used in obtaining actual frequency, but for 300 to be used in place of the correct $c/10^8$ in the voltage transformation. Aside from this glaring inconsistency, the latter approximation introduces an error of 0.07 percent, which was by no means negligible even in 1929. But although I emphasized this point in my paper [15], the same error has actually occurred, even many years later and in connection with work of the highest precision.

If investigators would only write an expression for any result, *explicitly* in terms of the quantities actually measured (which in the foregoing illustration would lead to the explicit appearance of the factor c^2), inconsistencies and unjustified approximations would be far less likely to occur.

A precursor of this paper was discussed by the Comité Consultatif des Unités. The result of the discussion was the following recommendation, subsequently approved by the Comité International des Poids et Mesures (1971) (*2*):

The Consultative Committee for Units, RECOMMENDS that reports on measurements of high precision, in particular on the experimental determination of physical constants, contain precise information on the manner in which the obtained results depend upon the values assigned to the starting-point standards and to other constants and parameters used, so that the results can be readjusted if need be.

The problem is threefold: (i) to educate experimentalists in the nuances of the relations between their local units and the SI names, (ii) to develop a simple unambiguous notation and terminology for precise reporting of important data, and (iii) to convince journal editors and reviewers of the importance of the problem.

Notes

1. Symbols and abbreviations: SI, Système International d'Unités (the modern metric system, see NBS Special Publication 330 for an official description of the International System of Units); Hz, hertz (cycle per second); M, mega, prefix for 10^6; T, tesla, SI unit for magnetic flux density; V, volt; s, second; m, meter; kg, kilogram; Ω, ohm; F, farad; N, newton, the SI unit of force; *g*, acceleration of gravity; γ, (gamma) gyromagnetic ratio of the proton; subscript w, weak; subscript s, strong; ω, angular frequency; *B*, magnetic flux density; ν, (nu) frequency; *I*, electric current; *l*, length; μ_0, magnetic constant (of the system of units), sometimes called "permeability of vacuum"; *F*, force; H, henry; *h*, Planck constant; *e*, elementary charge (charge of positron); *c*, speed of light; esu, electrostatic system of units; ppm, parts per million.
2. The original wording is as follows.
   Le Comité Consultatif des Unités,
   RECOMMANDE que les rapports sur les mesures de haute précision, en particulier sur la détermination expérimentale de constantes physiques, contiennent les renseignements précisant la façon dont les résultats obtenus dépendent des valeurs attribuées aux étalons de départ et aux autres constantes ou paramètres utilisés, afin que ces résultats puissent être réajustés en cas de besoin.

NEWS AND COMMENT

Technology Assessment: Congress Develops a Hybrid

Parliamentary hares, who hoped that Congress's new Office of Technology Assessment (OTA) would be operating soon enough to give it some help in sprinting past the President on current issues such as the energy crisis, are in for a disappointment. The OTA is unlikely to receive any of its authorized $5-million budget before 1 July, and therefore won't be operating until the summer. Like the proverbial tortoise, OTA is off to a slow start—but one which its proponents say indicates reliability rather than feebleness.

In the meantime, the scientific job market in Washington must be very tight, because the several Capitol Hill offices concerned with setting up OTA have on file an estimated 500 job applications, letters of recommendations, and solicitations for contract awards. Once the new director starts hiring for his 30-odd slots he will literally have crowds to choose from.

Hill procedures have been holding up the establishment of OTA. The bill creating OTA was signed last October, or months after Congress had passed the fiscal 1973 authorization for its own offices. The fiscal 1974 bill won't be voted until May or June. Interim funds could be drawn from the general fund which finances all congressional committees, but OTA isn't a committee, technically, and so cannot use those funds. Thus the office won't be able to pay a director or staff before the start of fiscal 1974 on 1 July 1973.

Although still in the planning stages, OTA is shaping up to be quite different from what academic proponents of technology assessment may have expected. A staffer to Senator Edward M. Kennedy (D–Mass.) (Kennedy is chairman of the board for the OTA's first term) pointed out last week that the office will be more of a general technical consulting service for Congress and congressmen. "Any material or advice we can give to Congress to help it make better decisions we will do. This is why we won't only do the precise, academic, technical analyses. That sort of thing is limited in what it can do for Congress," he said.

As an organizational beast, OTA will be composed of different parts drawn from various administrative animals. The board of OTA will be, in effect, a joint committee of Congress. Members from the Senate will be: Kennedy, Hubert H. Humphrey (D–Minn.), Ernest F. Hollings (D–S.C.), Peter H. Dominick (R–Colo.), Clifford P. Case (R–N.J.), and Richard S. Schweiker (R–Pa.). House members will be John W. Davis (D–Ga.), Olin E. Teague (D–Tex.), Morris K. Udall (D–Ariz.), Charles A. Mosher (R–Calif.), and James Harvey (R–Mich.).

[Mike McCormack (D–Wash.), the first scientist in Congress in recent years, was appointed to the OTA board last winter. But McCormack, who is on the House Committee on Science and Astronautics, has now obtained a seat on the Joint Committee on Atomic Energy instead.]

