

## WHITEDWARF.ORG - ESTABLISHING A PERMANENT ENDOWMENT FOR THE WHOLE EARTH TELESCOPE

Travis S. Metcalfe

*White Dwarf Research Corporation, Austin, Texas, U.S.A.*

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**Abstract.** White Dwarf Research Corporation is a non-profit organization dedicated to scientific research and public education on topics relevant to white dwarf stars. It was founded in 1999 in Austin, Texas to help fulfill the need for an alternative research center where scarce funding dollars could be used more efficiently, and to provide a direct link between astronomers who study white dwarf stars and the general public. Due to its administrative simplicity, WDRC can facilitate the funding of multi-institutional and international collaborations, provide seamless grant portability, minimize overhead rates, and actively seek non-governmental funding sources. I describe the motivation for, and current status of, one of the long-term goals of WDRC: to establish a permanent endowment for the operation of the Whole Earth Telescope. I pay particular attention to fund-raising efforts through the website at <http://WhiteDwarf.org/donate/>.

**Key words:** sociology of astronomy – stars: white dwarfs

### 1. INTRODUCTION

Several years ago, while I was a graduate student at the University of Texas in Austin, I recognized the need for an alternative to traditional academic and government research centers where the overhead rates, or “indirect costs” negotiated with federal funding agencies, are consuming a growing slice of research budgets. This need seemed particularly urgent since astronomical research funding has actually been shrinking when adjusted for inflation, and many institutions appear to be providing fewer services even while their overhead rates increase. Furthermore, many of the services they *are* providing – fast computers, Internet access, and libraries – can now be purchased at better prices through consumer markets. I soon learned that I was not the first to make this realization. An early

pioneer was Research Corporation (founded in 1912), but the basic idea has also been applied more recently by Eureka Scientific (in 1992), Extrasolar Research Corporation (in 1996), and probably many others that I do not know about.

## 2. HISTORY

Of course, recognizing the *need* for an alternative does not automatically lead a poor graduate student with no legal experience to *establish* an alternative. The idea of White Dwarf Research Corporation would never have become a reality had it not been for two other factors: (1) creating a non-profit corporation in Texas is simple, and (2) it is also inexpensive. The concept of a corporation historically involved the granting of limited liability by kings or governments to an artificial legal entity created, for specific projects that were in the public interest, with finite lifetimes. But over the years the scope and definition of the corporation has slowly expanded (Derber 1998). In the state of Texas, anyone can create a non-profit organization with no personal liability, a perpetual existence, and no specific public interest requirement – all for the low price of \$25. The office of the Secretary of State in Texas, and the Internal Revenue Service even offer samples of the required incorporation documents to make it easy to satisfy the (minimal) requirements, and to help ensure that the organization will be tax-exempt for specific purposes (e.g. scientific research). After a few nights of reading at the campus Law library, I had everything I needed to start a corporation.

The most important feature of a non-profit organization, from a fund-raising standpoint, is the recognition of tax-exempt status from the IRS. This allows benefactors to deduct the full amount of their donations from the incomes they report to the federal government, which can substantially reduce their tax liability. If the financial structure of the non-profit organization is relatively simple, then the application form that needs to be filed with the IRS to obtain tax-exempt status is not too difficult. If the organization anticipates an average of less than \$10 000 of revenue per year during the first four years of operation, then the filing fee for this document is only \$150. Otherwise, it is \$500, which is by far the single most expensive part of the process. Within 6 months of filing the application, I received a letter from the IRS recognizing the tax-exempt status of White Dwarf Research Corporation. I was ready to begin raising money for research and public outreach.

The first grant to WDRC came from the Fund for Astrophysical

Research, a private foundation that makes small awards to support specific projects. In December 2000, less than a year after receiving tax-exempt status, WDRC received a check in the mail for \$2812 to support the construction of a small parallel computer cluster. We used this grant to attract matching funds from another program through the American Astronomical Society, and obtained an additional \$4288 for the project in July 2001. We purchased the parts for the computer facility a few months later, and it has already contributed to a published research paper (see Metcalfe et al. 2002).

