

CHAPTER XXIV

A FEDERATION PROBLEM

WHEN the United States of the World is organized—as it must be some day—the federation will find a great many problems clamoring for solution. There will be demanded at once, not the Syndicate of Intellect that Kipling suggests as the world government, but a zodiac of constellations of human stars, each constellation a commission for the study of its own great series of questions.

And I think the first great commission will be appointed to determine what shall be done to stop the world-wide waste of coal.

This commission will indict the state of Pennsylvania as a criminal against the world for allowing the great coke companies of the Connellsville region to waste all the gas, all the tar, all the heat and all the fertilizer in making coke. It will indict the state of West

ON BOARD THE GOOD SHIP EARTH

Virginia as a criminal against the world for allowing the fuel gas to be wasted. It will indict all the gas producing states for the same crime against the people of the world, and all the coal mining states for allowing the waste of one-half to three-fourths the coal in mining. It will indict as criminals against the world's supply of coal all those states, communities, corporations and individuals which allow black smoke to escape from flues and chimneys poisoning the atmosphere and destroying property—and wasting a very considerable percentage of the coal burned. It will indict as criminals against the world's welfare everybody everywhere who is responsible for the crime of burning coal in steam-engines when from two-thirds to one-half of the fuel could be saved by throwing away the steam-engine, getting better educated operators and converting the fuel into producer gas for use in gas-engines. All these things it would do today, if there were a federation of the world, on the strength of the knowledge we now possess.

A FEDERATION PROBLEM

Of all these crimes we are now guilty, and we know it. Our only excuse is that, after all, the shortage of coal is possibly only a scientist's chimera; that, anyhow, the crisis will not come until after we are dead—and that money must be made in this life if at all.

God said, "Let there be light"—and there was light. And the voyage of the good ship *Earth* was so ordered that millions of years ago when the air was full of carbon, great swamps existed in which grew huge plants which, through light and heat, took the carbon from the air and by reason of the repeated flooding and draining of these fields, coal was made. So coal is the light of millions of years ago stored in the bunkers of the good ship *Earth*. It is also light spiritual, and light intellectual. It is civilization. By means of its innumerable uses it is God's chief present agency for carrying over to us in world progress the light commanded "in the beginning."

The first great commission on the world's coal supply will find immense beds left in the bunkers of the good ship *Earth*. In Eu-

ON BOARD THE GOOD SHIP EARTH

rope, aside from the greatest mines, coal is produced in France, Austria, Hungary, Spain, Russia, Holland, Bosnia, Rumania, Servia, Italy and Sweden. But in none of them is there a supply known to exist which is more than will be needed in the nation possessing the mines, if we allow for progress and development in the future. Of those named, Russia has the greatest supply, but the mighty development of Russia under the democracy and justice which the world hopes to see the Russian people win, will call for the local use of every ton of coal under Russian soil.

Africa is poorly supplied with coal. The climatic conditions when the coal was laid down do not seem to have been favorable for its formation in the equatorial regions. There is a coal industry in the Transvaal, in Natal and in Cape Colony; but a developed Africa will draw on the rest of the world for most of its coal, so far as can now be seen.

Similar conditions exist in Australia. There is a coal industry in almost every province of Australia, and in both Tasmania and New

A FEDERATION PROBLEM

Zealand; but there is no reason to believe that there is more than the Australasia of the future will need.

India has a good deal, but probably needs it all. Mexico has about a six months' supply for the United States if it were all taken out next year—300,000,000 tons. She will need it all and more. Brazil has a good deal of rather poor coal. There is no reason to expect a surplus there. Chili mines less than a million tons a year, and has no great supply. In Venezuela and Colombia coal exists in small quantities in scattered localities. Peru has extensive deposits of both anthracite and bituminous—which are worth looking into by the coal commission of the federation of the world. Aside from these, South America seems barren of coal, save for small deposits of poor fuel.

The world's supply, therefore, must come from North America, China, Great Britain, Belgium, Germany and localities mentioned above which can not long furnish surpluses.

