps, only an incidental adjunct of a scientific meeting. But it would be improper not to mention that the University of British Columbia occupies a location of breath-taking beauty, a promontory looking out across many square miles of seascape—Burrard Inlet and Howe Sound—to a backdrop of high, snow-covered mountains. The visitors were not too preoccupied with scientific matters to take note of this.

Forest ecologists had a chance to study forests. Seashore biologists went on a field trip at low tide. For fisheries, biologists, and oceanographers, the Canadian Government made two boats available, one to demonstrate new oceanographic equipment and methods, the other to demonstrate trawling.

There were three general evening sessions. At the first of these L. S. Cressman, of the University of Oregon, as retiring president of the Pacific Division, gave an address on "Early Man in the Pacific Northwest." D. S. Rawson, of the University of Saskatchewan, spoke at the second on "Scientific Fish Harvesting in Great Slave Lake." At the third, William J. Robbins, director of the New York Botanical Garden, discussed "Growth, Normal and Abnormal."

The Divisional Symposium, held Monday afternoon, June 13, had for its general subject, "Anthropology and its Applications to Society." David French, of Reed College, discussed "Anthropological Research in the War Relocation Authority"; H. G. Barnett spoke on "Social Research for Administrative Uses"; and R. F. Spencer, of the University of Minnesota, took for his topic "Immigrant Culture and Acculturation."

Another general symposium was arranged by the Pacific Science Board of the National Research Council on the general subject, "Research Plans for the Pacific Area, with Special Reference to the Seventh Pacific Science Congress." The speakers and their topics were: E. W. Gifford, University of California, "Anthropological Problems in Fiji"; Pierre Dansereau, University of Montreal, "Research Plans Developed at the Seventh Pacific Science Congress, Relating to Natural History and the Protection of Nature"; John P. Tully, Pacific Biological Station, Nanaimo, B. C., "Plans and Needs for Oceanographic Research as Discussed at the Seventh Pacific Science Congress"; R. C. Miller, director, California Academy of Sciences, "Some Problems of Population, Food and Available Resources in the Pacific Area."

The wide range of interests represented in this convention are well indicated by the symposia arranged by various societies on such topics as the following: "The Role of Chemistry in Pacific Northwest Industry," "Minor Element Nutrition in Western Soils," "Why Plants Grow Where They Do," "New Methods of High Speed Oceanographic Research," "Factors Influencing the Success of Reproduction in Anadromous and Shore Spawning Fishes," "Some Aspects of Fire in Natural Communities," "What Has Ecology Contributed to the Management of Natural Resources of the West?"