dance is not limited to such relatively obscure forms as the starfish. Indeed, available numerical information by no means excludes even the possibility that regular patterns of natural fluctuation might exist in various commercially important populations, such as those of crab, lobster, shad, croaker, etc. For example, the catastrophic declines in production which have been a repeated feature of the modern crab fishery in Chesapeake Bay have often been interpreted as the result of overexploitation; and the statistics of the shad catch are at present generally regarded as showing that overintensive fishing has been the major cause of a disastrous reduction in the stock. However, surveys now in progress, similar to that described above for the starfish, suggest that periodic scarcities of crabs and of shad have occurred throughout the history of these fisheries;[1] and it is by no means certain as yet that these changes have either been closely correlated with human activities or entirely irregular in period.

The dynamics of American marine ecosystems are little understood. For example, it is not known whether Chesapeake Bay could simultaneously support stocks of all of the various fishery animals at the maximum levels to which they have individually attained at various times. Clues to significant population interrelationships might conceivably be obtained from comparison of the changes in abundance, both local and general, of a wide variety of forms over long periods of time. Nonnumerical data may afford a means of making such comparisons, which are otherwise not feasible in any near future.

Hyaluronidase Inhibition by Sodium Salicylate in Rheumatic Fever

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The predominating role of the mesenchyme tissues in rheumatic fever and the permeability changes that are known to occur in its evolution point to interrelationship of several characteristics of rheumatism and the spreading factors of connective tissue, whether of bacterial or endogenous origin. On the other hand, no clear explanation has been presented for the mechanism of sodium salicylate or related drugs in rheumatic fever, although the arresting of the inflammatory process and the regression of symptoms are not the effect of bacteriostatic action.

Rheumatic fever is a disease of the mesenchyma characterized not by the virulence of the etiologic organism but by its invasiveness, especially in youth. In accordance with Bensley (*1*), the connective tissue in formation passes through the following stages: edema → gelatinous ground substance → argyrophilic fibers → collagen in the adult stage. In the early stages, diffusibility in the ground substance is favored to the extreme, while the collagenous fibers that characterize adult connective tissue retard diffusibility, the ground substance having been replaced by the fibers. The importance of the spreading effect of hyaluronidase on connective tissue is based on the observation of Meyer and Palmer (*6*) who pointed out that the principal substrate of connective tissue and mucoid structures is hyaluronic acid, which composes practically entirely the regions affected by rheumatism, such as articulations and synovial fluid.

Durán-Reynals (*3*), McClean (*5*), Kendall and associates (*4*), and especially Crowley (*2*) have observed that several microorganisms including more than 200 strains of hemolytic streptococci produce or possess hyaluronidase. The hyaluronidase of bacterial origin or from testicular extract, used in our work in a 1-per cent dilution, with Evans blue 1-per cent solution in humans or India ink 1:2 for rabbits, increases the spread of dyes by means of enzymatic activity hydrolizing the hyaluronic acid present in the ground substance, decreasing the viscosity, and thus favoring the passage of liquids, exudates, and pathogenic microorganisms. Its action may be divided into the following stages: (a) decreasing acetic acid coagulation of the substrate, (b) decreasing viscosity, and (c) hydrolizing of hyaluronic acid with the release of glucosamine and reducing substance.

In a total of 96 experiments on 24 albino rabbits it was observed that the spread area of India ink with hyaluronidase was six times greater than with saline. The oral or intravenous administration of sodium salicylate inhibited by 57 to 66 per cent the spreading effect of hyaluronidase; the degree of inhibition varied with the dose of salicylate administered. Sulfadiazine did not reduce the activity of hyaluronidase, but appeared to enhance its effect with inflammatory reactions in the center of the area in several groups.