One authority says that at the rate of min-

ON BOARD THE GOOD SHIP EARTH

ing in 1900 the fields of Central France, Bohemia, Saxony and North England would be worked out in one hundred to two hundred years; the other British fields, and those of Waldenburg-Schaftzlar and North France might last two hundred and fifty years; the mines of Belgium, Aachen, and Westphalia were rated good for six hundred to eight hundred years, and those of Upper Silesia for a thousand years. But this does not take into account the startling acceleration of consumption going on all over the world. Neither does it reckon on the fact that as one district fails, the demand will rest on the others, until the last to go will be mined with a fierceness never seen before. The last of a field plows off fast.

As for the American supply, the Geological Survey has reversed itself and passed from a position of extreme pessimism since Campbell indicated the exhaustion of our fields in one hundred and fifty years, to that of extreme optimism in a recent report in which it is pointed out that at the end of 1910 there

A FEDERATION PROBLEM

remained in the ground a supply equal to four thousand times the amount mined that year. This too fails to reckon on the ever-increasing demand which will make the consumption of 1910 look small within ten years; nor on the concentration of the world's demand on the good mines when the smaller fields are worked out.

The last great field to be considered is that of China. The province of Shansi is one vast coal field, practically untouched, both anthracite and bituminous, and covering 30,000 square miles. Some years ago the Baron von Richthofen said that China had enough coal to last the entire world several thousand years. Probably the baron had not considered when he made the statement the manner in which we are speeding up in coal consumption, but there seems to be no doubt that China has the greatest coal fields in the world. A free, educated, justly-organized China may find in these great mines a means whereby the Chinese can redeem themselves from poverty, and the "sordid round of getting and begetting" of

ON BOARD THE GOOD SHIP EARTH

which Ross speaks as now constituting the Chinese life.

More mines will be discovered—many more—and more uses for coal. The coal commission of the good ship *Earth* will, however, claim every ton of it as the property of the people of the world, and not that of any nation, or state, or corporation, or private owner, or class of private owners. And it will ordain that useless and wasteful consumption be stopped everywhere.

The coal in the bunkers of the good ship *Earth* is a product made millions of years ago by the radiant energy of the sun—light and heat—acting through the life-force in plants. Once used, it is gone forever. For the carboniferous era can not return to the earth—or if it could, it would exterminate the human race.

But there is a way to utilize the radiant energy of the sun coming to us day by day. And yet we mostly waste it. It is as if a man with an income half sufficient for his living,

A FEDERATION PROBLEM

should throw it away while drawing on a bank-account to which no deposits could ever be added.

Remember that in dealing with this matter of coal we are considering force. Force must be used up in every human product. Force is another name for work. Coal is another name for work. It does what would else have to be done by man or beast. And as coal is more powerful than all the men and beasts in the world, it does work that could not otherwise be done at all. Our bridges, railways, skyscrapers, Panama Canals, factories and mills are greater than the works of all the other ages—notwithstanding the Pyramids and Karnak, the Colosseum and the Parthenon—just because we have coal to do the work for us. Those old works were done by slaves, and we do ours with free labor—just because we have the coal. Well it will be for us when we have a federation of the world to find out how much coal we have, and to see to it that it is saved, and not wasted.

All the while we have been burning coal so

ON BOARD THE GOOD SHIP EARTH

fiercely, the sun has been ready to do more than half the coal work by the force of yesterday's sunlight, instead of that of the carboniferous age. The sun is a giant, which lifts millions of tons of water every day to a height of thousands of feet in the air through evaporation from the oceans. This water floats out over the land, and falls in rain and snow. Much of it falls on mountains and highlands, from which it runs in rapid streams. For ages man has used the power so stored in water, to turn mills and do some work; but within recent years we have found out ways by which we may turn it into electricity, and—wonder of wonders!—from electricity back again to heat and to light as of the sun.

