unwittingly involved himself in certain difficulties of great seriousness, must be his chief means for delivering himself from these difficulties.

The problem which finally came to harass him most of all was that of the growth, distribution and support of world population. It seemed to him that for our own country at least, the most urgent aspect of this problem was that of effecting an adjustment between the rural population chiefly engaged in satisfying man's primary needs and desires, and the urban population chiefly engaged in satisfying his secondary needs and desires. The Scripps Foundation for Research in Problems of Population at Miami University is the most obvious expression of his interest in this problem.

Without doubt the most definite manifestation of his conception of and belief in science is Science Service, an institution having operative headquarters in Washington, D. C. The purpose of this is the dissemination of the fruits of scientific research among the people generally. For the carrying out of this purpose any available means may be employed except formal school work. But the means chiefly relied upon is the printing press, especially that of the daily newspaper. Science Service is an institution for the education of everybody in science. But at the same time that it is an educational institution it is a business institution—business in the sense that it earns its own living. Although it has a considerable invested capital, the income from this is not used primarily for carrying on its work but for extending its work into new fields and in new ways. The operative theory on which the institute rests is that all service and everything else received shall be paid for, and all service rendered *shall* be charged for. A cardinal dictum of its founder was that "the two worst economic sins are trying to get something for nothing and willingly giving something for nothing."

While the science-disseminating office of Science Service is clear evidence of Scripps's faith in science as an agency for human good, he conceived another function for it which though less obvious is in a sense more indicative of his faith. The office referred to is that of getting more of the spirit and method of science into the management and work of newspapers themselves. He would have the institution not only disseminate to the public scientific knowledge of the world through the newspapers, but he would have it influence the newspapers to become more scientific in all their purposes and efforts. Although he did not express his aim in just this way, I am sure what was in the back of his mind in founding the institution was that it should contribute toward making journalism an applied science. This conclusion I deduce partly from various things he used to say in our conversations, the full import of which he appeared not to see and I surely did not at the time. One of these was to the effect that he was about as much interested in the influence such work as the institution would do, would have, or editors and editorial offices, as he was in disseminating scientific knowledge. He wanted to educate editors and managers as well as the public. Such statements I now couple, as I could not at the time, with his declaration made at the very beginning of his responsible journalistic career in 1878, that "the newspaper should simply present all the facts the editor is capable of obtaining, concerning men and measures, before the bar of the public, and then, after having discharged its duty as a witness, be satisfied to leave the jury in the case—the public—to find the verdicts."

This conception of the news-gathering and news-presenting function of newspapers (which he regarded as the only real reason for their existence) he appeared to be convinced was not fundamentally different from scientific research and publication. His contention that newspapers should be self-contained, *i.e.*, should have no outside political or business connection or interest he held to be one of the main aids, even though a negative one, to treating news thus. But he also recognized the great difficulties involved in the requirement about "all the facts the editor is capable of obtaining."

The long and short of the matter is, as I now see it, Mr. Scripps decided at last that his forty years of journalism had proved that although the newspaper business can be made immensely profitable so far as money is concerned, it can not be brought up to the level of truth and usefulness he had conceived for it throughout his career without bringing to its aid some medium or agency more intrinsically and deeply devoted to truth and usefulness than the papers are, or by their own nature can be. Hence we have Science Service, organized and operated in accordance with its founder's conviction that it may be made an educational instrument of great benefit to the public and likewise a genuine business success, but that this can be done only by keeping its organization and operation chiefly in the hands of scientists.

WM. E. RITTER,
President Board of Trustees, Science Service

SCIENTIFIC EVENTS

THE ANTI-EVOLUTION BILLS

THE present year has brought forth a plentiful crop of bills to suppress the teaching of evolution in state supported institutions of learning. Thus far, none of them has passed. In Missouri, where some apprehension was felt that the anti-evolution bill might be successful, the measure was defeated in the house by a

vote of 82 to 62. A similar bill passed the house in Arkansas by a vote of 50 to 47, but was tabled in the senate by a very large majority. In Oklahoma an anti-evolution bill was stricken from the calendar by a vote of 46 to 30. A vigorous battle was anticipated in North Dakota, but the committee of the house to which the bill was referred unanimously reported it for "indefinite postponement." A drastic anti-evolution measure has failed also in North Carolina. Alabama has an anti-evolution bill, sponsored by a Baptist preacher, but it seems thus far to have failed to enlist much sentiment in its favor, and little anxiety is felt over the possibility of its passage.

