

The front rank of the scrap metal trade, where an infrastructure of merchants has been built up over many years to feed metals back to the smelters.
Picture by John Rigby.



John Newell reports on a recycling system which is being operated at a government laboratory.

THE automated pilot rubbish sorting line is now working at the Department of Industry's Warren Spring Laboratory. And most of the data concerning the total municipal and industrial waste produced by the county of Oxfordshire has now been assimilated in a project at the same laboratory which is intended to estimate how much of the raw materials needs of such a typical area could be met by a wasteplex, a single, central, all-purpose recycling centre. Great interest has already been shown in the Warren Spring Waste Materials Exchange, which will act as an information service providing regular quarterly bulletins, shopping lists of waste products which could be just what are needed as raw materials by someone else. Although the Warren Spring Laboratory is now spending at least four times as much as they were five years ago on recycling engineering, their resources are still limited when compared with the USA. The members of the team, which has been trying—and now succeeding it seems—to interest industry in new recycling technology developed at the laboratory, can be excused some irritation with accusations in the media that they are partly responsible for sluggish British

interest in moving away from tipping and towards recycling of solid and other wastes.

The sorting line now occupies about half a hangar-sized shed. It is fed by six tons at a time of raw rubbish from Stevenage dustcarts. The rubbish goes through a bag burster and then a rotating drum, which sorts it through three successive sieves with increasingly large holes. The various conveyors coming off this take their loads past magnets, low powered fans, a water bath to separate light from heavy constituents, and devices where rubbish is flung off high speed conveyors against angle plates, or drums rotating in the opposite direction, to make use of differences in the coefficients of friction and resilience.

Out of the other end, or rather ends, come several potentially valuable by-products. Three grades of reuseable paper, two already pronounced as suitable for board making by commercial board mills, one suitable for high grade fuel; clean tin cans for remelting; vegetable matter for composting or conceivably for animal feed, coarse rags for floor covering materials and fine particle materials for soil conditioning.

Warren Spring has also developed means for separating glass to a very high degree of purity because, although there is little commercial future for recycled glass in high grade uses at

present, the position may change, and recent developments in glass fibre manufacture make it likely that this will soon become a large scale outlet for recycled glass.

The lowest grade, dirty, wet mixtures of plastic, paper and other organic unmentionables could at least provide heat, if distilled in a pyrolysis plant set up on a wasteplex site. Warren Spring finalised its designs for a pyrolysis plant earlier this year, after some years of research, and are now waiting for the go-ahead to build a commercial version for a local authority. It has also had fully developed for some time an ingenious fluidised-bed technique for separating different non-ferrous metals.

As a result of talks now in progress, Warren Spring hopes that a first rubbish recycling line, probably using not just a few elements but most or all of the different sorting techniques it has developed, will be built for a local authority somewhere in Britain within 12 months. There will probably be no need to scale up since the existing plant can cope with 50 tons every 24 hours—the equivalent of the rubbish output of a city of about 50,000 people.

Unlike rivals, the Warren Spring system keeps rubbish in large lumps as far along the line as possible. Shredding is a late stage. This prevents the transfer of dirt to paper and tin cans that are being squashed inwards into their contents, and generally makes sorting, especially of glass, much easier. The Warren Spring line uses relatively few low powered air fans, which cuts running costs and does away with the need for cyclone air purifiers.

Some 25,000 to 30,000 companies are being approached during the setting up of the waste materials exchange scheme, in which Warren Spring hopes to supplement the existing communication lines of this kind with their quarterly catalogue, which will list the more *outré* waste products, including a good many normally considered toxic but still potentially recoverable. One example has already been the reclaiming of seeds, surplus to requirement which had been given a dressing of a mercuric fungicide; this enabled them to be conveniently recycled into an adhesive for wallpaper, also requiring a fungicide.

Full scale wasteplexes including, as well as pyrolysis plants and sorting lines, specialised centres like that at Pontypool for the reclamation of toxic wastes, and plants for de-inking news print, are perhaps 10 or 15 years away in Britain. But the Oxfordshire study which began in August will soon provide detailed guidelines for such projects which are adaptable for a wide range of districts—Oxfordshire was chosen because of its many and various small industries and life styles.