This descending water is called "white coal" because it will do almost everything that coal can do. Indeed, a great deal of the coal we burn is turned into electricity, by a process so wasteful that more than nine-tenths of the power of coal is lost in the process! Thus

A FEDERATION PROBLEM

far, the invention of the dynamo and electric motor, instead of being a means of saving coal, has actually increased its consumption and accelerated its waste.

The coal beds are our bank-account on which new deposits are never made; and the water-power is the daily income capable of sufficing for more than half our needs—which we waste, waste, and all the time waste!

There is nearly 3,000,000 horse-power constantly wasting down the slopes of the mountains of our eastern states. We are giving away the sites to power companies who will claim the privilege of making future generations pay for this work of God's sun; but we as a people are not developing the power. These Appalachian streams, if dammed and furnished with all wheels it would pay to install, for those portions of the year when the current is strong, would give us an output of 6,000,000 horse-power, worth a hundred millions of dollars a year. By storage reservoirs to hold back the flood waters we might not

ON BOARD THE GOOD SHIP EARTH

only prevent most of our terrible floods, but we should increase this output of horse-power many fold.

We do build dams, but we are guilty of the incredible crime of refusing to utilize the power our own publicly-owned dams develop. The dams the United States government has already built for the benefit of navigation now waste, even in low water, power which might turn wheels to the enormous amount of 1,600,000 horse-power; and they might profitably during half the year send it out at the rate of 4,000,000 horse-power per year. There are grave doubts as to whether or not under the Constitution of the United States we have the legal right to generate and distribute profit from our own rivers even though we may build the dams! But fortunately the Constitution is not a cosmic fact.

The New York, Pennsylvania and New England water-power is not included in the above estimate, and is enormous. All the Great Lakes states have tremendous power possibili-

A FEDERATION PROBLEM

ties. The Pacific and Rocky Mountain states have it in still greater volume. The rivers of Canada offer power in quantities simply incalculable and inconceivable. Mexico, South America and Asia—no one has even estimated the water-power available to the passengers on the good ship *Earth* in these regions. Wherever the rivers of Africa—the Nile, the Kongo, the Niger, the Zambesi—flow over the mountain rim of the dark continent, there are cataracts wherewith to light it—light it in myriad ways.

We are using power—counting coal-power also—in the United States at the rate of less than 20,000,000 horse-power. There is available water-power running to waste to turn every wheel of this. There is water-power running to waste to turn every wheel now turned by steam in all the world. The power sites are not always near where the wheels are located. In many cases they are too far from the centers of population to be transmitted profitably by our present-day methods. But

ON BOARD THE GOOD SHIP EARTH

we shall learn more about transmission. There are some uses for which coal is essential, and always will be.

But the age of white coal is a future certainty. The captains who rule the good ship *Earth* in the days of the United States of the World, will gradually cause the load of our increasing work to be laid on water, and taken from coal. We shall use daily the sun-energy of this year, and save our lessening deposit of the sunlight of the carboniferous age. Copper highways will gridiron the world for the accommodation of the current from the wilds where the cataracts are found. Population will shift slowly from the coal regions to the power sites. The great manufacturing cities of the future will be built in the Alps, about the reservoirs of the Appalachians, along the slopes of the Andes, the Himalayas and the Sierras—wherever power and raw materials can be bought together.

It will be a cleaner sweeter age than the age of coal. It will express in all its life the science which will be the universally dis-

A FEDERATION PROBLEM

tributed wealth of all minds. After a while the burning of coal will be confined to those uses which are not to be served by electricity. The depletion of the coal beds will be so reduced that their exhaustion can be regarded as indefinitely postponed. Such additional fuel supplies as gas, wood, petroleum, alcohol and peat will be eked out by science so as to make the fuel problem less and less important. Means may be found to get heat directly from fuel by chemical reactions, and thus save the waste in burning. The rays of the sun, the waves and tides of the sea, the winds and even the interior heat of the earth may finally be available for the work of the world, in the days when the captains of the good ship *Earth* shall ordain the age of white coal, under the claim for the people of the *Earth* of the right to and sway over every watt of power which the sloping decks of their ship may be capable of generating from the rains of heaven.