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I shall limit my remarks to three questions raised by Ross's paper: Schwantes' use — or more accurately abuse — of science in support of his theology, Schwantes' views on human freedom, and Ross's plea for the Christianization of history.

Schwantes' entire thesis hinges on a peculiar interpretation of the principle of uncertainty or indeterminacy, the fundamental principle of quantum mechanics formulated by Werner Heisenberg in 1927. This principle states that any measurement of the position and momentum of an atomic body must result in uncertainty equal at least to a very small quantity, Planck's constant divided by 2π (1.0×10^{-27} erg-sec). According to classical physics, it was possible to predict where a moving body would be found in the future if, and only if, one could obtain the necessary initial information: the position and momentum of the body at an earlier instant of time.

Heisenberg's principle denies that this information can be obtained in the subatomic world. Some individuals have inferred from this that future events can no longer be predicted exactly. But even if this inference is valid, future events are still predictable statistically. And these events are still determined by previous events; only our knowledge is limited so that we cannot say precisely what will occur. "The crucial point" of the uncertainty principle, wrote Heisenberg's mentor, Niels Bohr, "implies the *impossibility of any sharp separation between the behaviour of atomic objects and the interaction with the measuring instruments which serve to define the conditions under which the phenomena appears.*"¹ This being so, it is difficult to understand just what Schwantes means when he says that "the indeterminacy is not introduced by man in the course of experiment because of faulty apparatus, but it is objective in the sense that it is embedded in nature. It is there, whether observed by man or not" (p. 24). Schwantes, it seems, is missing the "crucial point" of the uncertainty principle.²

But more important than Schwantes' understanding of quantum mechanics is his use of it in defense of the concept of divine providence. The uncertainty principle, he argues, makes room for divine providence in two ways: directly in the physical world and by analogy in the historical world. Although he does not develop the idea at any length, Schwantes seems to

think that the demise of strict determinism in the natural world opens the door for an interfering God to manipulate physical events without seeming to do violence to natural law. And if natural events are no longer strictly determined, he says, then certainly historical events cannot be either. Here are his own words:

As indeterminacy seems to be inherent in the fundamental nature of things, the older view that the future of the physical universe is absolutely conditioned by the present is no longer tenable. If this is true of nature, it should be even more true of man who transcends nature by the power of thought. The view long held of strict determinism in history must be likewise replaced by the concept of the openness of history. At every turn of events history is confronted with innumerable alternatives. Which alternative will be taken is, from the secular point of view, purely a matter of chance. But from the point of view of faith, the alternative taken may be a matter of Providence [p. 25].

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Let us look carefully at this statement. First, Schwantes maintains that it is no longer tenable to say that "the future of the physical universe is absolutely conditioned by the present." This is not accurate. We may not be able to *predict* the future course of events in the subatomic world, but the future is nonetheless determined by the present. Only our knowledge is limited. Schwantes then suggests with an interesting non sequitur that if determinism is no longer true of nature, it should be even less true of man, "who transcends nature by the power of thought." But if mind really transcends the natural world, as he claims, why should we assume natural laws to be applicable to the mind at all? Finally, Schwantes proposes that God may "direct the course of events" in history by selecting one of several alternatives open to him. The so-called accidents of history thus become manifestations of divine providence — but only if the accidents are favorable to God's plan. All Schwantes is offering us is a new "God of the gaps."

The dangers inherent in such tactics should be obvious. It has never been safe to build one's theological beliefs upon the prevailing cosmology. Newton, we recall, based his belief in God's providence on the necessity of periodic repairs in the solar system to correct irregularities that would have resulted in the system's destruction if left unattended. When Laplace and Lagrange in the eighteenth century showed these irregularities to be self-correcting over long periods of time, the Divine Mechanic was no longer needed. Similar episodes have occurred time and time again, and there is no reason to believe that the present cosmology will prove more enduring than its predecessors.

