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Let us now Praise Famous Men

SIMPLE IS A RELATIVE WORD

During World War I, when the Government requested scientific aid in combating the submarine menace, much advice was received. One of these contributions remains unique to this day. "The solution of the submarine problem is simple," said this advisor. "All we have to do is boil the ocean!"

Of course this is not a fair sample of the scientific help received by the Government during 1917-18, but I think all will agree that a better job was done during the more recent conflict. The Office of Scientific Research and Development had at its disposal the best brains in the country, both home-grown and imported. And many valuable contributions to the final victory were made by them.

Among the distinguished scientists whose services were enlisted by the U. S. Government was Linus Pauling of the California Institute of Technology. During the war he carried on work for several divisions of NDRC and for the Committee on Medical Research. This young professor has ranged so widely and so rapidly throughout the Elysian Fields of learning that it is not easy for an ordinary mortal to follow him, even for brief descriptive purposes. He is a *rara avis*, a child prodigy whose genius has grown and strengthened with the years. He was born in 1901, and his Baconian curiosity was first manifested when young Linus was only thirteen years of age.

Beginning not long after that, he has somehow found time to do important work on the structure of crystals and molecules, application of quantum mechanics to chemistry, rotation of molecules in crystals, size of ions, theory of stability of complex crystals, nature of the chemical bond, line spectra, and on immuno-chemistry. In the field of serology alone, Dr. Pauling and his co-workers have published since 1940 no fewer than 14 papers concerned with the theory of the structure and formation of antibodies. He has the standing of an eminent authority in all of these fields, and in consequence his labors have been rewarded with most of the major honors in American chemistry.

As an illustration of this universality and apparent ease, let us consider briefly a paper recently published. "On October 3, 1940, at a meeting in Washington . . . mention was made of the need for an instrument which could measure and indicate the partial pressure of oxygen in a gas. During the next few days we devised and constructed a simple and effective instrument for this purpose."¹



DR. LINUS PAULING

When put that way it sounds rather easy—a simple problem solved in a few days. But a closer examination of this "simple device" reveals a new and extremely ingenious instrument which could not have been developed in a few days at Government request, except by a mind stored with scientific data and guided by a disciplined imagination.

A brief description of this instrument is in order. It is essentially an oxygen meter which depends for its efficacy on the fact that the magnetic susceptibility of molecular oxygen is very much greater than that of other common gases. A small glass dumbbell with mirror attached is suspended on a stretched fused-silica fiber in a inhomogeneous magnetic field. The magnetic field is produced by a small pair of Alnico V permanent magnets. The gas under test is permitted to flow around the dumbbell, which acts as a test body.

How simple! How easy! And yet when one considers how tiny are the forces that must be measured, how remarkable that the thing should work! Even with a gas of relatively strong magnetic susceptibility like oxygen, the forces due to easily-produced magnetic fields are very small. Nevertheless, the instrument is so cunningly constructed and calibrated that it does work. Several hundred of them have been produced, with undoubted usefulness to the war effort.

It is a pleasure to record that Professor Pauling's thoughts have in recent years been turning more and more in the direction of work that is of fundamental importance to biology and medicine. The need for a clearer understanding of the part played by molecular structure in cancer and heart disease is urgent. It is good to know that one of the keenest and most energetic minds of our time has joined the fight against them.

¹An Instrument for Determining the Partial Pressure of Oxygen in a Gas, by Linus Pauling, Reuben E. Wood, and J. H. Sturdivant, J.A.C.S. 68 795 (1946).

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