Table 1. Effect of Soil Amendments on Germination and Nodulation in Second-Year Clover on Sandy Soil

	Germination (plants/sq. lk.)	Plants nodulated (%)
Control	0·25	28
Fine silica	17	21
Clay	32	54
Fly ash	82	73

bacteria only at depths below 2 in. where the maximum soil temperatures are lower than near the surface. For example, recordings in a yellow sand at Perth[2] in January for the years 1957–61 showed a mean 3 p.m. soil temperature of 50·5° C (max. 65·5° C) at 1 in. and a mean of 37·8° C (max 47·2° C) at 4 in. We cannot overlook the activities of other micro-organisms in the soil as factors contributing to the poor survival of *Rhizobium trifolii*. Antibiotics active against clover root-nodule bacteria have been found in a Western Australian soil[3]. Soil texture differences do influence the competitive interactions between soil micro-organisms[4] while different clay types may affect both competition and antibiotic production by soil micro-organisms[5,6]. The nutritional status, which is altered by the clay and fly ash amendments, may be associated directly with the survival of the root-nodule bacteria or indirectly by effects on other soil micro-organisms. These possible explanations are being investigated. Detailed results of the effects of fine particle materials on clover germination and establishment will be published elsewhere.

K. C. Marshall
F. J. Roberts

Commonwealth Scientific and Industrial Research Organization,
Western Australian Regional Laboratory,
Nedlands, Perth.

[1] Bettenay, E., McArthur, W. M., and Hingston, F. J., *C.S.I.R.O. Austral., Div. Soils, Soils and Land Use Ser.*, No. 35 (1960).
[2] Kininmonth, W. R., *Commonwealth of Austral. Bur. Meteorol. Mimeo. Rep.* (1962).
[3] Holland, A. A., *Ninth Easter School Symp., Antibiotics in Agriculture*, Univ. Nottingham (in the press).
[4] Marshall, K. C., and Alexander, M., *Plant and Soil*, **12**, 143 (1960).
[5] Skinner, F. A., *J. Gen. Microbiol.*, **14**, 393 (1956).
[6] Stotzky, G., and Todd, V. S., *Bact. Proc.*, 54 (1961).

GENETICS

A Girl with Triploid Cells

Triploidy in somatic human cells has been recorded on three occasions. Böök and Santesson[1] described a boy with gross mental retardation and syndactyly whose skin and connective tissue, when cultured, were found to contain both triploid and diploid cells; cultures from blood gave rise to diploid cells only. Pure cultures of triploid cells were obtained by Penrose and Delhanty[2] from fœtal remnants in a case of missed abortion and by Delhanty, Ellis and Rowley[3] from a spontaneously aborted embryo. In all these instances, the triploid cells contained 66 autosomes and *XXY* sex chromosomes. The present communication describes a case in which triploid cells with *XXX* sex chromosomes were found.

The patient is a girl, 6 years of age, who has a mild degree of mental retardation, left-sided hemiatrophy and zygodactyly. Fibroblast cultures, obtained from skin biopsies, one taken on each side of the body, were found to contain triploid and diploid cells in about equal quantities. The diploid cells had normal female karyotypes. A culture of leucocytes from the blood showed only normal diploid cells. The somatic distribution of diploid and triploid cells, thus, seems to be similar to that described by Böök and Santesson.

At the time of the patient's birth, her father was thirty-nine years of age and her mother twenty-three; she has now a brother aged four and a sister aged two. Examination of the antigens on erythrocytes and in the saliva yielded results which, for the ABO and Lewis systems, are given in Table 1.

Table 1. Blood Group Antigens found in Members of the Patient's Family

Subject	Erythrocytes		Saliva	
Father	A_1O	Le(a− b+)	AH	$Le^a Le^b$
Mother	BO	Le(a−)*	BH	absent
Patient	OO	Le(a− b+)	BH	$Le^a Le^b$
Brother	A_1B	Le(a−)*	ABH	$Le^a Le^b$
Sister	OO	Le(a− b+)	H	$Le^a Le^b$

* Only Le^b anti-serum which contained anti-B was available.

The patient's plasma contained anti-A antibody but no anti-B although both would normally be present with group O cells. Her saliva, however, contained B antigen. Tests on epithelial cells in buccal mucosa, carried out by the method of Coombs, Bedford and Rouillard[4], showed that some of them also contained B substance. It was concluded that the ABO genotype of the diploid cells was *OO* and that of the triploid cells was *OOB*. Tests in the MNSs, Rh, Kell and Lutheran systems did not indicate any increased antigen quantities on the subject's red cells. Starch-gel electrophoresis of the plasma showed that her haptoglobin type was 2 : 1 and her transferrin type, C : C.

The origin of the triploid cells is a matter for speculation but the ABO tests make it fairly certain that an extra haploid set has been derived from the patient's mother. One explanation might be that, after fertilization, the haploid polar body nucleus formed by the second meiotic division of the ovum was not extruded. The triploid line could then originate during the first zygotic division, by the incorporation of a haploid complement into one of the daughter nuclei but not into the other. The absence of any evidence of triploid cells in the leucocyte cultures or in red cell precursors seems to indicate their failure to take part in hæmatopœsis. It is not yet clear whether the child's asymmetry is a direct result of her abnormal somatic cells or an exaggeration of existing hereditary tendency. The mother shows a very slight degree of asymmetry but her cells, examined in cultures from her fibroblasts and leucocytes, showed normal female karyotype.

We thank Dr. R. E. Bonham Carter, Dr. Sylvia D. Lawler, Dr. Margaret Penrose and Dr. A. M. O. Veale for their help at various stages in these investigations. The work was supported by a research grant (*RG*–6984) from the United States Public Health Service.

J. R. Ellis
Ruth Marshall
I. C. S. Normand
L. S. Penrose

Galton Laboratory,
University College,
and University College Hospital,
London.

[1] Böök, J. A., and Santesson, B., *Lancet*, i, 858 (1960).
[2] Penrose, L. S., and Delhanty, J. D. A., *Lancet*, i, 1261 (1961).
[3] Delhanty, J. D. A., Ellis, J. R., and Rowley, P. T., *Lancet*, i, 1286 (1961).
[4] Coombs, R. R. A., Bedford, D., and Rouillard, L. M., *Lancet*, i, 461 (1956).

Hæmoglobin Patterns of Plaice, Flounder, and their Natural and Artificial Hybrids

The occurrence in Nature of hybrids between the two flatfish species, plaice (*Pleuronectes platessa*) and flounder (*Platichthys flesus*), has been reported by several authors[1–5]. The hybrid origin of this form was inferred from its distinct intermediate character in a number of morphological characters. The validity of this interpretation has since been supported by the fact that morphologically very similar artificial hybrids have been reared[6,7].

While being rare elsewhere, the supposed hybrid is fairly common in the western parts of the Baltic Sea and in