would be available for oral consultation; the systematic and periodic publication of up-to-date compilations dealing with each branch of research; and the creation through Unesco of an international organization for the preparation of card files based on the application in every country of laws prescribing the printing of abstract cards at the same time the work is published. It will require some legal compulsion to overcome inertia, nationalism, individualism, and competition, and thus promote the most rapid advance of research on an international scale.

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Vitality of the Aged

THE writer presented statistical evidence in 1929 (SCIENCE, 70, 85) of a persistent retrogression in vitality among the aged of both males and females of this country—in marked contrast with the distinct improvement at all earlier ages. Similar results were obtained by others, and this retrogression was reported to be generally accepted by the representatives at the recent International Gerontological Congress at St. Louis.

The writer now wishes to present evidence based upon succeeding years of a surprising improvement at these advanced ages. This report is brief and preliminary because we still await an analysis of the data from the 1950 U. S. census for further assurance that improvement has come to stay.

Table 1 gives the death rates (per 10,000) at ages 70 and 80 for both males and females for the earlier decennial years, as well as for the later years 1930 and 1940.

TABLE 1
DEATH RATES (PER 10,000)

Year	Males (age)		Females (age)	
	70	80	70	80
1890*	556	1227	502	1127
1900	606	1323	549	1206
1910	630	1387	569	1259
1920	605	1319	568	1225
1930	600	1309	517	1188
1940	599	1290	469	1138

* Seven states.

It should be noted that the maximum rates seem to have been reached sometime between 1910 and 1920 for both males and females, and that the rates have now fallen to about what they were at the beginning of the century, when official records of deaths began. The females enjoy lower rates throughout.

The rates tabulated in Table 1 apply only to the ten original registration states (the six New England states, and Indiana, Michigan, New Jersey, and New York), which were the only states to supply official mortality data from the beginning of the century, and were computed by a technique used in constructing abridged mortality tables.

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Applications of Ecology and Economics to Fisheries

NEWCOMBE (SCIENCE, 114, 27 [1951]) holds up halibut management as a model to the California pilchard industry and says that pilchard investigators "were quite well aware that a major catastrophe was imminent because the *catch per unit of effort* was on the decline, even though total catches continued to increase. . . . Numerous warnings were issued by the Division of Fish and Game as early as 1930, but, seemingly, research evidence was in itself insufficient proof."

This is naïve, to say the least. Sette (in a profound and authoritative paper included in Newcombe's list of references) was of the opinion in 1943 that "at the present stage of research on the pilchard population, we do not have any notion" what fishing intensity would be desirable, and this evidently is still true. The same may be said of halibut (Burkenroad. *Bull. Bingham Oceanog. Coll.*, 9, [4], 81 [1948]; *Texas J. Sci.*, 2, 438 [1950]; *Bull. Inst. Marine Sci., Univ. Texas*, 2, 1 [1951], which extends the discussion to general principles).

The disaster that overtook the pilchard fishery in the late 1940s was evidently connected with unfavorable natural changes. Newcombe's view that the occurrence could have been "averted" by fishery restrictions thus implies belief that, if the catch had been smaller, the recruitment, growth, natural survival, and/or availability would have been greater. Otherwise he must mean merely that, if the marketable catch had been sacrificed to permit more of the fish that came into range of the fishery to remain in the water, some of these might for a time have been included in subsequent catches to cushion the effects of shrinking renewals on raw-material costs.

However, Newcombe cites no evidence that the pilchard stock has been driven below its level for maximum equilibrium yield. It has to be borne in mind that events accompanying and following the temporary obliteration of a number of great fisheries for clupeids (e.g., for Gulf of Maine menhaden in the nineteenth century, and for herring in one or another Swedish area during the thousand years of record) do not suggest that these local changes in abundance could have been significantly affected by any human act.

It remains to be seen whether even the present immense expansion of the pilchard research program can furnish proof that restrictions would have procured (or are now procuring) a net gain to society through effort saved without countervailing sacrifice of catch. The summary by McHugh and Ahlstrom (*Sci. Monthly*, 72, 377 [1951]) is hardly encouraging.