

in the atmosphere to dangerous levels.

At a press briefing that followed the business session, Handler was questioned about the incident, and one reporter asked if the council were making scientific work or public activities the criteria for membership. In his reply Handler indicated it was the council's view that it "behooves a scientist to be even more sure of his facts when speaking before the public than before a scientific body."

During the closed business session Cole's work was defended vigorously, but, when the matter came to a vote, the issue was drawn on the council's right to exercise discretion and the council's recommendations on membership were carried, apparently by an overwhelming margin.

Handler was asked at the briefing

to comment on the petition signed by many of the reporters covering the NAS meeting asking that the Academy open more of its operations to the press. Access to reports and other documents that are not now available was requested, and press admission to more of the Academy's meetings was sought. It was assumed that sessions dealing with internal Academy affairs such as elections rather than with public-policy issues would remain closed. Handler said the petition would be discussed by the council and noted wryly that this year's discussion of Academy affairs with the press had been broader than in the past.

Under the new schedule for the intake of new members the limit will rise from 50 this year to 75 next year, peak at 100 in 1973, and decline to 95 in

1974, 85 in 1975, 75 in 1976, and level off at 60 in 1977, where it is expected to remain.

Handler said that because of special circumstances the intake of new members in the medical sciences and social and behavioral sciences must be done "judiciously." He indicated that, although there might be a backlog of distinguished elders in these fields who deserve recognition through Academy membership, the Academy had to avoid excessive honoring of graybeards not capable of doing work for the organization.

Any thought of a rampant youth movement in the Academy was laid to rest, however, by a decisive vote of the members against a motion that members assume emeritus status when they reach the age of 75.—JOHN WALSH

AAAS (II): What It Is and What It Tries to Do

The AAAS today, according to one former staffer, is like the LaBrea tar pits, that goeey mass of oil and tar in Los Angeles which is filled with the bones of long-extinct animals. "Every now and then a bubble goes 'blup' and you might get spattered by it," says William T. Kabisch, who served as a key administrative officer of the AAAS for 9 years. "But it doesn't really amount to much of anything."

Kabisch hastens to add that the AAAS does perform some useful functions. In particular, he believes it publishes "a fine magazine" and has done some important educational work. But the point he was making is that the AAAS is in some ways a collection of uncoordinated activities that bubble up in random fashion and that all too often have little or no measurable impact. Whether the organization can, or indeed should, have more cohesion and greater impact is a subject on which there is currently considerable debate. This article will attempt to describe just what the AAAS does today, and a subsequent article will discuss plans for the future.

What is the AAAS? Unfortunately, a fundamental ambiguity in the orga-

nization's structure makes that question a bit difficult to answer. The AAAS proudly proclaims that it is "the world's largest federation of scientific organizations," yet it is not really much of a federation at all. The AAAS does indeed have a loose relationship with some 300 affiliated societies and academies, and these affiliates, thanks to a long-standing provision in the constitution, actually control a majority of votes on the AAAS Council, the organization's highest governing body. Yet the affiliates themselves are not members of the AAAS, and their representatives on the Council almost always vote as individuals rather than as true representatives of their societies.

So loose is the connection between the affiliates and the AAAS that an affiliate has occasionally expired without the AAAS's learning of it until considerably later. Thus it is probably more accurate to think of the AAAS as a collection of individuals, many of whom also belong to other scientific groups. The AAAS currently has some 133,000 members, a figure which some officials claim makes the AAAS "the nation's largest general scientific organization." This means that it is smaller than the American Medical Associa-

tion but larger than such other scientific giants as the American Chemical Society.

The AAAS still accepts into membership anyone willing to pay his dues, so it tends to have a more broadly based and diverse membership than most scientific societies. A AAAS handbook claims there are "historians, clergymen, farmers and philosophers" on the membership rolls, which is probably true. But it is also true that the membership is weighted heavily in certain directions.

No detailed profile of the membership exists, but it is clear that the association tends to attract scientists as opposed to engineers, and academics as opposed to industrialists. Surveys taken by the association's advertising agency indicate that about half of the members work in universities, while one-fourth are in industry. The rest are scattered among government agencies, hospitals, and foundations or are self-employed. The academics not only dominate in total numbers, but also traditionally hold the reins of authority in the association. Few industrialists have served on the board of directors and fewer still have served as president. Oddly enough, the AAAS can't readily determine how many scientists—as opposed to teachers, laymen, or others—are included in its membership, but the assumption is that the great majority of all members can be considered practicing scientists.

