the personal influence of the schoolmaster has prepared them to profit by it. It would not be a technical education but an education for leisure. Listening to organized courses of instruction might at first be for the few; but ultimately might become habitual in the community which it would specially benefit.

In parenthesis allow me a brief further reference to "planning." The word is much to the front just now, chiefly in relation with current enterprises. But there may be planning for more fundamental developments; for future adjustment to social reconstructions. In such planning the trained scientific mind must play its part. Its vision of the future may be very limited, but in respect of material progress and its probable consequences science (I include all branches of knowledge to which the name applies) has at least better data for prophecy than other forms of knowledge.

It was long ago written, "Wisdom and knowledge shall be stability of Thy times." Though statesmen may have wisdom adequate for the immediate and urgent problems with which it is their fate to deal, there should yet be a reservoir of synthesized and clarified knowledge on which they can draw. The technique which brings governments in contact with scientific knowledge in particular, though greatly improved of late, is still imperfect. In any case the politician is perforce concerned with the present rather than the future. I have recently read Bacon's "New Atlantis" afresh and have been thinking about his Solomon's House. We know that the rules for the functioning of that House were mistaken because the philosopher drew them up when in the mood of a Lord Chancellor; but in so far as the philosopher visualized therein an organization of the best intellects bent on gathering knowledge for future practical services, his idea was a great one. When civilization is in danger and society in transition might there not be a House recruited from the best intellects in the country with functions similar (*mutatis mutandis*) to those of Bacon's fancy? A House devoid of politics, concerned rather with synthesizing existing knowledge, with a sustained appraisement of the progress of knowledge, and continuous concern with its bearing upon social readjustments. It is not to be pictured as composed of scientific authorities alone. It would be rather an intellectual exchange where thought would go ahead of immediate problems. I believe, perhaps foolishly, that given time I might convince you that the functions of such a House, in such days as ours, might well be real. Here I must leave them to your fancy, well aware that in the minds of many I may by this bare suggestion lose all reputation as a realist!

I will now hasten to my final words. Most of us have had a tendency in the past to fear the gift of leisure to the majority. To believe that it may be a great social benefit requires some mental adjustment, and a belief in the educability of the average man or woman.

But if the political aspirations of the nations should grow sane, and the artificial economic problems of the world be solved, the combined and assured gifts of health, plenty and leisure may prove to be the final justification of applied science. In a community advantaged by these each individual will be free to develop his own innate powers, and, becoming more of an individual, will be less moved by those herd instincts which are always the major danger to the world.

You may feel that throughout this address I have dwelt exclusively on the material benefits of science to the neglect of its cultural value. I would like to correct this in a single closing sentence. I believe that for those who cultivate it in a right and humble spirit, science is one of the humanities—no less.

SCIENTIFIC EVENTS

SURVEY OF THE SHRIMP INDUSTRY BY THE BUREAU OF FISHERIES

PLANS have been completed by the Bureau of Fisheries to conduct an economic survey of the shrimp fishery of the southern states to dovetail with the biological survey which has been in progress for several months.

Frank T. Bell, commissioner of fisheries, in announcing the survey, pointed out that the shrimp fishery in 1929 ranked fifth in order of value to fishermen and ninth in volume among all fisheries of the United States. In that year, the shrimp fishery produced 113,000,000 pounds valued at $4,575,000 to the fishermen. Since then the value and volume have decreased slightly.

The purpose of the economic survey, which will be made by F. F. Johnson, of the bureau, is to supply shrimp fishermen with information on production and marketing conditions, as well as general information intended to facilitate the more orderly pursuit of the fishery.

The biological study has produced more tangible results in the past year than all previous studies of this type. Among other things, it has been determined that the life span of the shrimp is but one year. This fact establishes the necessity of "timing" the harvest so that the shrimp may be taken at a time when they have attained the best size from a market standpoint, and that allowances also may be made for spawning.

The subject of spawning, however, is one on which very little scientific information exists. In the first place, a fertilized egg of *Penaeus setiferus,* the commercial species of shrimp, has never been found, according to Dr. F. W. Weymouth, who is in charge of the biological study for the bureau. His assistant, M. J. Lindner, however, has estimated that a single shrimp may deposit or lay as many as 800,000 eggs at the single spawning during the animal's life span.

