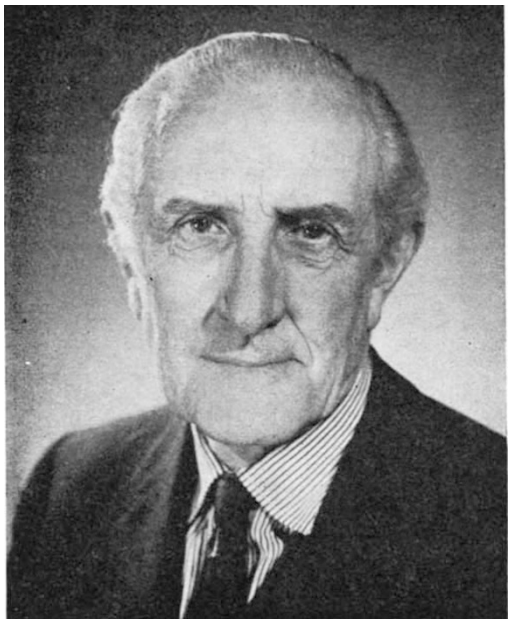
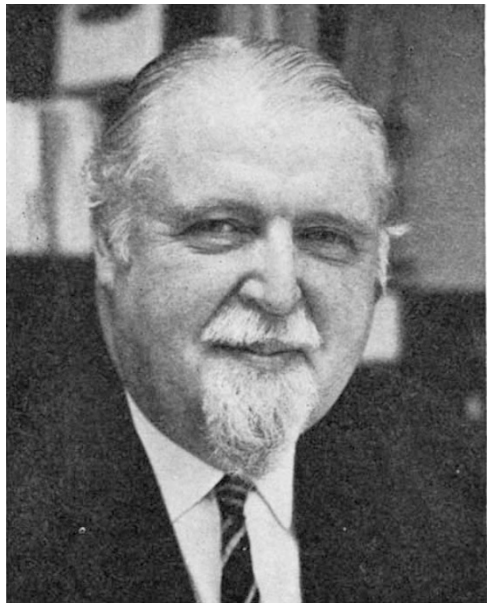


Sir Derrick Dunlop.

in Britain, since it was set up in 1963, has now become chairman of the Medicines Commission, to be established under the 1968 Medicines Act. As such, he is likely to preserve close relations with Dr Frazer, who is expected to take the chair at the next meeting of the main committee later this month.

Dr Frazer is no newcomer to the Dunlop Committee. Like Sir Derrick he joined it, as a member, in 1963 and for some time has served as chairman of the subcommittee dealing with the toxicity, clinical trials and therapeutic efficacy of new drugs and formulations. He is a strong advocate of the principle that the pharmaceutical industry, and for that matter the food industry—he is director-general of the infant British Nutrition Foundation and president of the British Food Manufacturing Industries Research Association—should be responsible for the safety of its products. He does not believe, for example, that developing the Dunlop Committee or any other government agency along the lines of the US Food and Drug Administration would serve any useful purpose when the gentleman's agreement between the drug companies and the Dunlop Committee has worked so well. The Dunlop Committee receives about 800 new formulations or new drugs each year and the industry for the past six years has been careful to submit all its new preparations for vetting both at the stage of clinical trials and when it intends to market them. It also voluntarily supplies the committee with an adverse reactions register covering the first two years after the preparation is marketed. Dr Frazer said he could only recollect two or three occasions when a company had dodged this procedure and in these cases a quick word from the committee to the Government quickly brought the offenders to heel. There was a tinge of regret in his voice when he explained that, when the Medicines Act comes into full force, this informal but successful arrangement will be replaced by a more formal and rigorous, but inevitably more bureaucratic, procedure.



Dr A. C. Frazer.

METEOROLOGY

Still Cooling Down

A SURVEY of the world's weather conditions during 1968 (*WMO Bulletin*, **18**, 72; 1969) has shown that for much of the globe it was considerably colder than normal last year. In Franz-Joseph Land, indeed, average temperatures were about 7° C less than during the period 1931–60. To what extent this fall of temperature reflects a reduction in the amount of solar radiation reaching the surface of the Earth is not yet clear, but the slight cooling of the large Eurasian and North American land masses is likely to be directly linked to the amount of incoming radiation from the Sun.

The temperature on the surface of the Earth has been falling slowly for the past twenty to twenty-five years. Dr J. M. Mitchell of the US Weather Bureau carried out a survey a few years ago of the global temperature for the eighty years up to 1960, and he found a general rise for the period up to the early nineteen forties and a steady decline thereafter. This analysis has been extended by Professor R. A. Bryson and his team at the University of Wisconsin to include the past decade, and they have found a continuation of the downward temperature trend.

Particular features of the world's weather during 1968 were the heavy precipitation in the northern hemisphere and the very widespread subnormal temperatures. The only areas in the northern hemisphere to experience above normal temperatures were a belt across the Soviet Union from southern Siberia to central Europe and a few parts of Canada. In contrast to the abundance of rain in Europe, the Soviet Union and North America, many subtropical areas in Asia and North Africa experienced unusually light rainfalls, and droughts seem to have been widespread in the southern hemisphere.

