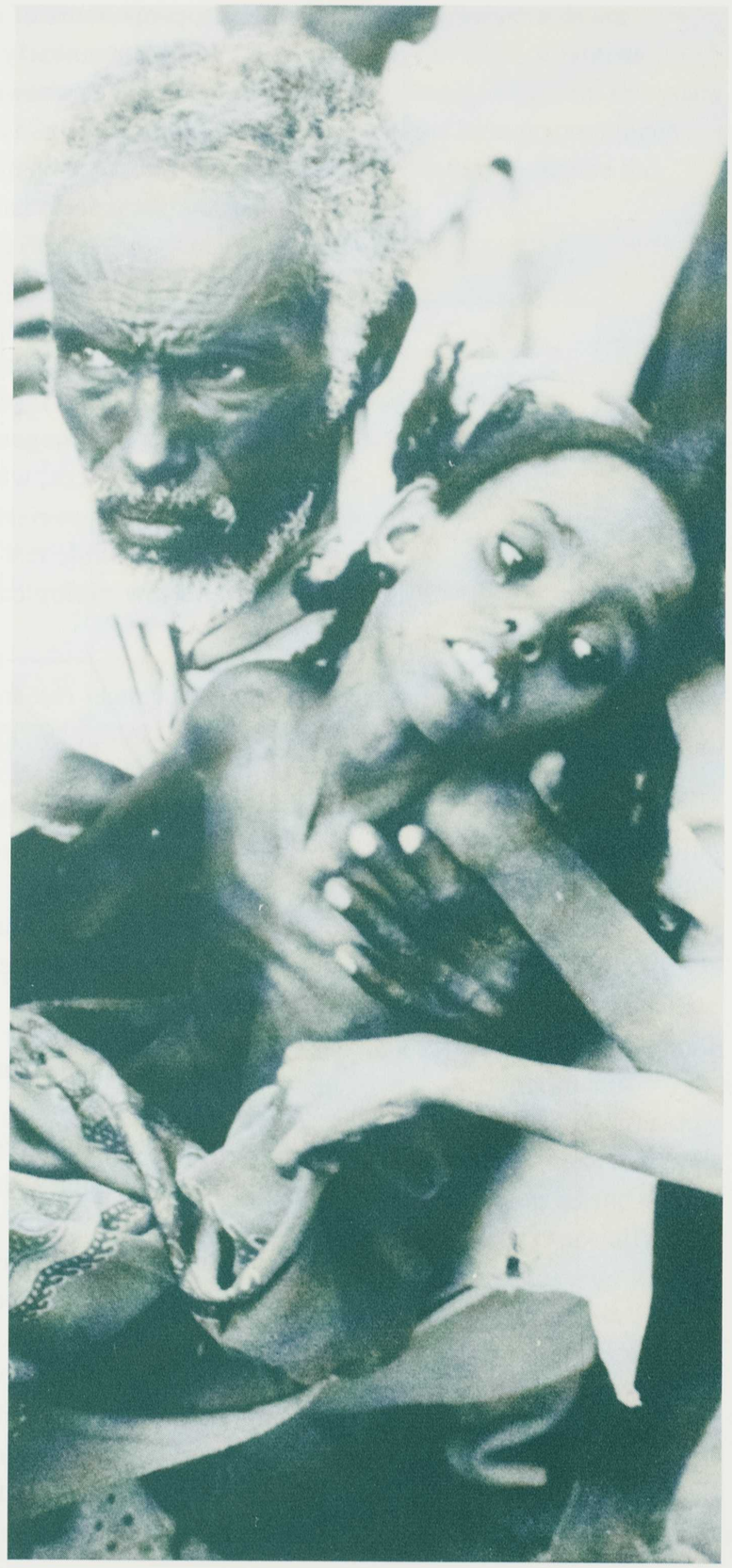

▶ ***Famine:*** *Perhaps aid workers in Ethiopia could have enlightened the scientists who starved baby animals, that early "under-nutrition" arrests childhood development.*

Many of these problems arise from the mistaken belief that human findings must be replicated in the laboratory before they can be accepted. The 19th century microbiologist Robert Koch actually incorporated the idea into a set of rules for establishing proof that a specific germ caused the disease under investigation. When inoculated into animals, Koch argued, the microbe should reproduce the same condition seen in people. The concept was soon discredited by Koch's own study of cholera[1] but nevertheless remained influential. Only recently, the failure to induce AIDS in laboratory animals has been used as an argument against HIV as the cause.[42]

In 1928 Bridge and Henry set out similar rules for *non-infectious* disease, stating that epidemiological evidence must be confirmed in the laboratory before a cancer can be classified as industrial. The preference for animal experiments is so ingrained that even as late as 1964, the World Health Organization was still recommending further animal testing of tobacco smoke,[34] despite overwhelming epidemiological evidence for its effects in people. Epidemiologists have argued that population studies should stand alone in assessing the causes of chronic illness.[34]

Drug Safety

It is well known that animal tests are very imperfect indicators of human toxicity so epidemiology has a vital role in monitoring the side effects of new drugs once they reach the market. Indeed, population studies have often come to the rescue after animal experiments have given a false sense of security. For instance, careful observation of women taking oral contraceptives revealed an increased risk of blood clots leading to heart attacks, lung disorders and strokes. The pill's estrogen content was subsequently reduced. Not only had animal tests failed to identify the hazards but in rats and dogs, high doses of estrogen had entirely the opposite effect, making it more difficult for the blood to clot.[1]

Epidemiology also had a major impact on the treatment of asthma. During the 1960s, at least 3500 young asthma