

supply. A further example of this kind of substitution is to be found in the development of an artificial cryolite from the use of fluorspar thus reducing the importance of the natural cryolite upon which the aluminum refining industry depended, and which is known to exist only at Ivigtut in Greenland.

VII

In conclusion we must revert to the theme that has been fundamental to this whole discussion and repeat again that our knowledge of the world's supply of mineral products is so meagre and so unreliable as to make it impossible to forecast with any assurance even an approximate date at which we will be faced with a critical shortage of any specific item. It is clear, as I have already stated, that there is no serious and immediate over-all and irreplaceable shortage of any essential mineral. But it is equally clear that the demand for mineral products is increasing at such a rate that unless there is a fundamental change in the economic fabric of human society we will ultimately be faced with the exhaustion of many of our mineral reserves. In some cases, particularly lead, cobalt and copper, and probably also iron and oil, the supply will be exhausted more rapidly than in others. New discoveries, improved methods of extraction and processing, and careful conservation will postpone the advent of critical mineral shortages. Substitution may provide alternate solutions. When shortages do develop, they may not be critical because alternatives may be available. But this is a hope not a promise. In the meantime the practices which have used or squandered our mineral resources in the past still continue and consumption is rising at a rate that can only be described as alarming.

The situation that is thus developed will make heavy demands on human intelligence and good will. Since no one nation has been endowed with all its mineral requirements, the problem crosses every national boundary. The discovery of solutions is a matter of universal concern.

The experience of the two world wars has shown the folly of wasting our irreplaceable mineral supplies in barren struggles that, apart entirely from the moral and social degradation which they produce, end only in general impoverishment and the permanent depletion of our resources. Further conflicts of this kind will hasten the day when real shortages in our reserves will develop. They may leave us too little time.

Because the problem is a world problem, the search for solutions should be on a world basis. That search can be made infinitely more productive if it is based on an increased appreciation of the necessity for scientific research in this field. There must be co-operation in the exchange of technical and industrial knowledge. Above all, there must be peace. Given these conditions we can refuse to admit that any material problem is beyond the ultimate competence of mankind.

If, on the contrary, we hold firm to our ideological, national and racial rivalries and hatreds, if we place on our scientists the bitter burden of the prostitution of their services in war, if we fail to realize the danger as well as the immorality of the irresponsible behaviour that has marked the past conduct of international affairs, humanity will suffer the fate that it has long invited.

The world has entered a new era. Humanity has at last achieved the power of self-destruction. Our record gives no assurance that it will not be used.