The membership appears to be split fairly evenly among representatives of the biomedical sciences and represen-

tatives of the physical-chemical sciences. But the association has long had a strong biomedical emphasis in its journal, its annual meeting, and on its governing council. This results largely from historical circumstances, which have seen the physical and chemical sciences develop strong centralized organizations of their own, while the biological sciences have remained highly fragmented, with numerous small societies. Most of these small societies are affiliated with the AAAS and together they exert a disproportionate influence on AAAS affairs.

Motives for Membership

People seem to join the AAAS for a variety of motives. One of the chief reasons, presumably, is to get *Science* magazine, the official journal of the association. But, oddly enough, there are several thousand persons who apparently want the magazine but don't want the membership. For many years there has been no difference in price between a membership and a subscription to *Science*. For the same amount of money you could either get *Science* and be a AAAS member as well, or get *Science* and not be a member. At latest count, *Science* had some 163,000 subscribers, while the AAAS had only 133,000 members. Most of those 30,000 extra subscribers were institutions, such as libraries, which are not eligible for membership. But perhaps a fourth—roughly 7000 to 8000 people in all—are individuals who asked for a subscription but not for membership. Association officials are inclined to believe that these individuals were not rejecting the AAAS, but that they simply didn't realize they were eligible for membership at no additional cost. However, no one knows for certain. That theory will be put to the test shortly, for a new price differential has gone into effect, making it cheaper to become a member-subscriber than an outsider-subscriber.

Other reasons often cited for joining the AAAS include sympathy with its goals and a feeling that scientists "ought" to support one or more professional societies as a matter of loyalty to the profession. Many scientists apparently join one of the specialized societies to hobnob with their peers, and join the AAAS to further the social goals of science. Some scientists apparently even join the AAAS in the belief that it enhances their prestige. Mrs. Helen Wolfle, wife of the former AAAS executive officer Dael Wolfle,

swears she has detected several biographies in *Who's Who* and other such listings of notables which proudly reveal that the notable was a AAAS member—not an officer or a fellow, she stresses, but a mere "member." That's a designation which confers about as much prestige as inclusion on the subscription list of *Time* magazine.

There is, however, a class of membership in AAAS that is intended to confer prestige. This is the category of "fellow," a designation that apparently dates back to the last century's struggles between professionals and amateurs for control of the organization. Unfortunately, whatever luster may once have resided in the designation has largely worn off in recent years. A fellow is defined in the constitution as "any member who is deemed to have made a meritorious contribution to science." The contribution can consist of publication of original research beyond the doctoral dissertation or of other achievements, such as advanced teaching or the holding of patents. In practice, a fellow is anyone who is nominated by three other fellows, or who already belongs to an affiliated association that sets admission standards, or who is nominated by the AAAS executive officer or certain other officials for various specific reasons.

The procedure is rather hit-or-miss. One AAAS staffer recalls that when he first arrived on the job he noticed the switchboard operator poring over lists of names. "What's she doing?" he asked. "Picking out fellows," he was told. On another occasion, the AAAS discovered, to its chagrin, that two Nobel laureates were members but had not been elected fellows. Today, the AAAS doesn't even have a list of the fellows, though the best guess is that there are perhaps 20,000 of them, about 15 percent of the membership. There has been such consistent dissatisfaction with the process for choosing fellows that AAAS leaders are now considering either abandoning the category or making it more truly honorific.

Whatever the weaknesses of the fellows-selection process, the AAAS has many distinguished members. One fairly recent count indicates that more than three-fourths of the members of the National Academy of Sciences, the nation's most illustrious scientific assemblage, have joined the AAAS.

Who runs the AAAS is a question that has never been fully resolved.

Some say a small ingroup runs it as a virtual oligarchy. The organization has three loci of power: the 530-member Council, which is so unwieldy and meets so infrequently that it seldom exerts much influence over AAAS activities; the officers and directors; and the permanent staff.

The officers and directors have often played a key role in pushing the association in new directions (as with the 1951 Arden House statement and the more recent 1969 resolutions on future goals), but they tend to be busy men whose main interests lie elsewhere. James B. Conant, who served as president of the AAAS in 1946, thought so little of the experience that, judging from the index, he neglected to mention it in his recent autobiography, *My Several Lives: Memoirs of a Social Inventor*. Even Warren Weaver, who by all accounts was one of the most influential leaders in the history of the association, devoted only two paragraphs of his recent autobiography, *Scene of Change, A Lifetime in American Science*, to AAAS affairs. Thus the key propelling force in the AAAS, as in most organizations with part-time leadership, has tended to be the permanent staff, particularly the executive officer.