Commissioner Bell said it is expected that the combined economic and biological survey will furnish information upon which may be based conservation programs in the future, and efficient marketing in the immediate future. The bureau is said to look upon this program as one which will serve as insurance for the industry which is of first importance to Louisiana, Florida, Texas, Mississippi, Georgia and North and South Carolina.

The importance in which these states hold the shrimp fishery may be judged by the fact that Louisiana, Florida, Georgia and Texas are actively cooperating with the bureau in its biological survey.

PINNACLES NATIONAL MONUMENT

PINNACLES NATIONAL MONUMENT, California, a reservation administered by the National Park Service, has been enlarged through considerable extension of its northeastern, northwestern and southern boundaries. A proclamation legalizing the addition was signed recently by President Roosevelt. The addition comprises 5,001.78 acres, making the total area of the monument now 9,908.39 acres, more than double its former size.

Most of the grounds of the monument still lie within the County of San Benito, California, but a part of the new Chalone Mountain area lies within Monterey County.

The monument has been added to several times since first being set aside on January 16, 1908. The vast new addition will greatly facilitate administration. Besides providing additional parking space and affording better protection, it serves generally to round out the boundary to desirable proportions. The southern part of the addition, by far the most considerable, embraces beautiful Chalone Mountain. Besides its scenic attraction, this is an important breeding and grazing ground for deer.

Spires, domes, caves and subterranean passages of extraordinary grandeur distinguish this monument. Spirelike rock formations, the result of prehistoric volcanic action, provide reason for the appropriate naming of the reservation. The pinnacles rise from 600 to 1,000 feet above the canyon floors, a prominent landmark visible for many miles around. Some of the rocks are so precipitous as to be unscalable. A cave network of unusual natural attraction lies under each of the groups of rocks.

Pinnacles National Monument bears yet another feature, aside from its geological and scenic interest. It is important as one of the last strongholds and breeding places of the California condor, the largest bird in the state. Other bird life also is abundant here, due to the protection given.

THE YALE EXPEDITION TO NEWFOUNDLAND

THE Yale Geological Expedition to western Newfoundland has returned to Peabody Museum with an extensive collection of fossils, photographs and new geologic data. The expedition, under the leadership of Professor Carl O. Dunbar, of Yale, was greatly facilitated by the use of the steam yacht *Utowana,* owned by Mr. Allison V. Armour, Yale, '84, of New York City, who is a member of the advisory council of Peabody Museum. The *Utowana* has carried a number of exploring expeditions for the United States Department of Agriculture, and for Harvard and Princeton Universities. She has a length of 236 feet and is especially equipped for scientific work, with laboratory facilities and a photographic dark room.

The personnel of the expedition, in addition to Professor Dunbar, included F. Earl Ingerson, of Barstow, Texas, and Edward I. Leith, of Prince George, British Columbia, both students of geology in the Yale Graduate School; Percy A. Morris, preparator in the Peabody Museum, and Carl Owen Dunbar, Jr., a student in Hopkins Grammar School. The party left New Haven late in June, with the purpose of studying the older Paleozoic rocks along the west coast of Newfoundland, a region that Professor Dunbar has visited twice previously. During July their work was centered about Port au Port, Humber Arm of the Bay of Islands, and Cow Head Peninsula, in the southern and central portions of the west coast. During August the *Utowana* took the expedition north to Labrador for a few days' collecting, and then put the members ashore at various points in northwestern Newfoundland that would otherwise be difficult of access. In addition to this service, the yacht enabled the expedition to bring back to Peabody Museum extensive collections of fossils. Professor C. F. W. McClure, of Princeton University, and Mrs. McClure, accompanied Mr. Armour on the cruise.

The island of Newfoundland is in general a plateau of rolling relief, sloping southeastward from the Long Range Mountains, which parallel its western margin and rise to elevations of some 2,000 feet. The west side of these mountains shows a wall-like face, due to faulting, which is cut by but few streams. Between it and the sea lies a low coastal belt of about ten miles