Altogether, I was, by aid of the microscopical test, able to ascertain the clinical diagnosis of trichinosis in eighty patients from five different outbreaks, while in thirty other patients, clinically suspected to suffer from trichinosis, this possibility could be excluded. The test proved often to be more sensitive and more specific than the usual intradermal and precipitin tests with trichina antigen. Similar reliable results were obtained in trichinized animals, as pigs (positive already seventeen days after infection), dogs, cats, silver foxes, rabbits and guinea pigs. Necessary conditions for obtaining a clear result even in cases of very light infections are cleanness and sterility of the serum examined.

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April 3.

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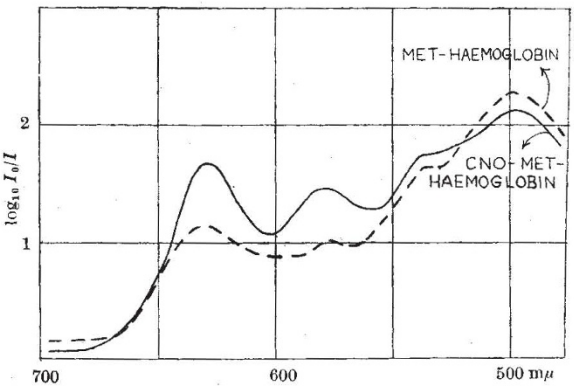
Pharmacological Action of Cyanic Acid

IN the course of a study designed to investigate whether some substances known, or believed to be present, in the body, had any hypnotic action, or could contribute to bring about the internal milieu (for example, water-shift) known to prevail during normal sleep[1], a marked pharmacological action of cyanic acid was found.

K. M. Birch and I found that sodium cyanate was well tolerated by rats, guinea pigs and rabbits in doses which produced marked drowsiness and prolonged sleep. Part of the cyanate used in this investigation we prepared from urea; we are also indebted to Glaxo Laboratories, Ltd., for a gift of pure sodium cyanate. The sleep effect produced is most evident in rats. Though the action is definitely a hypnotic one, no full anæsthesia could be produced. The L.D. 50 (albino rats of 80–120 gm.) is of the order of 30 mgm./100 gm. Rats survived, though with increasing drowsiness, daily injections of 10 mgm./100 gm. for three weeks. When the injections were stopped, the rats' behaviour soon returned to normal. No gross pathological sign could be detected in the animals. The blood sugar was normal in rabbits after two weeks of daily injections (10 mgm./100 gm.), though higher doses given intravenously were followed by a small and transient rise. The body temperature showed a significant and transient fall of as much as 2°.

The hypnotic action of the drug is diminished by thyroxin and insulin. For adrenalectomized rats the drug was of greatly increased toxicity. Posterior pituitary extracts markedly increased the length and depth of sleep caused by the drug. This, however, seems to be a general effect of posterior pituitary extracts and is also evident with other narcotics (barbiturates, etc.).

In more than fifty human volunteers doses of 2–400 mgm., taken orally, were well tolerated. The only feeling reported by the great majority was tiredness and drowsiness, which was often followed by a short and deep sleep. In many subjects we observed a distinct miosis shortly before the tiredness was mentioned.



R. Bader and I tried to investigate whether cyanic acid is a normal constituent of the body. This was claimed by Montgomery[2], whose findings, however, we are unable to confirm. Concerning the fate of injected cyanate in the body, a reduction of cyanate to cyanide seems extremely unlikely, because of the low toxicity of cyanate. Moreover, we could not detect, even with the most sensitive reactions (one[3] with an identification limit of 0·25 γ), any trace of cyanide in the blood and tissues of animals receiving large doses of cyanate over different periods of time.

The cobalt-acetate colour test for cyanate was negative in brain, liver and muscle, but often positive in kidney extracts of animals receiving cyanate injections.

Cyanate was found not to react with either oxy- or reduced hæmoglobin, but it forms a new compound with methæmoglobin. I am greatly indebted to Prof. R. A. Morton, Department of Biochemistry, University of Liverpool, for allowing me to make use of his spectroscopic equipment, and for his invaluable help in constructing the absorption spectrum of cyanate-methæmoglobin, shown in the accompanying figure.

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University of Birmingham.
March 30.

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"High Frequency Transmission Lines"

IN the review of my recently published book of this title, the reviewer[1] remarks: "He [the author] gives only cryptic indication of what is actually achieved by the use of high-frequency transmission lines, and evidently expects that his readers should be satisfied to plunge into abstract study without being tempted by a recital of practical achievements."

I do not disagree with this remark, but must state in reply that considerations of national security made a fuller statement on recent practical achievements impossible, and inevitably my treatment of the subject suffered.

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