Not the Summit

The AAAS does not seem to hold much attraction for those "statesmen of science" who aspire to true political power. The Vannevar Bushes, James Killians, George Kistiakowskys, and Jerome Wiesners prefer to operate closer to the White House and other political centers, and have played no prominent role in AAAS affairs. Similarly, Glenn T. Seaborg, long-time chairman of the Atomic Energy Commission, twice declined to run for AAAS office before finally yielding to repeated entreaties.

Ironically, those influential individuals who have agreed to seek AAAS office have sometimes not fared too well. John Gardner, who later went on to become Secretary of Health, Education, and Welfare, lost two AAAS elections, presumably because at the time he ran, his name was not well known to the sprawling AAAS Council.

According to Wolfle, the most formidable vote-getters in AAAS elections tend to be biologically oriented scientists whose names are household words to the biology-dominated Council. One such was Alfred S. Romer (one of those who beat Gardner), a

distinguished paleontologist whose textbook had been widely used for so many years that many Council members had literally grown up with it. "No mathematician, astronomer, or social scientist, no matter how good, would stand much chance in that electorate in competition with Al Romer," Wolfe says. In an effort to give all disciplines a fair share in AAAS leadership, the association has long had an unwritten policy that opposing candidates should be chosen from roughly the same discipline. This deliberate "rigging" of the election ensures that the biologists don't vote their own into office every year.

The AAAS has a fairly substantial budget, but it is not a particularly rich organization. It has only a small endowment, valued at about \$1.2 million, plus a building fund valued at close to \$1 million. The largest single gift it has ever received totaled

\$360,000. The 1971 budget predicts revenues of just over \$5 million, of which about \$2 million are expected to come from advertising in *Science* and another \$2.3 million from dues and subscriptions to *Science*. These revenues support a variety of activities, of which the most important, in terms of funding and effect, are the publication of *Science*, the holding of an annual meeting, and certain educational ventures. Each of these activities has achieved notable success and is currently grappling with perplexing problems.

Publishing *Science*, the weekly journal of the AAAS, has long been the most obvious function of the association. For most members, it is the only tangible reward for AAAS membership and their only link with AAAS affairs. By the end of last year, *Science* had attained a paid circulation of about 163,000, which makes it one of

the bigger scientific publications in the country, though far from the biggest.

The magazine seems to have improved tremendously under the editorship of Philip H. Abelson, an eminent geophysicist who took over in 1962 and has since gained a reputation for rather daring, iconoclastic, and occasionally arbitrary leadership. It was not too long ago—back in the 1950's in fact—that the magazine was often forced to scrape the bottom of the barrel to find anything to print. Howard A. Meyerhoff, who was AAAS administrative secretary from 1949 to 1953, recalls that there were persistent problems in finding a topflight editor and that, consequently, he found himself acting as de facto editor for long periods of time. On one occasion, he recalls, he was so short of material that he rushed into print with an unrefereed lead article that was later roundly denounced by his own edi-

Briefing

Hippocrates' Physic

Last week the American Physical Society (APS), meeting in Washington, considered the question of whether physicists should adopt a Hippocratic oath—a pledge parallel to that of the medical profession—to shun activity that could harm human life. But the result of this soul-searching seemed to be the rather discouraging conclusion that oaths and pledges are no open sesame to professional morality.

The principal proponent of the oath idea was Charles Schwartz, professor of physics at the University of California at Berkeley, who also petitioned the APS to reword its statement of purpose making its goals the "enhancement" of "life" as well as the advancement of physics, and, in addition, to set up an APS ethics committee.

But these proposals, which were the subject of lengthy discussion at an evening panel session, didn't get very far. Schwartz's formal petition did not gain the necessary 300 signatures for it to be taken up as formal business. The 2300 physicists attending the meeting seemed much more concerned with the bread-and-butter issues posed by their crisis of escalating unemploy-

ment and dwindling research support.

