design, the skill to make, or the theory that is back of it all.

To become a competent instrument maker, a man must have a good education in mathematics, physics, chemistry, and mechanics, plus the ability to use this education, plus a high-grade manual skill. He should be able to use any instrument that comes to his attention for repair or rebuilding, or that he is called upon to manufacture. The instrument maker is a professional man in every sense of the word.

Since universities and colleges employ apparatus in vast numbers and the cost runs into large sums of money, it seems to me that these colleges ought to consider seriously the addition to their curriculums of a course in the theory and design of all kinds of apparatus, optical and otherwise. Included in this program should be a well-equipped instrument shop where theory would be translated into practice. By this means the college could supply its own requirements without purchasing outside. And the college should give thought to the additional prestige that would accrue, just as some colleges have a national reputation for their departments of law, medicine, engineering, chemistry, and the like.

Every college has among its students some who would like to take such a course if it were offered, Not every engineering graduate practices engineering, nor does every physicist follow physics as a means of earning a living.

During this time of economic unrest, and after world peace has been achieved, we shall want to do many things, accomplish many results more quickly and in a better manner than formerly. New and better methods of making high-precision measurements will be demanded, far beyond what we now have. Whereas physics and astronomy are now almost alone in making high-precision measurements, before long every branch of scientific endeavor will fall in line, and the demand for new instruments will be overwhelming. Our international relations and our involvement in global wars have made us acutely conscious of the need for better measuring instruments.

It is time that we Americans get busy and do some constructive thinking about this matter. And then, in the usual American fashion, do something about it.

FREDERICK A. BABCOCK

Precise Instrument Company,
Detroit 39, Michigan

10 September 1954.

"I Don't Want To Be Quoted"

The editorial "I don't want to be quoted by the press" [*Science,* 6 Aug.] is needed and should be helpful, especially to students and young scientists, whose habits are not yet fixed.

There are strong indications of a steadily lowering standard of ethics in the population of America, and world-history tells us what happens to nations when moral standards are persistently ignored. President Eisenhower once said: "America is great because she is good. When she ceases to be good she will cease to be great." Scientists, as teachers and in their messages to the public, can play a tremendous role here.

Statistics show that church membership is increasing in America much faster than population is increasing. Yet they also show that crime and wrongdoing of every kind are increasing faster than population is increasing. And, worst of all, the ages of delinquents and criminals are steadily lowering. Yet the teaching of every kind of crime and wrongdoing, in the most attractive forms, is steadily increasing. I refer especially to the so-called "comics" and "funnies" and to the flood of "murder mysteries" in Sunday supplements, magazines, and books. Sex crimes show an alarming increase, but some 100 pictures of nearly nude young women appear daily in newspapers, magazines, and books. America is ceasing to be good. History tells the results.

CARLETON R. BALL

Washington 15, D.C.

7 September 1954.

Role of the Salivary Glands in Extrathyroidal Iodine Metabolism

Recent evidence indicates that the parotid and submaxillary salivary glands function to control the level of thyroxin in the blood stream by deiodinating the hormone and recycling the iodide ion to the thyroid gland via the saliva and the gastrointestinal tract (*1–3*). This process of degradation appears to be essentially the reverse of the pathway of synthesis in the thyroid gland. The level of thyroxin in the blood is controlled by the rate of synthesis in the thyroid and the rate of degradation in the salivary glands.

If this concept is correct, it follows that the rate of degradation of thyroxin by the salivary glands will be under rigid control, since this is one of the methods for controlling the blood level of the hormone. However, if the process of degradation proceeds through the intermediates monoiodotyrosine and diiodotyrosine (DIT), then these substances must be very rapidly degraded to iodide, since they have not been shown to occur other than in thyroid tissue (*4*). This leads to the prediction that there should be a relatively slow, controlled deiodination of the thyroxin present in the blood stream and a very rapid deiodination of intravenously adminstered DIT.

Albert and his coworkers have studied the rate of deiodination of administered thyroxin and DIT in the human being and the rat (*5–7*). They found that thyroxin was deiodinated comparatively slowly in the body. DIT, on the other hand, was very rapidly degraded to the iodide ion. Tong, Taurog, and Chaikoff (*8*) studied the metabolism of labeled DIT in the rat and observed an extremely rapid deiodination of DIT, 90 percent being degraded to iodide in 20 min. The rate of deiodination was not influenced by previous thyroidectomy.

