

letters

A new trial for Galileo

The decision in October of Pope John Paul II to give Galileo a new trial must be welcomed as a means of clarifying the historic relation of the church to scientific advance.

The church's original trial of Galileo has long been a butt of critics and a favored show-piece of anti-clerical zealots, who have used it to obscure the long history of splendid contributions to science by men of the church and by scientists with strong religious convictions. The episode has been particularly exploited by those who regard the church as a political enemy.

Late in the day as it is, it should still be useful to rehearse the events of more than three centuries ago, and lay bare the misconceptions which that earlier trial has fostered about the role of the church in relation to science generally. That role has been far more positive than those whose educations have been almost entirely secular have been led to believe. We physicists have perhaps been as remiss as any for the way in which the conflict between Galileo and the church has been represented and interpreted in our secular schools and colleges.

For example, in Holton and Roller's influential and generally admirable text for non-scientists, "Fundamentals of Modern Physical Science," the persecution of Galileo by the church is described at some length in a chapter entitled "Science and Freedom," in which reference is made in similar terms to the later persecutions of scientists in Soviet Russia and Nazi Germany.

It would strike a more equitable balance if cognizance were taken of the fact that historically the church has been far more forward-looking than such juxtapositions would lead one to believe.

For example, the eminent lay Dutch scholar, E. J. Dijksterhuis, in his superb book *The Mechanization of the World Picture*, has amply documented the many contributions to mechanics made by churchmen who were Galileo's predecessors, and whose work paved the way for his. The work of Copernicus is, of course, the most notable example. Galileo himself claimed to be a

loyal son of the church, and there is no more reason to question his religious sincerity than that of Newton or Pascal.

If we look at the role of the church in advancing scientific knowledge beyond the narrow confines of mechanics, the picture is a dazzling one. Church missionaries have almost certainly been the most effective single group in bringing the population of the globe as a whole within the orbit of modern science. They have done the basic spade work of breaking down language barriers and spreading scientific teaching into classrooms in all corners of the world. And at the same time the medical missionaries have been the first to bring the benefits of modern medical science and technology to all the races of Mankind.

If the church has been less than kind to an occasional scientific dissident, the scientific community has been much less than appreciative of the role of the church in spreading the benefits of science around the globe. We can hope that with the new trial of Galileo, old scores will be wiped clean, and the stage will be set for renewing the symbiotic relationship which historically has been the relationship between science and religion.

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Overhead for all?

I would not be quite as suspicious of the indirect cost policies of major universities as is John Cramer in his guest comment (January, page 9); but I would agree with his central point: We overhead-paying sponsored researchers do need a representative responsible to (and paid by) us alone, through whom we can aggressively negotiate with our universities over just which indirect-cost services we wish to purchase and at what levels and rates.

I'm convinced, however, that a more fundamental change in university accounting is essential before the "overhead problem" can get better. If indirect costs are real (as of course they are), their reality applies to all activi-

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