The meeting had its share of radical antiwar feeling that has characterized most scientific meetings in recent years. Before Edward E. David, Jr., science adviser to President Nixon, gave a wrap-up speech on unemployment at the final banquet, a young man from Scientists and Engineers for Social and Political Action, mustachioed, bluejeaned, and headbanded, took the microphone briefly to denounce him. A statement protesting David's presence and threatening to disrupt his speech, was circulated at the banquet. APS officials then announced that, instead, an antiwar speaker would be permitted after David's talk: Pierre Noyes, Professor of Theoretical Physics at the Stanford Linear Accelerator got up and called for David's resignation from the government as a defense against his "possible prosecution," along with the rest of the government, for Vietnam "war crimes."

But introversion, not outcry, was more common at the meeting. In their discussion of the Hippocratic oath idea, the scientists mainly picked apart the practicality of oath-taking.

Only a subgroup of scientists, who refuse war work already, will take such an oath, said Anatol Rapoport of Cornell. Two years ago, Rapoport was chairman of an American Association for the Advancement of Science com-

mittee which made a survey of scientists' views on ethical matters and found that only 7 percent were willing to take such a pledge, although 52 percent "favored" some sort of code.

Schwartz, who was pushing for the oath, admitted it might not prevent people from building bombs. He had tried making such a pledge a prerequisite for a seminar last spring, he said, and, although most of the students were willing to go along with the idea, one interpreted the oath to mean that it was permissible to build bombs if he thought "it would help people."

A younger scientist at the discussion maintained that the only way scientists would be moral was "through the salvation of Jesus Christ."

The physicists—1500 strong at the oath session—picked apart the Hippocratic oath itself. "It corresponds to the ethics of the medical profession, but I seriously doubt that it actually determined them," said oath opponent Raymond Bowers, a Cornell physicist. And, in its classic form, the oath includes a ban on abortion—a proviso now largely outmoded. The scientists argued that abortion was like bomb-building: it may be "bad" of itself, but the society as a whole can decide that it is for the common good.

The only good an oath can do, they agreed, was to raise the current low

torial board. "I knew the editorial board would reject it, but I needed a lead article in a hurry," he said. "No one was submitting anything."

On another occasion, Meyerhoff recalls, he and a member of his editorial board were "hauled before" a committee at the National Academy of Sciences and "caught hell" for authorizing publication of a technical article that the Academy group regarded as nonsense, or perhaps even a hoax. Meyerhoff says the Academy group also seemed to think the AAAS was trying to generate publicity for the article. Meyerhoff says he and his colleague "told off" the inquisitors, and the accusations against them were, by and large, withdrawn. But he adds: "It was one of the bitterest meetings I've ever faced. I was astounded at the vigor of the attack on us." Officials at the Academy seem to have no recollection of the 20-year-old incident. But

it seems unthinkable today that an Academy group would presume to summon the editor of *Science* to face such an inquisition.

The rise in the prestige of *Science* can be charted in a number of ways. For one thing, the journal now has no trouble attracting material. Whereas the editorial function used to consist largely of weeding out the kooky articles and printing the rest, now even much competent material must be turned down. In 1970, *Science* rejected 70 percent of the articles submitted and 75 percent of the technical reports.

Another measure of progress is that *Science* has become one of the most quoted and widely read journals in the world. Eugene Garfield, who directs compilation of the *Science Citation Index*, has provided "very preliminary figures" which suggest that, during the last quarter of 1969, *Science* was the sixth most frequently cited journal on

his list—a notch behind *Nature* and still further behind such specialty journals as *The Physical Review* and the *Journal of the American Chemical Society*. Interpreting these data is tricky, and often one journal ranks higher than another mainly because it prints more material. Thus, while *Nature* was cited more often than *Science*, a given article in *Science* was more likely to be cited than a given article in *Nature*.

The goal of *Science*, as enunciated by Abelson, is to "provide reliable information about the most important things happening in science and to science and involving science." In particular, he says, the magazine tries to present "significant information—if the readers want fun and games and amusement and excitement, they can get a paperback."

Science is actually several different magazines combined under one cover.

level of morale among physicists. They didn't mention—but should have—that even his famous oath didn't keep Hippocrates from being the subject of a raging controversy over the credit and authorship of his main publication, the *Corpus Hippocraticum*, in 400 B.C.

—D.S.

To Cure Cancer

The proposal to divest the National Institutes of Health (NIH) of cancer research and set up a separate, massively funded National Cancer Authority (*Science*, 5 March) has generated a curious battle of influence in the Senate, with biomedical scientists on one side and the general public on the other. So far, the scientists are winning.