The University of Minnesota is putting up a strong fight against the so-called Riley bill. All of the deans and several prominent faculty members have published statements opposing the bill, and a resolution condemning it was passed unanimously in an enthusiastic mass meeting of over five thousand students, who roared their disapproval in no uncertain terms. This was fine. A petition setting forth the reasons for protecting academic freedom by defeating this intolerant measure was signed by thousands of students and sent to the legislature. This body will be left in no doubt now, if it ever was before, concerning the attitude of the scholastic world as to legislative interference with the rights of the teacher.

The anti-evolution bill in California will not pass. It is strongly opposed in the committee on education, and although some fundamentalists in the state are endeavoring to work up sentiment in favor of it there is little to give them encouragement. A few states remain to be heard from.

S. J. HOLMES

THE STEVENSON EXPERIMENTAL ARCH DAM

EXTENSIVE tests upon the dam at Stevenson Creek, Fresno County, Calif., have been completed according to an announcement by the U. S. Bureau of Standards. Complete sets of deformations, strain and slide measurements have been made for varied loads up to those produced by a head of 60 feet, the height of the crest of the dam. The tests upon the dam have been made at night to eliminate temperature effects as far as possible.

The only signs of failure are two vertical cracks in the center line of the dam, one extending from the lowest point upward some 13 feet, the other from the highest point downward some 19 feet. The top crack opens widest at a head of 45 to 50 feet and at a head of 60 feet returns practically to the same width as when no water is in the reservoir. This crack does not permit water to seep through. Its maximum width is about 0.03 inch, and the lower crack is still smaller.

Cracks formed at the abutment between the dam and the foundation rock a short time after the completion of the dam, presumably because of shrinkage or temperature changes. These cracks were covered with a fillet of mortar in order to facilitate their observation. Very little change has occurred in them.

The work of analyzing the data is now sufficiently advanced to warrant the following conclusions:

1. The load carried due to the horizontal thrust in the horizontal elements (the arch ribs) has been determined for all parts of the dam under the 60-foot head. The load is a maximum about the mid height and decreases to a small amount both at the top and bottom of the dam.

2. The load carried by bending of the horizontal elements has been approximately determined at certain places. The indication is that the greater part of the load lies nearer the vertical center line of the dam.

3. The load carried by the bending of the vertical elements has been partially determined. Evidently near the bottom of the dam practically all the load is carried in this manner. Near the top none of it seems to be so carried, and the vertical elements appear to be supported by the horizontal elements.

A study of the advisability and nature of further tests upon the dam and of increasing the height of the dam is now being made by the engineers in charge.

SESQUICENTENNIAL EXPOSITION AWARDS TO THE U. S. DEPARTMENT OF AGRICULTURE

THE executive committee of awards of the Sesquicentennial International Exposition at Philadelphia has awarded the Department of Agriculture a Grand Prize on account of the merit of its collective exhibit at the exposition. Awards on the exhibits of the various bureaus and offices were also announced, as follows:

Bureau of Plant Industry: Medal of honor, for exhibit of the systematic classification of existing crop plant varieties and the introduction, adaptation and improvement of new varieties, including hays and forage. Medal of honor, for showing original research in the day-length requirements of plant life.

Forest Service: Medal of honor, for excellence of exhibit on the wasting and preservation of American forests.

Bureau of Soils: Medal of honor, for display of analyses and classification of typical soils of the United States.

Bureau of Biological Survey: Medal of honor, on exhibit showing the conservation, utilization, and control of wild life.

Bureau of Public Roads: Medal of honor, for his-