Professor Frederick E. Breithut as chemical trade commissioner to Germany.

DR. CHARLES HASKELL DANFORTH has been appointed associate professor of anatomy in the Medical School of Stanford University.

MR. L. J. MORDELL, B.A., Cambridge, has been appointed a Fielden professor of pure mathematics at the University of Manchester as from September next.

DISCUSSION AND CORRESPONDENCE

MATHEMATICAL PROPAGANDA

AN unusually significant type of mathematical propaganda is noted in a recent number of the *Jahresbericht der Deutschen Mathematiker-Vereinigung*. It is here stated that as a result of the unfriendly tendencies towards mathematics there has been organized a kind of super-union of the various mathematical organizations in Germany. Twenty-one of these organizations have already associated themselves with this union, which explicitly aims to spread the practical and cultural significance of mathematics and to represent it in the public life of the German people. It aims further to establish a close union between investigation, teaching and practice with a view to their mutual advancement and inspiration.

The union is called *Mathematische Reichsverband* and it aims to hold at least one meeting each year composed of the delegates of the various organizations which belong to the union. Questions involving the work of the individual organizations associated with the union are not to be discussed at these general meetings and, in particular, such questions shall not be decided by a majority vote. On the contrary, the independence of these individual organizations is to be maintained in every respect. It claims to be already a union of *all* German mathematicians independently of whether their interests relate mainly to research or to teaching.

The tendency to bring investigators, teachers and agitators into the same fold found expression in our own country several years ago in the organization of the Mathematical Association of America, but the German movement noted above seems to be a much more pronounced effort towards uniting all the mathematicians of a country for the purpose of combating the unfriendly forces which have already made serious inroads into their favorite domain. These united efforts should result in a deeper study of the place which mathematics is destined to occupy in the civilized world and, in particular, in the educational systems designed to meet the needs of various classes of people.

It remains to be seen whether the mathematical material can be so reorganized that it will appeal strongly to the youths of our generation. The report on the reorganization of mathematics in secondary education, recently issued under the auspices of the Mathematical Association of America, is a serious effort in this direction and is in line with the aims of the union of German mathematicians noted above. Scientists will naturally watch with interest such developments in view of the fact that scientific expositions are frequently affected by the amount of mathematical knowledge that may be assumed on the part of the reader.

G. A. MILLER

PEARL'S BIOLOGY OF DEATH

PEARL'S "Biology of Death," published by Lippincott in the series of Monographs on Experimental Biology, though almost unique in English in content, is remarkably free from the controversial. As a work which has already opened up new fields of research it is desirable that its line of argument should be free from ambiguity and question.

The concluding chapter includes a series of curves purporting to emphasize two things, *viz.*

1. That the trend of human mortality in time is an extraordinarily complex biological phenomenon, in which many factors besides the best efforts of health officials are involved.

2. That for many causes of death a vast lot needs to be added to our knowledge of etiology, in the broadest sense, before really efficient control can be hoped for.

No exception can be taken to the correctness of these two statements, but there does seem considerable doubt that the graphs selected to illustrate them are adequate. This can be shown by reference to Fig. 55, p. 236. Here we have two logarithmic curves representing the weighted average death rate from typhoid fever respectively for countries having highly devel-

oped public health and sanitation (A) and for countries having less highly developed public health and sanitation (B). The A-group consists of Australia, Austria, England and Wales and Germany. The B-group consists of Italy, Jamaica and Roumania. The duration of the time represented runs from 1898 to 1912. Fig. 55 shows a decline in the death rate in both A and B groups at approximately the *same* rate. Pearl remarks, "There is no such large difference as would be expected if organized human interference with the natural history of disease always played" a rôle of immediate and large importance.

Before concluding that these curves indicate a lack of efficacy in public health measures, it would be necessary to continue these curves back to a time before the A-group differentiated itself from the B-group in the matter of possessing a more highly organized system of sanitation. If the two curves could be shown to have diverged since the organization of the A-group sanitation system, their present divergence might represent the effects of sanitation. It is likely that these effects would relatively soon make themselves apparent. In the years immediately succeeding their institution a very marked decline in the death rate in the A-countries might have occurred, attributable to the elimination of preventable deaths. But after this new level or equilibrium had been reached, the new A-curve might run fairly parallel with continuation of the B-curve. The absence of the preventable factor might not materially alter the general form of the A-curve because of its relative insignificance (Pearl, p. 165).

In other words the curves in Fig. 55, instead of being interpreted as minimizing the effects of public sanitation, may be interpreted (I do not assert that I do) as representing the results of two different groups of components; in the case of B the sum of all the factors contributing to typhoid mortality, in the case of A the same sum *minus* the "controllable" factor.

In order to show the limitations of public sanitation in lowering the death rate it would be preferable to reduce the variability in certain factors, *e.g.*, racial susceptibility, climate and diet to a minimum. This can not be secured in the selection of the widely diversified countries, made by Pearl. The effects of public sanitation might be more clearly apparent in following the death rate in the disease in question prior to, during and after the institution of such sanitary measures within the same national and geographic group; *e.g.* the mortality of diphtheria in Germany before and after the institution of antitoxic treatment. Pearl himself follows an analogous method in the case of malaria (Fig. 57) and of yellow fever (Fig. 58).