The proposal (Senate bill S-34) is based on the recommendations of the panel of consultants convened last year by the then Senator Ralph Yarborough (D-Tex.). When Senator Edward Kennedy (D-Mass.) introduced the measure at the beginning of the current session of Congress, it appeared certain to pass the Senate. But public and private opposition to the separate authority from several prominent life scientists, as well as from

NIH officials and the Nixon Administration, has reduced the bill's chances of even surfacing from Kennedy's own subcommittee on health. A recent survey of subcommittee members by *Drug Research Reports* indicated that only four senators favored the plan. Three are definitely opposed, while the remaining seven remain undecided.

If, however, the senators relied on their mail to determine their votes, the measure would pass the entire Senate by acclamation. Spurred by public relations efforts of the American Cancer Society to equate the separate authority with a possible cure, thousands of citizens have written their senators demanding they vote for Kennedy's bill.

The biggest boost to the letter-writing campaign came from syndicated columnist Ann Landers. Instead of the usual advice to the lovelorn, Miss Landers devoted an April column to a plea for public support of the separate authority. Declaring that "Government grants for medical research have virtually dried up," the columnist told her readers that "Today you have the opportunity to be a part of the mightiest offensive against a single disease in the history of our country. If enough citizens let their senators know they want Bill S-34 passed, it will pass." According to Senate aides, most senators received well over 1000 letters and telegrams within

a few days of the Landers column.

Another aspect of the anticancer effort has been the publication of several popular articles suggesting that cancer research has progressed to the point where the infusion of a massive amount of research support (like \$1 billion annually) could bring rapid breakthroughs. A lengthy cover story in the 22 February issue of *Newsweek* concludes that "Taken all in all, the advances made in cancer research and therapy add up to the most hopeful view of the future that has ever been possible."

Even "America's Oldest Magazine," *The Police Gazette*, offered its contribution to the campaign to cure cancer. In the May issue, an article entitled "Cancer Miracles" (between "The Pill Can Turn Marriage into a Sex Nightmare" and "Why I Can't Live with Zsa Zsa") listed "A further heartening development: a special Senate report has recommended doubling federal spending on cancer research to \$400 million within one year with a goal of a billion in a few years."

"Thus," concluded the *Police Gazette* article, "while cancer is far from licked at this writing, we do seem to be coming down the home stretch in vanquishing this dreaded enemy."

—R.J.B.

The lead articles, which offer a broad review of a technical or social topic, are meant to be somewhat more difficult than those found in *Scientific American* and somewhat less difficult than those found in the highly specialized review journals which, according to Abelson, are "so esoteric and complex" that they're useless to the average specialist. The news and comment section, meanwhile, offers political reporting of the sort that is performed by lay journalists on leading magazines and newspapers. The research reports offer pure science. And there are editorials, letters, book reviews, occasional meeting reports, technical comments, and other features.

Lead Articles Win

Readership surveys consistently show that the weighty lead articles are the most widely read part of the magazine, but conversational feedback picked up by AAAS officials almost always indicates that the racier news and comment section is the most popular. The discrepancy can probably be explained by an analogy with the *Playboy* reader who insists that he buys that hedonistic magazine to read the philosophical articles and not to look at the pictures of undraped bunnies.

Science has occasionally had considerable impact on public affairs and the discussion of public issues. Editorial writers on leading newspapers are forever quoting "no less eminent an authority than *Science*." Some of the journal's lead articles—such as Garret Hardin's "The Tragedy of the Commons"—have become minor classics in their field and have shaped the form of public debate. And occasional news and comment articles—such as revelations that the Nixon Administration had blocked the appointment of a topflight scientist for political reasons, and that the Department of Health, Education, and Welfare was "black-listing" eminent scientists—have initiated chains of events that led the government to change its policies.

But not everyone is an admirer of *Science*. The magazine has been attacked by both the Establishment "ins" and the anti-Establishment "outs." Thus, Philip Handler, president of the National Academy of Sciences, has publicly criticized the news and comment section for undermining the scientific enterprise from within. And radical students have accused the magazine of doing its best to protect the status quo. The magazine is probably

most accurately depicted as part of the social structure of science, but a part that is very willing to throw bricks at the other parts. Past bricks have included an editorial attacking alleged racial discrimination at the Cosmos Club, the main social retreat for eminent scientists; an editorial criticizing Wiesner's performance as science adviser to the late President Kennedy; and various news articles that caused anguish at the National Academy of Sciences and the National Science Foundation, among other locales.