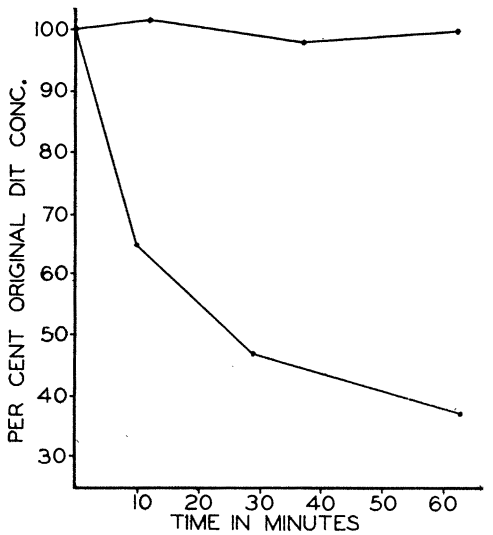

Fig. 1. Disappearance of intravenously injected DIT from the blood of salivariectomized (upper curve) and normal (lower curve) rats.

We have now been able to show that this rapid deiodination of intravenously administered DIT does not take place in rats from which the parotid, submaxillary, and sublingual salivary glands have been removed. Rats were placed under Nembutal anesthesia, and the submaxillary, parotid, and sublingual glands were removed. DIT (100 μg) labeled with I^{131} (100 μc) was then injected into the jugular vein, in physiological saline solution. A 0.5-ml aliquot of blood was collected from the tail-vein as soon as possible after the injection (usually about 2 min). This sample served to give zero-time values for iodide and DIT. Further 0.5-ml samples of blood were collected at convenient intervals. The heparinized blood samples were centrifuged, and aliquots of the resultant plasma were submitted directly to paper chromatographic analysis. The relative proportions of iodide ion and DIT on the chromatograms were determined by counting the appropriate spots with an end-window Geiger counter. The paper chromatographic and counting techniques have been described elsewhere (*1*).

Control rats were treated in exactly the same fashion, except that the salivary glands were left intact. The percentage activity as DIT in each plasma sample was compared with the percentage as DIT in the zero-time sample. In this way the results could be expressed as percentages of the original DIT concentration. The result of a typical experiment is shown in Fig. 1.

This evidence conclusively demonstrates that the salivary glands have a major role in the extrathyroidal metabolism of organic iodine in the body and that these organs function as "reverse thyroids."

D. M. Fawcett
S. Kirkwood

Department of Chemistry,
McMaster University, Hamilton, Ontario

References

1. D. M. Fawcett and S. Kirkwood, *J. Biol. Chem.* **209**, 249 (1954).
2. S. Kirkwood, paper presented at annual meeting, Am. Goiter Assoc., Boston, 29 Apr.–1 May 1954.
3. H. G. Thode, C. H. Jaimet, and S. Kirkwood, *New Engl. J. Med.*, in press.
4. W. Tong, A. Taurog, and I. L. Chaikoff, *J. Biol. Chem.* **195**, 407 (1952).
5. H. W. Johnson and A. Albert, *Endocrinology* **48**, 669 (1951).
6. A. Albert and F. R. Keating, Jr., *J. Clin. Endocrinol.* **11**, 996 (1951).
7. R. S. Benua, A. Albert, and F. R. Keating, Jr., *J. Clin. Endocrinol.* **12**, 1461 (1952).
8. W. Tong, A. Taurog, and I. L. Chaikoff, *J. Biol. Chem.* **207**, 59 (1954).

1 July 1954.

Rabies in Nonsanguivorous Bats of Texas

A survey conducted in nonsanguivorous bats of Texas has established two things: (i) the Mexican free-tailed bat (*Tadarida mexicana*) is a host for the virus of rabies in nature; and (ii) extensive inapparent infections occur in this species as evidenced by the development of neutralizing antibodies for the virus of rabies. Such immunity has been considered the result of naturally acquired inapparent infections. The opportunity to demonstrate such inapparent infection in bats in Texas was undertaken on an extensive scale on a military reservation because of a malady afflicting the bats.

The bat isolates have been identified, and serologic studies have been accomplished by employing the standard neutralization technique and accepting as a minimum positive criterion the serums that will neutralize 100 LD_{50} of a fixed strain of rabies virus.

Kenneth F. Burns
Charles J. Farinacci

Lt. Col., VC, and Col., MC, Fourth Army Area Medical Laboratory, Brooke Army Medical Center, Fort Sam Houston, Texas

19 July 1954.