The objection made above that Fig. 55 need not show what Pearl used it to show can possibly be made clearer by reference to Fig. 56. Here we have logarithmic curves representing the course of the death rate in diphtheria, between 1898 and 1912, in the same A and B groups of countries. The fact that the A-curve is higher than the B-curve probably illustrates the predominant influence of such intangible uncontrollables as racial constitution (heredity), climate and diet. Although the curves in Fig. 55 (typhoid) do not in themselves afford anything contradictory to the interpretation put upon them in the text, the curves in Fig. 56 (diphtheria) seem to offer intrinsic difficulties. There has been no significant decrease in the B-group since about 1903, while in the A-group (*i.e.* where sanitation was well organized) the decrease was continuous except for an interruption to which reference will be made.

Beginning about 1906 in the B-group there is a conspicuous deflection of the curve from the base line representing a significant rise in the death rate which continued till about 1911. It is of interest to note that a similar deflection, *but relatively far less significant,* occurred in the A-curve, beginning about 1907, *i.e.* a year *later* than was the case in the B-curve. A recognition and evaluation of the factors actually responsible for these deflections would be interesting. A purely hypothetical explanation, though a possible one, would be that beginning in 1906 a factor or a group of factors became quite universally operative tending to raise the death-rate in diphtheria. The more highly organized sanitary system of the A-group of countries postponed the effects of these factors for a year and during the few years of their operation succeeded in to some degree counteracting them.

This note does not question the validity of Pearl's theses as presented in the second paragraph but it does suggest that the evidence, particularly Figs. 55 and 56, is inconclusive and ambiguous. These curves do show that there is general downward trend in the death rate regardless of the state of public sanitation, but it is questionable if they do show the relative unimportance of sanitary measures in lowering the death-rate in these particular cases.

JOSEPH L. APPLETON, JR.

TWO MEDITERRANEAN CLOVERS NEW TO THE UNITED STATES

AMONG the specimens received for identification at the Bureau of Plant Industry during the past year are two Mediterranean species of clover, neither of which seems to have been recorded previously from the United States. In view of the possibility of their establishment as weeds in this country, it seems well to place on record the place and date of their first appearance here.

The first species, *Trifolium hirtum* All., is a native of the Mediterranean region and northern Africa. A series of specimens of this species, collected at Farmville, Virginia, on May 15, 1922, has been forwarded by Mr. P. W. Fattig. Mr. Fattig writes that he first found it growing in an old lot which had been cultivated a few years ago, and that a negro who is now cultivating the lot informed him that the clover had been there for about ten years. A few plants were also found by Mr. Fattig growing along fences or in paths at distances of twenty rods, eighty or a hundred rods, and half a mile from the spot where he first noticed it.

The second species, *Trifolium angustifolium* L., occurs also in the Mediterranean region of Europe, Asia Minor and Africa, as well as in the Azores and the Canary Islands. Specimens of this species, collected in a field of California bur clover in Montgomery County, Alabama, in June or July, 1922, were sent for identification by Professor Wright A. Gardner, of the Alabama Polytechnic Institute. Professor Gardner has since written that the seed from which the crop was grown was obtained from the Sherman Grain and Seed Co., Sherman, Texas, and that he has been told that the same clover has appeared in other plantings of seed from the same source, although he has no definite information as to how widely the plant is distributed in Alabama.

Trifolium hirtum is an annual, suggesting the ordinary red clover, *T. pratense*, in its general appearance and pubescence, but smaller. The leaflets are obovate, 1 to 2 cm. long and 6 to 15 mm. wide, broadly rounded, subtruncate, or obscurely notched at apex, finely denticulate, and rather densely pilose on both sides. The sessile, involucrate heads are subglobose or oval, about 1 to 2 cm. long and 1.5 to 1.8 cm. thick (excluding the corollas). The purple-red corollas have a narrow elongate banner. The sessile, turbinate, densely silky-pilose calyx tube is 20-nerved and about 3 mm. long, and the setaceous-subulate teeth are plumose and about 5 mm. long. In fresh specimens the hairs of the calyx are whitish, but in old herbarium specimens they change to brown.

Trifolium angustifolium is also a pubescent annual, reaching a height of one or two feet. Its leaflets are linear or very narrowly linear-lanceolate, 2 to 5.5 cm. long and 2 to 4 mm. wide. The pedunculate, exinvolucrate heads are at first ovoid or oval, becoming at maturity cylindric and reaching a length of 2.5 to 8 cm., with a diameter (exclusive of corollas) of 1.8 to 2 cm. The corollas are "rosy." The sessile, obconic, 10-nerved calyx is about 4 mm. long, and is rather densely hirsute-pilose, while the plumose, setaceous or setaceous-subulate teeth are 4 to 7 mm. long. As in *T. hirtum*, the pubescence of the calyx is white at first, changing to brown or bronze in old herbarium material.

Specimens of both species have been deposited in the United States National Herbarium, the Gray Herbarium, the herbarium of the New York Botanical Garden and the herbarium of Professor L. H. Bailey.

S. F. BLAKE

BUREAU OF PLANT INDUSTRY,
U. S. DEPARTMENT OF AGRICULTURE

"THE FRIENDLY ARCTIC"

IN the issue of SCIENCE of March 30, 1923, there appeared two letters—one by Mr. V. Stefansson and the other by Messrs. McConnell and Noice, in which the statement is made that the minister of mines declined to investigate charges made by certain members of the Canadian Arctic Expedition against Mr. Stefansson and the