Comparative assays for nicotinic acid, biotin and pantothenate using peptone and casein hydrolysate have yielded identical figures on a variety of materials.

A simple method is described for the preparation of charcoal treated peptone solution which may be substituted for casein hydrolysate in microbiological assays with *Lactobacillus arabinosus*.

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DISCUSSION

A PROPOSAL FOR THE FORMATION OF A WORLD ASSOCIATION OF PHYSICISTS OR NUCLEAR SCIENTISTS

THE construction of the atomic bomb was brought about chiefly by physicists. Two German chemical-physicists, Hahn and Strassmann, unmindful of the threat of impending war, gave to the world the key for unlocking the storehouse of one form of atomic energy. Physicists of the British Commonwealth and America, including recent refugee physicists from Continental Europe, under compulsion of self-defense in a war thrust upon us, have discovered new essential chemical elements and have carried through to a successful conclusion the vast enterprise of manufacturing atomic bombs of colossal destructive power. The war is over. Let us now organize a World Association of Physicists. Members in this association would subscribe to certain principles: (1) respect for and confidence in the labors of all its members irrespective of nationality; (2) a pledge not to give advice concerning, or assist in making, atomic bombs; (3) a pledge to continue research in fundamental physics, including the physics of the nucleus of atoms, all atoms; (4) to publish the results of such research; (5) to assist in experiments leading to the beneficial application of atomic energy to human problems, and (6) to welcome the physicists of other nations to our laboratories.

This association would be not only international, it would be supernational. At least its members would not take orders from any government to assist in making atomic bombs. And since its membership would probably include 99 per cent. of the physicists of the world, atomic bombs would not be made. For the making of such a bomb requires the ultimate in knowledge concerning radioactive and nuclear physics. No novice would dare handle the components of a bomb. To attempt to do so would probably lead to his own extermination and the extermination of everything and everybody in his vicinity. Workmen could not be hired to work in a plant in which the ingredients of a bomb were being assembled, unless they had vast confidence in the knowledge and skill of those in charge. All that would be necessary to bring about a complete exodus of workers from a plant would be for the leading physicists of the country to set forth their belief that the chief personnel of the plant were lacking in scientific knowledge and skill. The ingredients of atomic bombs would not be made in that plant.

The association would not be regarded as formed until 90 per cent. of the physicists of every major nation, as determined by the principal physics society of that nation, had subscribed to the principles and accepted membership. The holding back by the physicists of any major nation would release all tentative members of their pledges.

The details regarding officers would be worked out by representatives from the chief physics societies of the various major nations. This proposal, perhaps with variations, will be submitted to the members of the American Physical Society and affiliated societies at their forthcoming meeting in New York.

It is believed that the formation of an association of scientists as above outlined would do away with warfare by atomic bombs. There would remain the gentle kind of warfare that was in vogue up to August 5, 1945. Perhaps associations of scientists could outlaw also that kind of war.

GORDON F. HULL

HANOVER, N. H.

REVERSAL IN THE WINTER FLOUNDER, PSEUDO-PLEURONECTES AMERICANUS: THE THREE KNOWN CASES

IN 1935, in a paper on "Reversal of Sides in Flatfishes,"[1] I brought together all the accounts that I could find of reversal in flatfishes, and tabulated the specific data (dates, sizes, figures, etc.). After a careful search I found a solitary record of a reversed *Pseudopleuronectes americanus*.

No. I. In "Biological Notes" from Woods Hole, Mass.,[2] is this record from Vinal N. Edwards. "*Pseudopleuronectes americanus:* A male in spawning condition, 14 inches long, taken in a fyke net in Waquoit Bay, February 23, 1900, has eyes on the left side—the first of the kind I have taken." To those who know the meticulous care with which for over 30 years Vinal Edwards made his records, nothing more need be said. What became of this first recorded reversed winter flounder is not known, but it remained a unique record for over forty years.

[1] E. W. Gudger, *Jour. Morphol.*, 38: 1–39, 5 figs.
[2] V. N. Edwards, *Bull. U. S. Bureau of Fisheries*, for 1899, 1901, vol. 19, p. 305.