Admittedly the uncertainty principle seems relatively secure today, but we should not forget that such pioneers in quantum physics as Planck, Ein-

stein, and Schrödinger all believed that determinism would eventually be restored to physics. Recent work in high-energy physics has raised questions that cannot be satisfactorily answered in terms of quantum mechanics. A new theory of the structure of matter is already needed. If we judge from past experience, there is every reason to believe that such a theory will represent a radical change in our thinking. No one today knows whether or not the uncertainty principle will survive the revolution. If it doesn't, then what will become of the Schwanteses and their students disillusioned by *The Biblical Meaning of History*?³

I fully share Ross's concern with Schwantes' "freedom device." Frankly, it makes little sense to me, theologically or historically. Schwantes never answers the question of man's freedom in a world controlled by God. He claims, "Providential forbearance allows man to build a profane order in opposition to the divine order" (p. 40), but never explains why God would resort to such drastic measures as a universal Flood to prevent men from opposing his will.

History, as Schwantes sees it, is the story of man's struggle for freedom. Divine providence guides the historical process in the direction of greater political freedom for the greatest number, while "demonic powers have always made this advance toward freedom as difficult as possible" (p. 164). Apparently the Christian historian needs only to label events correctly in order to solve the problem of causal explanation. Certainly no historian worth the name would resort to such a methodology.

On a strictly historical basis Schwantes' thesis bears little resemblance to historical reality. Take, for instance, the following statement: "Through His providence God acts toward preserving and expanding the areas of freedom. To reverse this trend would be to defeat His redemptive purpose for man whose response to the divine call must ever be a response in freedom" (p. 184). The implication is strong that God would not permit the trend toward greater freedom to be reversed. Yet every one of us can think of periods of greater and lesser freedom. Many maintain that communism is reversing the trend even today. Schwantes chooses to ignore this.

In conclusion, I must take strong exception to Ross's contention that the providential view of history revitalized by Schwantes, provides an answer "that should not be rejected unless and until a better way is found."⁴ I much prefer honest agnosticism to pious fraud. I can see no justification for historians to pretend to discern something in the historical record that simply is not discernible — namely, evidence of divine providence in history. Ross explains that "the misuse of the past by radical historians of the New Left

. . . construes and discredits it.”⁵ I agree. But the misuse of the past by over-zealous Christians will produce exactly the same effect. The fact that Christian solutions to the problem of history are currently satisfying should influence us no more than the fact that Marxist solutions are likewise satisfying to a sizable element of the world’s population.

I also reject Ross’s argument that in order to justify Christian education “our courses must be somehow Christian,” if by this he means Christian in content.⁶ Are we going to demand Christian calculus of the mathematics department, Christian French in the department of modern languages, and Christian thermodynamics from our physicists? Perhaps. But I do not see how the Christian element in such courses can be anything more than an extraneous sidelight. If history is going to be saved in Adventist schools, I suggest that we ask pertinent questions related to problems of current concern instead of providing ready-made answers like those offered by Schwantes. Rather than telling our students *the* meaning of history, why not let each of them discover his own meaning, whatever that might be?

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REFERENCES AND NOTES

- 1 Niels Bohr, *Atomic Physics and Human Knowledge* (New York: John Wiley and Sons 1958), pp. 39-40.
- 2 The uncertainty described by Heisenberg is directly related to the wave-particle nature of atomic bodies, but it is not a totally objective phenomenon, as Schwantes would have us believe. Although the wave-particle duality prevents the exact measurement of position and momentum, the uncertainty does not exist until an observer attempts to determine these quantities.
- 3 I strongly suspect that Schwantes’ own belief in human freedom and divine providence is only incidentally attached to modern physics, and that he would manage without difficulty to retain his convictions even if the uncertainty principle were to be discarded.
- 4 Gary M. Ross, The historiographical work of Siegfried J. Schwantes, *SPECTRUM* (Winter 1972), p. 50.
- 5 Ross, p. 50.
- 6 Ross, p. 52.