

formulates one's needs and desires, and that in itself is a good thing. To an extent, one objectifies and experiences the catharsis of voicing one's desires; and perhaps that is even a step toward realizing them. But all those effects are internal. In that view of prayer, is one not praying to oneself, yet then perhaps to what one conceives as one's higher self, as all that one might be able to conceive oneself to be? Perhaps such a transcendent concept of the self is as near as one can come to a concept of God. In any case there is my last question: how indispensable in theology is the belief in one who answers prayers?

## COMMENTARY ON THEOLOGICAL RESOURCES FROM THE BIOLOGICAL SCIENCES

*by Hermann J. Muller*

I agree with Wald in feeling that science has a great deal in its content to offer to religion. Biology has shown clearly that what we call consciousness in its higher forms—the rationality, love, and charity which are considered by some of us to be the most admirable attributes in higher forms (at least) of religion—is the product of a long, long biological evolution. These forms of consciousness only come into existence with the workings of very highly specialized material, but they do exist, we do have them, and this is something which should give man more confidence in his being and in his possibilities. He has these attributes in a much higher degree than does anything else he knows, and having this knowledge, it is no longer necessary for him to look for external justification of the urges of his nature as expressed in these higher attributes.

Wald spoke very eloquently in defense of knowledge, regardless of its practical applicability. I am not against the application of knowledge, but I think that anyone who is truly human must take the position that knowledge is its own excuse for being even if it has no applications. If our ancestors had not had the urge to acquire knowledge even when they did not see any application for it, they would have remained be-

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hind. Nor is it the unexpected applications that are the excuse for knowledge.

We are the first beings who have come to know the universe to this extent; that should be enough of a thrill for us without knowing what we can do with it. However, I think it is also a part of our nature to use our knowledge; and it is part of our history, a part of the natural selection by which we became what we are, that we did use our knowledge in behalf of our survival and expansion.

I think that biology can defend the position that there are higher and lower forms of life; that the higher forms of life are able to do the more difficult jobs although they may not do many of the easy jobs as well. They are thus able to expand into realms of living from which, again, they can branch out and go still further. In the end, I would not separate knowing from doing nor either of them from feeling. It is not in the nature of man to do so, and in the earlier history of man, where the feeling was organized into man's primitive religions, it was quite effective in getting the small groups to co-operate and to survive. If this process does not go on, we will eventually fall back in the struggle for existence which ultimately has to be a part of any biological process.

Though man has seen himself through his biological investigations to be the highest of the living things on earth, this does not insure his position. When he looks about and takes stock of what has happened to other species, he sees that vastly more species have died out than have managed to cling to life or to progress to higher forms. Although it is the higher forms which have the preference in producing still higher ones, this is no guaranty that they will. We only need to look at the uses that are put to our own technologies today to see how precarious our hold may be, if we do not follow the lessons that we can learn through the most integrated science, backed by a motivation that I think can be only called truly a religious motivation.

Only a religious motivation nowadays can save mankind by bringing all peoples of the world together into one great human enterprise. All man's feelings must again be bound into an integrated whole together with his knowledge as he has it today and as he will have it tomorrow. Instead of being afraid of this new knowledge because of the damage it may do when used by people who only understand it partially, we ought to welcome it for the benefits that it can bring us intellectually and morally and materially. As the organization of man increases, he does not lose his freedom if he uses this organization and these techniques to do more and live more on a higher plane—any more than the

cells of the higher animals lost their freedom in rising because they had to be organized in a more complex way.

New knowledge enables man to have this freedom on a higher level. Just as he is now going or about to go out to other planets, so he may now be able to go inside into his own nature, too. And just as he may control more of the bodies of outer space, so he may control more of his own substance through such well-known processes as education and medicine and through newer physiological means and even through controlling his hereditary nature. In my opinion, the highest freedom that any being can have is to plan and work his own evolution in the direction which he feels is higher and which can absorb and utilize his energies in more integrated and creative ways.

One of the main lessons that we have learned from biology is the greatness that man may have if he uses his powers to better his own nature. He has gone so far in evolution, and there is no evidence that he has reached any necessary limit. He may go very much further, but now only by his own efforts.

## COMMENTARY ON THEOLOGICAL RESOURCES FROM THE BIOLOGICAL SCIENCES

*by Robert B. Tapp*

It seems to me what Wald is suggesting here is something like this: "Hail to thee, blithe bird, spirit thou never wert." In the seeming reduction of spirit to man, or life to man, the usual things that theologians over the centuries have felt were that all sorts of things were going to get left out along the way, and that you are just going to lop off crucial realities one by one as you go through this reduction process, and in the end there will be nothing left. I think it is clear from the prospectus that our committee agrees that there may now be rich things in the sciences for religion, whatever may have been the case in the eighteenth century or the nineteenth century. What Wald has given is a beautiful setting forth of this rich lode.

There are several gambits that theologians use in their encounters

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