No. II. The history of the second known reversed winter flounder is as follows: Late in October, 1943, Charles Sciarini, of the Borough of Queens, New York City, hooked this fish in Shinnecock Bay on the ocean side of Long Island. He recognized it as an "oddity," took it home and with good judgment put it in the refrigerator. In December, his father, Louis D. Sciarini, in some way, learned that I was interested in abnormal fishes, and called me on the telephone to say that he had a "left-handed" flounder that ought to be right-handed, and that he wanted to know about it. I explained and said that I wanted this fish badly. He then said that he would keep it frozen until he could send it in to me.

Some time in January, 1944, Charles Sciarini brought to me this fish, at that time the only extant specimen of a reversed *Pseudopleuronectes americanus* in any collection. And with it, for comparison, he brought a small normal specimen. But for the good judgment of father and son in keeping this fish frozen, this precious specimen would have been lost to science. After being in alcohol for about 21 months, it measures 6.4 inches in standard and 9 inches in total length, and 3.3 inches in depth (body only). Its weight is 4 ounces.

Specimen No. III. Our second fish was caught on June 10, 1945, by Fred Sterzenback, of Ridgewood, Brooklyn, N. Y., out of Freeport on the ocean side of Long Island. The fish was taken on a hook baited with a clam, and behaved like the other and normal flounders. After nearly 5 months in alcohol, it measures 9.4 inches in standard length and 11.4 over all, and is 4.5 inches deep (body only). Its weight is 9.5 ounces. Except for being reversed it, like the other reversed fish, is entirely normal in all other respects.

Our specimens are young fish. In waters contiguous to New York, the winter flounder is known to reach a length of 20 inches and a weight of 5 pounds, but the average is about 15 inches and 1.5 pounds for a good-sized fish.

In a postscript to my article, "Reversal in Flatfishes" (1935), I noted that, while that article was in press, two reversed ambicolorate halibuts, and two reversed flounders (summer and winter) had been received at the Museum, and that all these would presently be described. This was done for the two halibuts and for the summer flounder, but not for the winter flounder.

It being at that time the second known reversed fish of its species, and the easiest to describe, naturally should have been the first worked up. However, this was not done. And now this fish can not be found in the tank in which all abnormal fishes are kept, nor are any notes available.

How rare reversed specimens of *Pseudopleuronectes americanus* are may be gathered from the following statement from Dr. Daniel Merriman, Director, The Bingham Oceanographic Laboratory, New Haven, Conn.:

> During the detailed analyses of the Connecticut trawl fishery carried out by the staff of the Bingham Oceanographic Laboratory at Yale, in the last two years over 11,000 winter flounders have been examined for at least weight, length and sex, and frequently scales and otoliths have also been taken on these specimens. Approximately 3,000 more have had lengths and weights taken on them, and approximately 3,200 more have been tagged and measured. So far as we are aware, none of those fish have been reversed, and I think that it can be stated with reasonable assurance that had any of them been reversed we could hardly have failed to notice it. With the exception of the tagged individuals these fish were all examined in the laboratory where they came under the scrutiny of at least several members of the staff. Apart from all the above mentioned fish, we have handled countless thousands aboard the commercial fishing vessels, and have not noticed any reversed individuals. Of course the handling of fish in the field means that they were not subject to such close scrutiny as those that passed through our hands in the laboratory, but it seems to me that the conclusion that the incidence of reversed winter flounders is *extremely low* is inescapable.

With reference to the areas from which these winter flounders came, Dr. Merriman writes that:

> The vast majority of our catches came from the Block Island Sound area, a relatively small percentage came from Long Island Sound proper, and a still smaller lot from more distant localities such as the south side of Long Island and the Southern Rhode Island and Massachusetts coast.

The winter flounder is one of the flatfishes with the fewest known cases of reversal. On the other hand, the starry flounder, *Platichtys stellatus,* a right-sided cold-water species, of the north Pacific, has the greatest number of reversed individuals for any member of the order Heterosomata. Hubbs found the percentage of rights and lefts of this fish in California waters to be 50–50. In Alaskan waters 75 per cent. were lefts, while in Japan the fish was 100 per cent. left-handed. Why some flounders are reversed, and why there should be this great diversity of reversal in the starry flounder has not been explained so far as I know.

E. W. GUDGER
AMERICAN MUSEUM OF NATURAL HISTORY

AID FOR WAR-DAMAGED SCIENTIFIC LIBRARIES

THE appeal of O. W. C. Herre in the issue of SCIENCE for December 7 for aid in rebuilding the scien-