[1] Thus, in the case of the Hudson shad run, what may have been a general scarcity during the 1830's has been noted by DeVoe (*The market assistant*, 1867, p. 200): "This shad-fishery [Cortelyou's fyke-nets in the Narrows] has been gradually decreasing since the year 1824, so that now [1838] it is scarcely worth attending to. . . . All the fisheries in New York harbor are nearly destroyed and the fish which now supply the markets of the city are brought from the distance of sixty, eighty, and even a hundred miles. . . ." Again, during the latter third of the century, "Great complaint and dissatisfaction were encountered everywhere [on the Hudson], the fisheries having fallen off immensely. . . . There never before had been so few shad taken and the retail price in market rarely fell below seventy-five cents for fish which ten years ago [1858] were sold for ten and fifteen cents apiece . . ." (*Report of the Commissioners of Fisheries of New York*, 1869, pp. 9–10). During the late 1870's and 1880's there followed what appears to have been a gradual renewal of abundance, which was credited at the time to hatchery operations stimulated by the preceding scarcity. A fresh decline and a fresh recovery have followed in this century.

These results were reproduced in a total of 144 experiments on 36 normal male and female adults and children employing the same criteria of the spreading effect of Evans blue with hyaluronidase reached by intravenous injections of 275 γ/cc. of sodium salicylate in plasma and then measuring the areas after 24 hours of the intradermal injection of the dye with the enzyme. Intradermal injections on individuals, either with active rheumatic fever or having suffered it gives unique reactions with enormous diffusion of the dye and local edema that sometimes occupies the arm injected with hyaluronidase. The salicylate also inhibits the enzyme in those cases and reduces its spreading effect on connective tissue. These types of allergic reactions to hyaluronidase were also observed in one male who suffered exanthematic typhus.

The evidence found in normal rabbits and humans, as well as in individuals who have latent or active rheumatic fever, indicates the important role of hyaluronidase in its mechanism and the inhibitory effect of sodium salicylate as a typical antirheumatic drug.

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Science Legislation

H.R. 6448

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The passage of a national science foundation bill in this session of Congress was seriously jeopardized by the introduction of a bill in the House of Representatives by Rep. Wilbur D. Mills of Arkansas 15 May. The bill was referred to a subcommittee of the Interstate and Foreign Commerce Committee of the House, which has since held hurried hearings. Whether the subcommittee will refer the bill to another committee, whether it will report the bill out of committee in the near future, or whether it will let the bill die in committee is not known at the present time.

However, the whole procedure in this, the first introduction of the House of Representatives to national science foundation legislation, is so reminiscent of that which surrounded the introduction of the May-Johnson bill that readers of *Science* need to be informed about it.

The facts surrounding the introduction of the bill and the subsequent hearings bear the following relations to legislation which is pending in the Senate.

In the first place, the bill was handed to Representative Mills by an ardent and unreconstructed proponent of the old—and abandoned—Magnuson bill, S. 1285. This same proponent generously volunteered to arrange for witnesses of his selection to appear at hearings which were held without the knowledge of the departments of government ordinarily consulted in such matters, for example, Interior, Commerce and Agriculture.

Needless to say, none of the sponsors of S. 1297 (the Kilgore bill) were among the few who testified: None of those groups who merely sought sound legislation without favoring either the Kilgore bill or the Magnuson bill was represented. On the other hand, influential opponents of the Kilgore bill and the more recent Kilgore-Magnuson bill (S. 1850) were among those who testified.

The proponent of H.R. 6448-S. 1285 is not a scientist, nor is he qualified to speak for the great body of American scientists. Somehow, through Rep. Mills he obtained the introduction of a bill for which he was prepared to secure expert testimony in advance. In this high-minded and democratic manner the House has obtained its initial introduction to the National Science Foundation.

It is perhaps fortunate that the week which was scheduled to be "Science Week" in the Senate (See *Science*, 1946, **103**, 589) was lost to more pressing labor problems, for although the delay may mean that a national science foundation will not be created in 1946, at least scientists will have time to acquaint their congressmen with their views. If there has been any doubt that this must be done in the minds of any individual scientist, the introduction of H.R. 6448 should dispel it. Science legislation is "on the loose."

Do scientists want what the National Association of Manufacturers, or some few persons whether they are scientists or not, believe that they *should* have? The 232 members of the AAAS Council who favored action