

evaluation of the effects of educational programs, so that the effective can be expanded and the ineffective abandoned.

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### Christian Impact on Ecology

In "The historical roots of our ecological crisis" (10 Mar., p. 1203) White helpfully pointed out that "Since the roots of our trouble are so largely religious, the remedy must also be essentially religious, whether we call it that or not. We must rethink and refeel our nature and destiny." Fine! A better general conclusion has rarely been formulated even though his handling of the historical data of Christianity and Scripture leaves much to be desired. He seems to feel that what Christians have said and done adequately represents Christianity. To speak of "orthodox Christian arrogance toward nature" is to miss the heresy and blasphemy and label it normative. Not everything Christians do is Christian in character. . . . The most undeveloped and misunderstood teaching of Scripture relevant here is the cultural mandate given Adam by God. White described some of the data of the mandate but missed the thrust, as have most Christians over the centuries. The cultural mandate makes man the responsible steward of the universe, not its spoiler and looter. Responsible stewardship, not exploitation, is the keynote. As steward of the universe, man is challenged to develop natural resources to benefit all creatures, aesthetically and materially, and by so doing to honor his Creator and Redeemer. Such Christian stewardship of natural resources does not include exploitation for selfish gain at the expense of society, nor pollution of land, air or water.

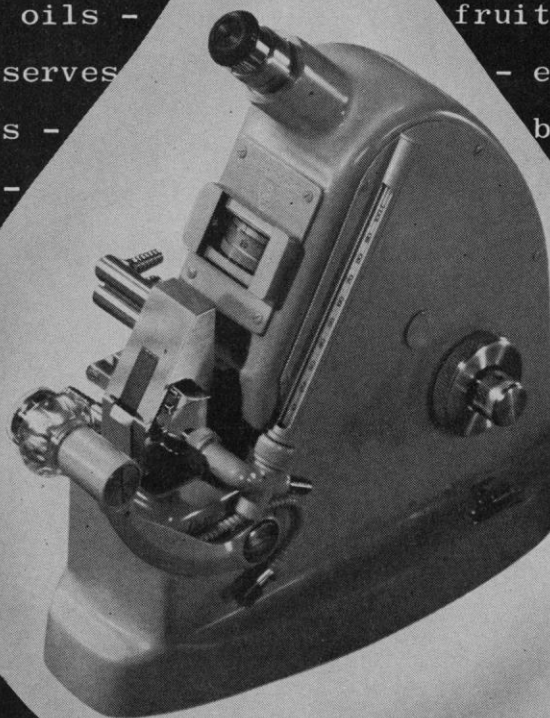
ERNEST S. FEENSTRA

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The historical impact of Christianity upon ecology has depended not on what we, individually, at present, may think that Christianity should have been, but rather upon what the vast "orthodox" majority of people who called themselves Christians have in fact thought it was. Feenstra, like St. Francis, is trying to reform Christianity.

12 MAY 1967

petroleum derivatives - chlorinated solvents -  
peroxide solutions - ethylantracene - salt  
solutions - polymers - fruit butters - map  
syrup - acetic acid hydrogenated fats  
oil contaminants - hydraulic fluids  
essential oils - fruit preserves  
berry preserves - egg solids -  
aliphatics - biologicals  
solvents - alcohols -  
flours - jellies  
pentane coffee  
solids honey  
- oils jams  
waxes cocoa  
nylon fruit  
juices maple  
syrup - plastic  
soybeans flaxseed  
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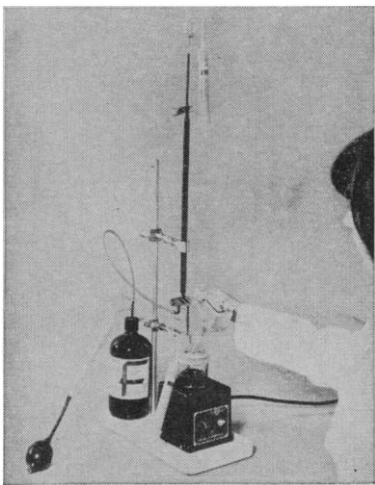
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But his proposal is far less radical than that of St. Francis. He seems to suggest an enlightened despotism of man over the rest of nature instead of St. Francis' democracy of all creatures.

LYNN WHITE, JR.

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... My only objection to White's presentation concerns the Sister Fire which he attributes to St. Francis of Assisi. Fire, for Francis, was Brother Fire, not Sister, at least in his *Cantico delle Creature*:

*Laudato si', mi Signore, per frate focu per lo quale enallumini la nocte, et ello e' bellu, et iucundu, et robustoso e forte.*

While I embrace wholeheartedly Lynn White's proposal to set up a democracy of all God's creatures, I still favor the separation of the sexes.

RENATO BASERGA

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Wynnewood, Pennsylvania

White's stringent demonstration that today's ecological catastrophe results directly from the Judeo-Christian tradition can be expanded to include other catastrophes of similar or greater magnitude which occurred earlier in time. Martin [*Nature* 212, 339 (1966)] has discussed at some length the early overkills which destroyed 40 percent of the mammalian fauna in Africa and 70 percent in North America. These overkills, which took place, respectively, 50,000 and 12,000 years ago, clearly demonstrate that the Judeo-Christian tradition is considerably older than generally assumed.

CESARE EMILIANI  
SHALE NISKIN

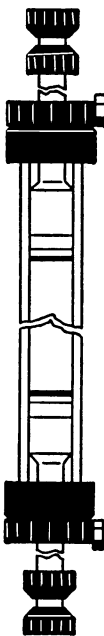
Institute of Marine Science, University of Miami, Miami, Florida 33149

### Economics of Reprints

I would like to answer the question posed by Mary E. Clark of the University of Newcastle in her letter, "Reprints unlimited" (17 Feb.). She wondered, "How does one identify those who are really interested when no information comes on the [reprint request] card?" The answer is simple: Have your institution pay for as many reprints as you consider necessary. Don't be too modest—if you feel that 2000 or 3000 would be a convenient number—

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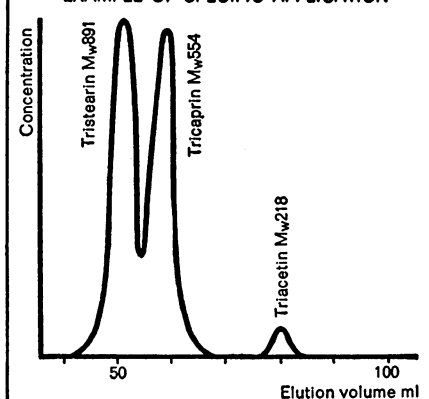
### RANGE OF APPLICATION

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Dimethylformamide	2.2	4
Water	2.1	4
Methanol	1.9	3.5-4.0
Ethanol	1.8	3.0-3.5
Chloroform*	1.8	3.0-3.5
n-butanol	1.8	3
Dioxane	1.4	2.5-3.0
Tetrahydrofuran	1.4	2.5-3.0
Acetone	0.8	1.5

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