There have been several small private contributions to WDRC, but they have all come from acquaintances of the members of the board of directors. This is fine, but it would be more comforting to attract donations from members of the general public, as a sign of trust and support for basic research. To facilitate this goal, the most recent addition to the website at [WhiteDwarf.org](http://WhiteDwarf.org) is a page describing specific projects that are seeking funds (including the Whole Earth Telescope project), and a secure online donation process. This service is provided free of charge by the Network for Good, a non-profit organization that attempts to guide potential donors through a database of non-profit organizations. It is now possible, with the click of a button, for interested donors to use their credit card to make a contribution to WDRC. The full amount of the donation is then transferred to WDRC's bank account, and a notice is sent indicating whether it is earmarked for a specific project or purpose.

The alternative funding machinery is now fully in place: we have established a non-profit organization, it has tax-exempt status, it has successfully received and allocated funding for a small research project, and the website has the capability for secure online donation. What can we do with this new tool, and why should we bother?

### 3. MOTIVATION

The Whole Earth Telescope (WET; Nather et al. 1990) operates like any large research facility: it produces significant results on time-scales that can be considerably longer than the 3-year funding cycles of federal granting agencies. It is natural for these agencies to request a specific and detailed accounting of the results that arise from their investment in a research project. But this can sometimes lead to a conflict between the political needs of these institutions and the scientific needs of the project. In the short-term, we can adapt the way the Whole Earth Telescope operates to respond to these political pressures, but in the long-term it may be

better to find an alternative source of funding to alleviate the pressures altogether. I believe that White Dwarf Research Corporation can offer this alternative, by providing an administrative vehicle for the establishment of a permanent endowment to operate the Whole Earth Telescope. If the WET collaboration could identify a group of donors who can collectively make contributions totaling \$1-2 million, WDRC could easily provide the \$50-100 thousand annual operating budget of the WET through secure investments that never diminish the endowment. The WET could free itself from the tyranny of the government funding cycle.

For an individual, \$1 million is a lot of money. But there are many ways to reach this funding goal through a larger group of people. We could make an appeal to 100 000 people to contribute only \$10, or just 10 000 people to contribute \$100. This is comparable to what people might spend on a magazine subscription, or to support their favorite political candidate.

For most transnational corporations, \$1 million is a tiny fraction of a typical annual advertising budget. It is realistic to think that we may be able to identify ten \$100 000 donors, or one hundred \$10 000 donors. Some people may think that no transnational corporation could possibly be *interested* in helping to fund the WET. What could possibly be in it for them, besides a warm fuzzy feeling inside?

During a WET campaign in 1998 on the massive DAV star BPM 37093, a test of the theory of stellar crystallization, a flurry of reports surfaced in the popular press about this “Diamond in the Sky”. According to Steve Kawaler, a large diamond company saw these press reports and contacted the headquarters in Iowa during the run to ask what it would cost to sponsor the run on this object. When he replied that the price tag would be in the neighborhood of \$100 000 they replied, “Oh, is that all?”. The point is that if we can be creative and capture the public imagination, and if we are receptive to seemingly unlikely sponsors, we may be able to get more science done with less hassle.

The right approach is probably to seek some mixture of these funding possibilities. The numbers are not staggering: with some collective effort now, the goal is realistic and will yield a payoff far into the future. In the worst case, we might fail to reach the full funding level, but the interest on the partial sum could still provide flexible supplemental funding to the WET – perhaps enough to send the PI to headquarters, a graduate student to the observatory, or to purchase GPS units for distribution around the globe.

#### 4. CURRENT STATUS

The purpose of this paper is not to “pass around a hat” and beg a group of underpaid scientists for money. The point is to make it clear that together we can come up with more creative ways of funding our collaboration, and the pipeline for incoming funds already exists: White Dwarf Research Corporation. Now that you know about it, do what you can to raise awareness about it. Be receptive to any offers of support, and direct potential donors to <http://WhiteDwarf.org/donate/> or to the Whole Earth Telescope web page. Do your best to think about ways to make our work appealing, or better yet *fascinating* to the general public, and imagine which private companies might want to help fund it.

For my part, I have started the Whole Earth Telescope endowment with a donation of \$50 through the website (just to make sure it really does work as advertised – which it does). Within the next three years, before the current NSF grant expires, let’s see if we can raise enough money to operate the WET for as long as the white dwarf stars shine.

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