really exist today. The scientist is, in spite of himself, involved in public questions simply because science today so largely determines the issues of peace or war, prosperity or poverty, and health or disease.

The traditional reluctance of scientists to become involved in any issues irrelevant to their own work does not apply in the case at issue. The present issues are not irrelevant to the contribution of their work to the public good. Therefore, it is to be hoped that large numbers of scientists will make their views known to their own congressmen and senators and to the Armed Services Committee of the Senate and the Military Affairs Committee of the House of Representatives.

A constructive proposal that could be made to these committees is that a special national scientific manpower service board might be set up within the Selective Service System which would implement policy under the general directives of the Act of the Congress and would serve as a uniform national appeal board. The Act of the Congress should direct Selective Service to provide mechanisms for serving the long-term interests of the country with respect to scientific manpower, in view of the self-evident fact that we are in a situation of long-term, as well as short-term, crisis.

The Congress must be informed by knowledgeable persons if it is to act wisely. Scientists are obviously in the informed segment of the population with regards to scientific manpower problems. It is time for them to speak as individuals, as well as through organizations, because individuals vote and because widespread individual attention to a problem indicates real interest and concern.

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New Apparatus for Prolonged Constant Infusion in the Unrestrained Animal

During the course of studies on the role of various hormones in the regulation of carbohydrate metabolism, it became necessary to perfuse the unanesthetized, unrestrained dog continuously and intravenously for periods of 1 to 3 mo. Current methods (*1*) involve the use of expensive perfusion pumps, which function satisfactorily for short periods of time but may not be adequate for prolonged continuous use.

The purpose of this communication is to describe an inexpensive, simplified infusion apparatus, recently devised in this laboratory, that does not require a pump and contains a minimum number of moving parts.

The apparatus consists of an infusion reservoir, an electronic resistance relay, a stainless steel solenoid valve, a control reservoir, and a micrometer valve (Fig. 1). The infusion reservoir consists of a series of standard infusion bottles (Abbott). These bottles supply the control reservoir through a stainless steel solenoid valve (General Controls K-21 F) with plastic fittings for tube adaptation. The level of the fluid in the control reservoir is maintained constant (2-mm variation) by two control electrodes (glass with platinum tip) that actuate the electronic resistance relay controlling the solenoid valve. The relay is commercially available (General Electric, Photoswitch, and others) or can be constructed from a variety of standard circuit diagrams (*2*). Beyond the control reservoir is a micrometer valve (Norgren) that regulates the infusion rate. Tygon tubing is used throughout, and the portion that is accessible to the animal is protected by BX armor. A glass blower's swivel is used to permit unlimited movement of the animal in the cage without twisting the tubing. The swivel is supported by a counterbalance weight so that no excess tubing is in the cage, regardless of the position of the animal. The entire apparatus costs about $70.

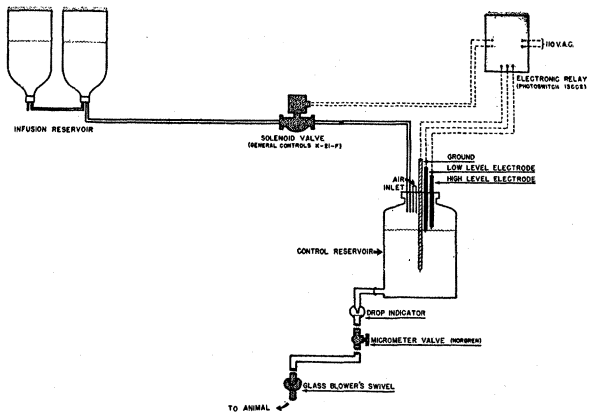

Fig. 1. Diagram of constant infusion apparatus.

This apparatus was successfully employed to perfuse the portal vein of an unanesthetized, unrestrained dog for 45 days. It is felt that the method has a variety of experimental applications.

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Calendar for Estimating Intervals in Days

Harris (*1*) has described a two-dimensional slide rule for the rapid calculation of time and other intervals. Table 1 shows, in a single chart, "days elapsed" and "days remaining" of the counting-house calendars commonly shown in diaries and desk calendars, together with multiples of 365. These data provide for the ready calculation of time intervals in days within