

Martin Hewlett. *Sangre de Cristo: A Novel of Science and Faith*. Tucson, Arizona, Spirit Rider Press, 1994: 251 p. ISBN 0-9639790-0-0.<sup>1</sup>

When Martin Hewlett's novel *Sangre de Cristo* appeared in 1994, we considered reviewing it in *RADIOCARBON*; in the end we balked at setting ourselves up as critics of fiction. But as an appendix to R. E. Taylor's notice of Dr. Gove's history of the Shroud of Turin dating, we thought it would be appropriate to take notice of another scientist's imaginative rendering of a similar event.

Hewlett, Associate Professor of Molecular and Cellular Biology at the University of Arizona, was not directly involved in analysis of the Shroud of Turin, but has based his first novel, *Sangre de Cristo*, in part on firsthand stories about the dating from colleagues who were. As a university faculty member, he understands the complex interplay of idealistic curiosity, political self-interest and financial pressure that surrounds the research scientist; as a practicing Roman Catholic, and past participant in the Arizona Newman Center's St. Albert the Great Forum on Theology and the Sciences, he understands the symbolic importance of an artifact like the Shroud to both individual believer and the Church hierarchy. Hence in *Sangre de Cristo*, as in Gove's history, neither scientists nor believers fit neatly into the categories "hero" and "villain".

The novel is set in the science-fictional near future of the year 1999. During church repairs, Father Carriere, the Jesuit curator of medieval artifacts at the Abbey of Hautecombe in the French Alps, discovers a reliquary containing an apparently ancient burial shroud. He assumes that it, like the Shroud of Turin, is an "elaborate construction" of medieval origin. (Hewlett takes some artistic license with actual history by making the Shroud of Turin date to the 12th century instead of the 14th, so that it can be connected with a subplot involving the expulsion of the Knights Templar from Jerusalem in 1172.) Despite Carriere's skepticism, he hopes to advance his scholarly career by heading up analysis and dating of the textile. He receives authorization from the Vatican to take the shroud to Tucson for dating at the "Laboratory of Atomic Chronometry".

The dating of the shroud *per se* is of secondary importance to the major plot involving Joshua Francis, an assistant professor of molecular biology at Arizona. Like Carriere, he sees the shroud as a career opportunity, but his interest is in the traces of blood preserved on the cloth: if he can recover and clone DNA contributed by the presumably medieval body that was wrapped in the shroud, he can make a name for himself as a pioneer in the emerging field of "molecular archaeology"<sup>2</sup> (and, he hopes, improve his rather dim chances of earning tenure). Obtaining 200  $\mu$ l of the blood extract from a friend on the research team, Francis succeeds in producing a recombinant DNA clone.

But to his dismay, the AMS dating of the cloth yields a firm result of *ca.* AD 30. Word of Francis' experiment having already leaked out, a reporter at the research team's press conference underlines its obvious implications: "So, you have a linen cloth, potentially used as a burial sheet, that dates to the time and geographical location of Christ and that contains coloration produced by human blood. In addition, you have produced recombinant DNA molecules that include the DNA of the person whose blood is on the cloth. Is that correct?" (p. 95–96). What's more, by this point in the novel the reader knows that the Shroud of Hautecombe *is* the actual burial cloth of Jesus, thanks to a subplot involving a fictional Society of Arimathea, formed in the first century, whose members have tended,

<sup>1</sup>Available from the publisher at 2920 E. Mabel St., Tucson, Arizona 85716-3848 USA; or see the entry for the book at <<http://www.amazon.com/exec/obidos/ISBN=0963979000/2742-1505152-209568>>, which includes an interview with the author.

<sup>2</sup>In fact, molecular archaeology is already a well-established subdiscipline of molecular biology. The term was popularized at least as early as Benditt (1989); for a useful introduction to the technique, accomplishments and prospects of archaeological DNA analysis, see Brown and Brown (1992).

lost, and now positively identified the sacred shroud. So Hewlett's story quickly evolves into tangled fabric of conflicts over scientific ethics, university and Church politics, theology and financial self-interest, as researchers, journalists, fundamentalist Protestants, secret societies, the National Science Foundation, the United States Congress and the Vatican all seek to appropriate the Shroud for their own (mostly self-serving) ends. Not surprisingly, the novel's climax involves Francis's final decision about what to do with the cloth and the cloned DNA.

Apart from its similarity in plot—and even in personalities—to Gove's account of the actual shroud dating, *Sangre de Cristo* touches on radiocarbon dating only incidentally. (And probably nobody except readers of this journal will note the minor error in Hewlett's use of uncalibrated  $^{14}\text{C}$  measurements: the date he offers as equating to "about 30 A.D." is cited (p. 94) as  $1922 \pm 33$  yr BP, which is supposed to signify a calendar year of ca. AD 28; but after calibration, the probability curve for this date actually centers around AD 78 (CALIB 3.0.3c, decadal tree-ring data set).) Nevertheless, the moral issues that Hewlett insists on are relevant to almost anybody who draws inferences based on radioisotope dating.

If I can risk a sweeping generalization: there is no such thing as a value-neutral radiocarbon date. To put it another way, a conventional  $^{14}\text{C}$  age, or a  $\Delta^{14}\text{C}$  ratio, almost never has any importance as a bare number. A  $^{14}\text{C}$  date has meaning because carbon isotope content is a *proxy*, a sign that stands for something else: usually for an estimated chronological age, but also for the movements of ocean waters and atmospheric layers, the cycling of  $\text{CO}_2$  between air and soil, or even (as in AMS biomedical analysis) the dose-response levels of DNA adduction for a potential carcinogen. And proxies are meaningful because they point to phenomena that humans are interested in: the age of a Paleolithic culture, the forcing effect of  $\text{CO}_2$  on climate change, the contributions of various aquifers (and perhaps of the pollutants they contain) to groundwater. Ironically, this status as proxy evidence is something  $^{14}\text{C}$  dates share with religious artifacts, which are likewise valuable not in themselves but for what they point to—as, for instance, the Shroud of Turin may be thought by believers to be evidence supporting the New Testament story of crucifixion and resurrection.

In short, the Shroud of Turin is a remarkable case, but not a special case, of the intricate relations between objective measurement or experimentation and human values. Among users of  $^{14}\text{C}$  dates, archaeologists and anthropologists are the most keenly aware of the potential political-ethical hazards of their discipline, if only because their projects so often explode into political confrontation—witness the recent dispute over dating of the rock art in Côa Valley, Portugal, which halted dam construction (Bahn 1995), or the fierce arguments over whether the bones of "Kennewick Man" should be reburied in accordance with the Native American Graves Protection and Repatriation Act (Preston 1997; *Tri-City Herald* 1997). But the immunity from controversy of researchers in other fields is only relative. For all of us, *Sangre de Cristo* is a useful cautionary tale about the dangers of divorcing one's scientific work from the larger web of which it is invariably a part.

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