The weakest part of *Science*, in the opinion of many observers, is the section in which original research is reported. Several science writers for leading newspapers, who spend considerable time scanning the scientific literature for hot news items, report that lately they found more to write about in *Nature*, a small-circulation (20,000), high-prestige British journal, than they have in *Science*. "Abelson crushed *Nature* in the early 1960's—he ran away with the game," says one science writer. "But then Maddox came in [as editor of *Nature*] and has run away with the bacon."

That's probably overstating the case, but even some members of the editorial board of *Science* have expressed concern that *Science* is not the place to look for the latest advances in their fields. The picture apparently differs from field to field, but two areas in which *Science* seems to have trailed are molecular biology and astronomy.

Unfortunately, it is not clear that much can be done to rectify the situation, largely because *Science* has only limited space for research reports and does not want to become overcommitted to any one field, no matter how "hot" that field may be. Nor does *Science* want to indulge in some of the practices that are said to have given competitors an advantage. These practices are said to include virtually guaranteeing publication with little or no editing, showing favoritism to certain institutions and individuals, and publishing scores of mediocre papers in a "hot" area in order to snare the occasional report of a breakthrough.

Science is unfortunately in the position of wanting to attract the most exciting papers, in the vanguard of a variety of fields, without becoming known as the place where specialists in those fields expect their papers to be published automatically. It's a difficult, perhaps impossible, tight-rope to walk, and *Science* is thus apt

to continue doing pretty much what it has been doing, with special emphasis on attracting research reports of interest to more than one discipline. Abelson says he does not intend to launch a high-pressure recruiting campaign to attract "hot" items; nor does he intend to indulge in the techniques that are said to have enabled other journals to grab the seemingly hot stuff, some of which turns out not to be so hot on sober, second reflection.

The one area in which *Science* is apt to change in the near future involves the research topics section, a new feature that presents wrap-up science news articles describing advances in various fields. The section has only one writer at present and appears irregularly, but Abelson plans to expand the staff and the coverage.

The other function of the AAAS with which almost all members are familiar is the annual meeting. This affair is held in different cities from year to year and is traditionally scheduled for the week between Christmas and New Year's. But starting in 1974, the meetings will be held in the spring in an effort to accommodate persons who refuse to come during the Christmas holidays. The meetings have become very large and unwieldy, often attracting more than 7000 paid registrants and some 1500 or so speakers, and they have consistently lost money for the past decade or so. But they have such deep roots in AAAS history that they are almost certain to continue in the foreseeable future.

Making Meeting Relevant

The chief goal of the meeting, according to Walter G. Berl, the AAAS meeting editor, is to present "an annual report on the state of science in full public view." Berl believes it is particularly important for AAAS meetings to avoid the "ivory tower" approach and to grapple with social problems. "When the meeting is over, it ought to be possible to look over the table of contents and see where we are," he says. "From reading the contents of previous meetings you could not discover that there had been a World War I, a depression, or a World War II."

Berl, who assumed his present position in 1967, has gradually been implementing the admonition of the Arden House statement that AAAS meetings should move away from the presentation of narrow technical papers and should concentrate instead on broader

problems of interest to more than one discipline, or to the scientific community as a whole, or to society at large. As he sees it, the AAAS meeting should serve the needs of a number of different kinds of people—research scientists, students (about one-fifth of those attending the 1970 meeting registered as students), teachers, administrators, and interested laymen. But the process of change is far from complete, and it is meeting with resistance. As a result, the AAAS meeting as now constituted is a bewildering hodgepodge. At one extreme, affiliated societies, such as the American Society of Zoologists, schedule sessions that consist of dozens of short, contributed papers on narrow technical topics. Grafted on top of this there are symposia, planned by the AAAS central office, on such broad topics as “Reducing the Environmental Impact of a Growing Population.”

Autonomy of the Affiliates

A glaring weakness of the AAAS meetings at present is that there is little or no editorial control. Programs proposed by the various AAAS disciplinary sections are rarely turned down by the central office, and programs sponsored by the autonomous affiliated societies that meet with the AAAS are considered virtually untouchable. The result is that there is often a great proliferation of programs on the same topic (environmental issues were omnipresent at the Chicago meeting), and some of the sessions actually work at cross-purposes with the rest of the meeting (as when an affiliated society offers nothing but short technical papers). Fully 30 percent of those who arranged symposia at the Chicago meeting claimed that other programs overlapped theirs in content.