The study of radiation climatology is still in its infancy. Meteorologists differ on the extent to which

incoming solar radiation affects temperature, but the new theory of climatic variations put forward by Dr Budyko of the Soviet Union at the Symposium on Radiation at Bergen last August has already provoked some searching questions. There has been a reduction of between three and four per cent during the past twenty years in the amount of solar energy reaching the surface of the Earth, and Dr Budyko interprets this as the result of an increase in the quantity of dust in the Earth's atmosphere. This view is not universally held, however, for variations in the intensity of the source radiation could also account for the observed pattern of monitored radiation. Before the present period of decreasing solar radiation, there was one of about thirty years when the radiation stood at a constant level, but before that it had again been at a lower level.

If the latest trend is a consequence of increased atmospheric dust, it is hard to see how the dust could be of volcanic origin. The first major volcanic eruption since the Second World War took place in 1963, which is well after the beginning of the declining radiation period. It is more probable that exhaust gases from various artificial sources are the cause of the offending dust particles if, that is, the dust serves as a radiation shield as Dr Budyko suggests.

TRANSPLANTATION

Life without Kidneys

from our Social Medicine Correspondent

THE social and ethical problems posed by the effective but expensive treatment of kidney disease were the subject of the lecture delivered by Dr George E. Schreiner, director of the renal and electrolyte division, Georgetown University Hospital, Washington, DC, at Newcastle upon Tyne on June 5. Precisely how many people die annually from kidney disease in the United States is unknown, but a crude death rate of 14·3 per hundred thousand has been suggested. Oddly enough, it is the only medical subject on which a White House commission has convened. Although Dr Schreiner could name five methods used for treating uraemia, dialysis and kidney transplants (substitution techniques) are, he said, the most effective.

Patients preferred for dialysis are those with vascular problems, or with azathioprine toxicity, or who have experienced repeated transplant failures. But, even with the choice thus narrowed, the decision as to who should receive dialysis is far from easy. Among the factors to be considered are freedom of consent on the part of the patient, the emotions of the parents or relatives, the drain on the energy of the family, and the demand on professional skills, on funds, time and space. Although few of his colleagues agree with him, Dr Schreiner firmly believes that the patient should have the right to withdraw from treatment if desired.

On the subject of kidney transplants it was encouraging to hear that, in spite of the immunological barriers yet to be overcome, there has been a great improvement in the survival rate of transplants during the past two years; Dr Schreiner attributed this improvement to experience alone. Quoting percentages for the survival of 2,321 patients after one year, he said that this was 91 per cent where a kidney has come from a monozygous twin, 73 per cent from a dizygous twin, 72 per cent from siblings, 64 per cent from parents, 67 per cent from other blood relatives, 25 per cent from living unrelated donors and 36 per cent from cadavers.

Dr Schreiner said that patients preferred for transplants are young children, sterile adults wanting to have children, those who have responded poorly to dialysis and those with difficult shunt problems (for example, clotting). On the one hand, transplantation may bring many benefits—to the donor and recipients; to the doctors and staff (who get a sense of accomplishment); to medical students (who derive an increased knowledge of human biology); and to the public (who welcome a tangible return for their financial support). But kidney transplantation may also do harm—the donor could suffer as a result of having one kidney only; the recipient could suffer from infection, radiation exposure, medical complications of transplantation or psychiatric problems; and the doctor could be taken away from other work that might be more productive.

Finally, Dr Schreiner discussed briefly the cost effectiveness of the two chief forms of treatment. He quoted the cost per year of life of dialysis at a centre as $11,600, that of dialysis at home as $4,200, and that of a transplant as $2,600.

PLANT BREEDING

New Wheat and Potatoes

THE unravelling of the mechanism that controls meiosis has been taken a step further during the past year at the Plant Breeding Institute in Cambridge. In the latest annual report, Dr Ralph Riley and his colleagues in the cytogenetics section describe how they found that a single locus controls the pairing of chromosomes in hexaploid wheat, *Triticum aestivum*. This wheat has six sets of chromosomes and normally during meiosis only chromosomes of the same set pair with each other. This homoeologous pairing is controlled by one chromosome, called 5*B*. Using ethyl methane sulphonate to produce mutant wheat in which chromosomes from different sets pair with each other, Dr Riley and his colleagues have shown that just one locus on 5*B* is responsible for the maintenance of homoeologous pairing (the *Hp* locus).

By suppressing the activity of 5*B* it has been possible to introduce new characters into *Triticum aestivum* through crosses with closely related species. Last year 'Compair' was described with resistance to the yellow rust fungus (*Puccinia striiformis*), introduced from *Aegilops comosa*, and this year attention has centred on introducing quantitative characters into *T. aestivum*. Crosses with *Aegilops bicornis* have produced striking modifications of the parent wheat variety 'Holdfast'. The most important improvement is an increase in yield which does not affect the quality of the grain.

The importance of 'Compair' was underlined last year by a collaborative pathological investigation carried out in Cambridge, the Netherlands, Germany and Kenya. Although 'Compair' turned out to be susceptible to yellow rust in Kenya and to two races of the fungus in Turkey and Japan, it maintained resistance to all races isolated in western Europe, as well as to races from the north-west United States. 'Compair' has also remained resistant in field tests carried out in Mexico.