Comments and Communications

Religion and Higher Education

THE letter of John R. Sampey, published in the September 28, 1951, issue of SCIENCE, requires some qualifications concerning the use of the word "religion." Indeed, on the basis of the references quoted, it appears that not all church-controlled colleges do contribute significantly to the training of scientists. Among the 50 institutions listed by Knapp and Goodrich (*1*) none is related to, or controlled by, one of the oldest Christian religious groups. Table 2 in the same article shows that this same religious group controls colleges that have the lowest production of scientists.

Furthermore, the studies of R. K. Merton (*2*) and D. Stimson (*3*) show that the growth of science in the seventeenth and eighteenth centuries was not equally helped by the different religious traditions of the time.

It seems unwarranted to conclude from such observations that "religion" in general goes hand in hand with science. Before anyone can make such a generalization, many more studies will be required to evaluate the influences of the different religious traditions on the development of the scientific method.

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References

1. KNAPP, R. H., and GOODRICH, H. B. *Science,* **113**, 543 (1951).
2. MERTON, R. K. *Social Theory and Social Structure.* Glencoe, Ill.: Free Press (1949).
3. STIMSON, D. *Bull. Inst. History Med.,* III, 321 (1935).

Rejuvenation Re-evaluated

ACCORDING to a dispatch dated Sept. 4, 1951, from Lausanne, Switzerland, Serge Voronoff—who, at the height of his career, was known as "The Great Rejuvenator"—died at the age of 85, not of senility, to be sure, but after suffering two heart attacks, the second of which was fatal. The Russian-born director of experimental surgery at the Collège de France, Paris, had once gained considerable fame by attempting to graft testicular and ovarian transplants from anthropoid apes into human beings.

Thanks to such a "gerontologic intervention," one of my elderly professors at the University of Nancy, it was rumored, had been retained on the faculty beyond retirement age. He used to report to work daily astride a bicycle, "so as to restore circulation in the parts concerned," he would say. Even the ex-Kaiser's sister, who had become infatuated with a much younger commoner, the waiter Zoubkov, gladly submitted to a *greffe* at Voronoff's hands.

The effect of such attempts were never very lasting, but now that surgical science has advanced, and we understand more about the factors influencing tissue growth and cicatrization, and about the role of hormones, it is permissible to wonder whether the interspecific incompatibility could be overcome and the withering or resorption of transplants avoided. I still feel that Voronoff need not have met with so much skepticism and sarcasm when he arrived in this country shortly before World War II. He returned to Europe a broken and almost forgotten man. Perhaps I owe it posthumously to his memory to express my faith in the validity of some of his *intra*specific animal experiments, at least. These were undertaken in collaboration with his brother Georges and with Dr. Dartigues, past president of the Société des Chirurgiens de Paris (*1–4*). As a student, I was privileged to witness the operative technique and to see several of the progeny that had been sired by previously infertile males.

The Voronoff method applicable to animal husbandry consists in grafting crescent-shaped portions of, say calf or lamb testicle into the testes of a sexually worn-out male *of the same species* (Fig. 1)—

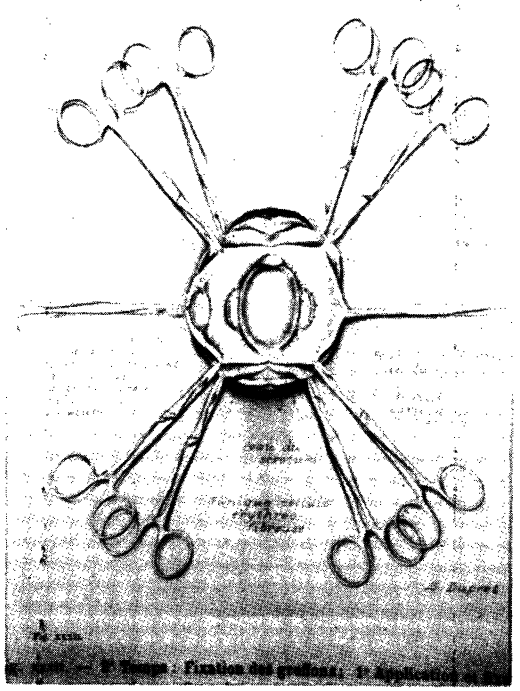

FIG. 1.

i.e., bull, ram, or other senile sire to be rejuvenated. The scion stimulates the production of testosterone and of viable spermatozoa by the subject's own testicular tissue. There is a detailed account of a number of more or less significant experiments that were performed in France, Italy, Algeria, and Brazil during the early 1920s in one of Voronoff's out-of-print publications that I am lucky enough to possess (*5*). We should not forget that the reported experiments were made 30 years too soon, when the expense involved