The OTA will be officially nonpartisan—but being nonpartisan usually means that the counting of Republicians and Democrats is considered more solemnly than the number of teeth in the medieval horse's mouth. A few months ago, Mosher, who is an active member of the House science committee and was then a senior Republican candidate for the new board, was arguing that it might benefit the OTA's nonpartisan image to have a Republican as the vice chairman of the board. But, Davis and others now think a Democrat would be more effective with the Democratic machinery of the House during the office's maiden year. Staffers now say that Davis will probably be vice chairman.

The horse trading continues. The only

serious candidate for director of the office is Emilio Q. Daddario, who, as a former congressman, the father of the technology assessment idea, and currently in private industry at Gulf and Western Industries, Inc., has unique qualifications for the $40,000-per-year post. But adding Daddario, a Democrat, to the Kennedy-Davis team will mean that the deputy director of the office will have to be a Republican. Many names for the deputy job have been mentioned, among them Edward Wenk of the University of Washington, Stephen Ebban, now at George Washington University, Richard Carpenter of the Environmental Policy Studies office at the National Academy of Sciences, and David Beckler, long-term deputy director of the Office of Science and Technology (OST). Only Walter Hahn, of the science policy division of the legislative reference service at the Library of Congress, is known to be a Republican; Hahn at the moment is a likely choice for the second OTA staff slot.

In addition to a board, which will resemble a joint committee, there will be the office itself, which will resemble the General Accounting Office in its mode of operations. OTA may also add two still different legs. According to current plans, OTA would perform part of its work the way businesses and government agencies do, by contracting it out to think tanks and universities. Long-term studies lasting a year or more may be done outside and monitored by the OTA staff.

Another leg would be panels of outside experts, a council whose role with the office would be analogous to that played by the President's Science Advisory Committee with OST. There would also be a series of ad hoc panels with members from industry, science, engineering, public interest groups, labor unions, and so forth, to make short-term studies of subjects for OTA and for the board.

Whatever bureaucratic hybrid is assembled before July, there is one last, significant way in which OTA will be a new breed. Both Humphrey and Kennedy are enthusiastic about having OTA operate its own so-called "sunshine law," thus making all its business open to the public and the press. This will probably include advisory committee meetings, board meetings, reports, and routine staff operations (with the exception of classified material). Thus, OTA will differ from OST, PSAC, and hundreds of government advisory committees accustomed to acting in secrecy. OTA's planners allege that this openness will be in the tradition of most congressional groups. The big adjustment, they predict, will be in the scientific community. So, whatever OTA shapes up to be, it will at least be visible.

A final function of the OTA should be mentioned: whether the office will serve as a platform from which Kennedy, as an oft-mentioned presidential candidate, will do political battle with the President. Kennedy's staff vigorously denies that he will use his 2-year chairmanship of the OTA board in this manner, and Republican staffers concerned with OTA point out that it is in Kennedy's political interest to project an above-the-fray image through OTA. He has other soapboxes on which to stand when attacking Nixon, they say. But, in fact, the emergence of OTA is based on congressional frustration with the executive branch's arrogation of technical information to itself. Almost by definition, then, OTA will have to do some growling at the Administration, and Kennedy, as chairman of the board, will probably do some barking too.—DEBORAH SHAPLEY

Reform in the House: Amending the Seniority Rule

A little reform is a dangerous thing, or so it appears from the reaction of Democratic elders in the House to changes in the rules on the organization of committees. The disarray caused by the changes accounted in part for the failure of several House committees to get their subcommittees organized and operating by the time the House recessed 8 February for the Lincoln–Washington birthday break, some 6 weeks after Congress convened. The effects of the changes are potentially greatest for the House Appropriations and Armed Services committees, where the uses of seniority have long caused indignation among reformers and frustration among junior members of the committees.

The rule changes have occurred in a series of meetings of the Democratic Caucus, in which all House Democrats are eligible to vote. Because they are in the majority in the House, the Democrats decide how the committees shall run and who shall run them. Seniority traditionally rules in the House, but the Caucus has the power to control chairmanships, if it chooses to exercise it.

At Caucus meetings on 22 and 23 January, a considerable stir was caused by an amendment to the Caucus rules to require that committee chairmen be ratified by the Caucus at the start of each Congress. The Caucus then went on to endorse all incumbent chairmen and several new chairmen who had succeeded along the hallowed path of seniority. Another package of amendments to the rules, dubbed "the subcommittee bill of rights," voted at the same time, received much less attention from the press and apparently from senior members, at whom it was aimed.

The package of changes originated in the Democratic Study Group (DSG), which was founded in the late 1950's by junior, mostly liberal, Democrats who found the workings of the House undemocratic. Most points in the subcommittee bill of rights were endorsed by a reform panel, headed by Representative Julia Butler Hansen (D–Wash.), whose members represent a full spectrum of Democratic views.

The amendments in general do not reject the sway of seniority but make committee operations more directly responsible to the Caucus and give Democratic members of individual committees ways to counterbalance the power of the chairman. A caucus of Democrats is to be established within each committee, and new ground rules are set on such things as the jurisdiction of subcommittees and party ratios on the