standards of design and methodology. Broadly speaking, there is no doubt that psychotherapy contributes to the amelioration of a wide range of problems in human living. . . .

Psychotherapy is best viewed as an interpersonal process designed to correct maladaptive learning acquired in earlier human relationships with significant others. Depending on their life experiences and other factors, people, of course, differ widely in their ability to profit from what psychotherapy as an interpersonal learning experience has to offer. Furthermore, there are undoubtedly many ways in which people can make corrections in what they have previously learned. The skill of the therapist clearly plays an important part in the kind of learning experience that is mediated. . . .

Above all, there is a great urgency to demystify psychotherapy and to approach it realistically and soberly. It has already become apparent that psychotherapy is neither a panacea nor a worthless endeavor. It is also essential to clarify the *value* society is willing to place on the achievement of particular goals: To help a person cope more quickly and less painfully with an episode of depression may be a very different task from correcting long-standing patterns of disturbed interpersonal relations that recurrently give rise to depression. To all of these issues, systematic research can make significant contributions. . . .

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. . . . Kolata quotes Strupp as saying, "But in psychotherapy [as opposed to injecting penicillin], the interactions between the patient and the therapist are crucial and the skill of the therapist is tremendously important." Remove the word "but" and there remains a truism that has nothing to do with evaluating psychotherapy.

The skill (or lack thereof) of a therapist attempting a particular type of treatment is simply a fact of that treatment. (Psychotherapeutic treatment does not exist independent of psychotherapists.) And if treatment works only for some patient-therapist pairs (due to the "interaction"), then that is a fact of treatment as well. Rather than obscuring the overall effect of treatment, these facts are part of it. Moreover, their effects as well can be studied at some future time (assuming positive results to begin with, and funding).

If, as appears reasonable, there are patient-therapist interaction effects and therapist skills effects, the result will be that treatment will work for some patients and not for others. If treatment is efficacious in general there will still be an effect across all patients—just as if salt is poured in one container of water and its contents are mixed with another containing pure water, the resulting solution will still be saline. Of course, "cancelling out" could result if as many therapists are positively pernicious for particular patients as others are therapeutic. If so, third-party payments should be withdrawn, and patients should be liberated from the resulting lottery.

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Multiple Authorship

There is another way of handling the ethics of ownership of scientific publication based upon what we know about papers and citations. Basically it would appear that the productivity of scientists has been rather constant for the last few centuries. We publish about one paper per person per year because we tend to measure out our scientific lives in coffee spoons of an academic year at a time. Some variation exists because there are fields where a week or so of work corresponds to an atomic unit of publication, a separable entity valid as a research front contribution. Some parts of biochemistry have tiny atoms of knowledge like this, whereas some parts of astrophysics for example, correspond to 2 or 3 years of work and have therefore rather large atoms of knowledge. Such variations are easily corrected for by proper citation counts.

The recent movement does not seem to be any large increase in tendency to split large papers into small ones. We have always published the smallest separable units. The big thing that has happened is the move to multiple authorship. It began with the coming of massive government funding in the late 1940's. The major effect of a grant is that it enables the principal investigator to buy collaborators, and as an almost fiscal artifact of the funding, those collaborators must have their names on the resulting papers from the project. Although the overall average is still one paper per author per year, we have an average of two authors on each paper, and therefore each author is credited with two papers per year. The average number of authors per paper is directly proportional to grant size.

The moral of this story seems rather clear. The payoff in brownie points of publications or citations must be divided among all the authors listed on the by-line, and in the absence of evidence to the contrary it must be divided equally among them. Thus each author of a three-author paper gets credit for one-third of a publication and one-third of the ensuing citations. If this is strictly enforced it can act perhaps as a deterrent to the otherwise pernicious practice of coining false brownie points by awarding each author full credit for the whole thing. We really ought to recognize as an ethical matter that each author in return for sharing the support also shares responsibility and credit. Those not sharing the work, support, and responsibility do not deserve their names on the paper, even if they are the great Lord Director of the Laboratory or a titular signatory on the project. Any time you take a collaborator you must give up a share of the outcome, and you diminish your own share. That is as it should be; to do otherwise is a very cheap way of increasing apparent productivity. The graduate students who are one of 20 on the by-line of a paper coming out of the big machine have just won one-twentieth of a paper each for their bibliographies. There is, it must be noted, some actual increase in production, for there are many more people capable of producing half a paper than those who could make a whole paper.

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Gossypol: Effect on Testosterone

Thomas H. Maugh II (Research News, 17 Apr., p. 314) describes gossypol as a male "pill" that acts by blocking the enzyme lactate dehydrogenase X. This is clearly interesting, but I believe it is premature to conclude that gossypol "does not affect . . . sex hormone levels. . . ." We have demonstrated a marked reduction in testosterone secretion by Leydig cells obtained from gossypol-fed rats (*1*).

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