The editorial anarchy could probably be cured by a more hard-nosed attitude in the central office, and there are signs that such an attitude is developing. One plan under consideration is to refuse to subsidize the meetings of affiliated groups which don't integrate their programs into the overall AAAS program. It cost the AAAS an estimated \$35,000 to accommodate the affiliates at the 1970 meeting—a not inconsiderable contribution toward the overall meeting deficit of more than \$200,000.

The annual meeting suffers from some of the same problems that have afflicted *Science* as the AAAS becomes more interested in broad issues and

less interested in detailed technical reports. Thus the meeting has been criticized for going overboard on social problems and for failing to attract enough reports on red hot scientific advances. A survey indicated that almost a fourth of the papers presented at the Chicago meeting had been previously reported publicly, usually in a journal article or at another scientific meeting. That seems like an extraordinary amount of rehashing of old material, but it is probably inevitable that most scientists will continue to present new findings to their specialty groups rather than to the AAAS.

Perhaps the most worrisome criticism of AAAS meetings is that too many of the sessions are dreadfully dull. The radicals who disrupted the 1970 meeting complained that most of the speeches were “boring” and “irrelevant,” and even AAAS officials acknowledge that the quality is spotty. Berl estimates that of some 120 symposia at the 1970 meeting, perhaps 20 were “good” and another 50 were “fair.” However, quality often depends on the direction from which you are looking, and there were many students, teachers, and young scientists who said they found the 1970 meeting stimulating, broadening, and full of extremely relevant analyses of social problems. “Maybe a second-rate paper in biology is just the right thing for a physicist,” one explained.

For the future, AAAS officials are apt to try to develop more centralized control of the program so as to cut down the number of papers and ensure better coverage of topics. There is also talk of holding different kinds of meetings—perhaps on a regional basis or on specialized topics—in addition to the annual meeting. And the effort to expand the reach of the meeting through videotapes, audiotapes, television, and other means will undoubtedly expand. Berl also hopes that the AAAS meetings can increasingly interact with the city in which they are held. This was a stated goal of the meetings back when the AAAS was founded, but in recent years the interaction has amounted to little more than a few tours and an exhibit or two put up in local institutions.

The publication of *Science* and the holding of an annual meeting have long been the major functions of the AAAS. But the association has also taken on, particularly in recent years, an array of other activities as well. The most important, by a long shot, has been

the development of a new science curriculum for elementary schools, with the help of some \$2 million from the National Science Foundation. Entitled “Science: A Process Approach,” the new curriculum is being produced and marketed by the Xerox Corporation. Though only barely on the market, it's being used this year by some 70,000 elementary school teachers to instruct more than 2 million students.

The AAAS also conducts a host of smaller educational projects. It stages the popular Holiday Science Lectures at which eminent scientists address promising high school students in cities throughout the country. It holds seminars for congressmen, diplomats, school administrators, teachers, and others. It awards prizes for outstanding work in science and science journalism. It administers the Gordon Research Conferences, at which the very hottest of hot research is discussed. And it publishes bibliographies, symposium volumes, reports on public issues, *Guide to Scientific Instruments*, and other documents. All of these projects have their critics and their supporters, and all seem to prove useful to someone somewhere. But whether, taken as a whole, they add up to a significant program, is open to question. Many of these programs are undergoing review to determine whether they should be dropped, altered, or enlarged as the AAAS maps out an ambitious program for the 1970's. That program will be discussed in next week's article.

—PHILIP M. BOFFEY

RECENT DEATHS

Dillman S. Bullock, 92; director emeritus, El Vergel Agricultural School, Angol, Chile; 5 April.

Jack Chernick, 59; head, reactor physics division, Brookhaven National Laboratory; 8 April.

George E. Crofoot, 92; professor emeritus of mechanical engineering, University of Pennsylvania; 4 April.

Joseph K. Hill, 52; former president, Downstate Medical Center, State University of New York, Brooklyn; 19 April.

George F. Hunt, 51; professor of wildlife management, University of Michigan; 29 March.

Rollo J. Masselink, 66; former assistant professor of neurology, College of Physicians and Surgeons, Columbia University; 12 April.