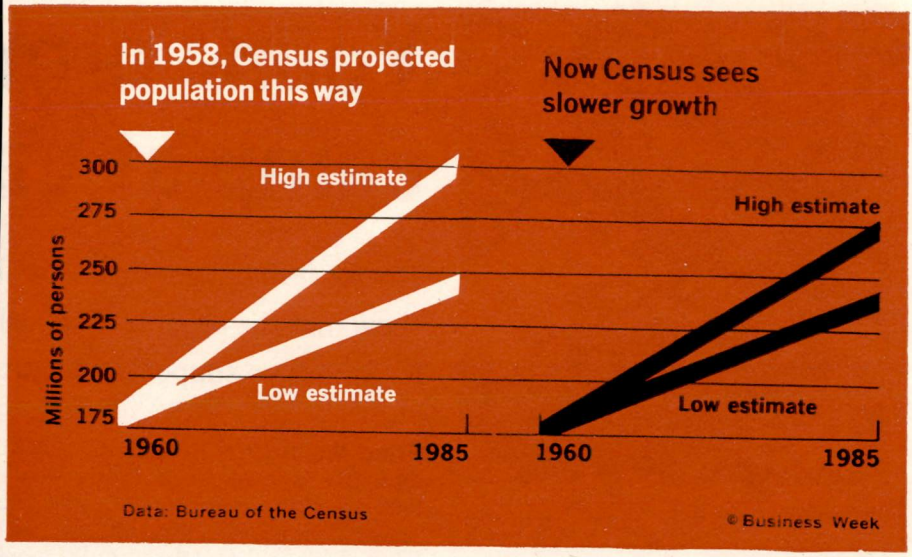
f 2 Demography & Malthus

Th. Skidmore



Have stork's wings been clipped a bit?

Latest Census Bureau projections revise downward the estimates of population growth. Maximum by 1985 now set at 275.6-million

"Grow we must" is still the watchword for the U. S. population. But the newest guideposts, issued last week by the Bureau of the Census, suggest growth that may come more slowly than earlier projections had indicated.

Forecasters at the bureau regularly project estimates of growth. In 1958, they saw the U. S. growing to as much as 305.7-million people by 1985. Now they believe that the maximum possible growth in the next 20 years would not carry the country above 275.6-million.

The lowest of their four series of estimates (only the highest and lowest series are shown in the chart above) in 1958 and the lowest of the current series are about the same—roughly 248-million by 1985.

Revisions. In 1961-62, Census revised the two middle series of 1958, dropping the highest and lowest because they were already outdated; it carried these revisions only to 1980. For that year, the new high is 252-million against nearly 260-million projected two years ago.

New techniques for forecasting fertility—always a ticklish problem—were responsible for some of the change. Besides, in recent years the fertility figures themselves have lagged a bit. So a wholly new series seemed in order.

The latest report shows what we may look for by age groups. Between 1963 and 1970, the 18-24-year group will grow the fastest. Long-term, it's the 23-34-year-olds who will take the prize, with a huge 78.9% increase by 1985.

The big question mark, of course, is how fast the now unborn babies will appear. In the past few years the number of babies born has slowed perceptibly. Once the new young marrieds start their families, the number is bound to turn up again. But recently, the youngest families have shown some bent to fewer children than their older brothers and sisters have had [BW Nov.17 '62,p64]. Only time will tell whether smaller families will be the fashion in the years ahead.

Another question Census can't answer is whether young people will marry as early as they have done in the first postwar decades. Job opportunities—and the pressure for ever more education—will loom large in determining the answer.

LeTourneau College
NOW®
Vol. XVI, No. 11 June, 1962



Eight Years Ago This High-Grass Pasture Was Jungle.

Second Class Postage Paid at Longview, Texas

R.G. LeTOURNEAU talks about

Could This Earth Feed 100 Times Its Population

Mr. Bryant Evans
Science Writer
The San Diego Union
San Diego, California

Dear Mr. Evans:

Mr. C. Bowden sent me a clipping of your article *"Clearing Jungles Courts Disaster"* in The San Diego Union dated March 11, 1962 which referred to an article in the March 2, 1962 issue of Science Magazine written by Mr. Raymond Bouillenne, a Belgian ecologist.

Mr. Bouillenne states that *"The delicacy of the balances in the great tropical forests, the luxuriance and wealth of which seem to suggest great stability is particularly evident to me, as biogeographer and ecologist. This stability does not exist. The great forests of the hot regions are less resistant than are the forests of our temperate climate. The equatorial soil is generally poor; the forests can live and subsist in these regions only because they are part of a closed and hence balanced cycle. The organic matter that falls from the trees constitutes the humus; all that the forest produces returns to the forest. If the forest is interfered with, if the soil is laid bare, the humus decomposes very rapidly, and in hot, damp regions it is not renewed. It is reduced to soluble mineral salts, which the rains easily and swiftly wash away."*

We have been clearing the dense jungles in Liberia on the West Coast of Africa for approximately ten years now, and coconuts, palm oil nuts, coffee, corn, rice, watermelons, pineapples, sweet potatoes, etc. are being produced. When we first began our operations there, the natives told us that the land could only produce one crop every five or six years, and their actual practice is to clear and burn, raise one crop, and then let it go back to jungle. Last year we showed them

continued inside

M M GAFFNEY
1610 WILSON
COLUMBIA MO

Going Places With R. G. LeTourneau

JUNE

3 Sunday, Kimball, Nebraska
11:00 a.m., Morning Worship Service, Kimball Methodist Ch. 2:30 p.m., Mass Meeting, High Sch. Audit.

4 Monday, Altus, Oklahoma
7:30 p.m., Laymans Rally, Baptist Assembly Grounds (Lugert, Okla.)

16 Saturday, Enid, Oklahoma
7:00 p.m., CBMC Dinner, VFW Building, 621 N. Independence.

17 Sunday, Enid, Oklahoma
10:30 a.m., Morning Worship Service, Davis Park Christian Church. 2:30 p.m., Mass Meeting, Enid Education Building, 528 S. Independence.

21 Thursday, Dallas, Texas
7:30 p.m., Youth State Convention, Pleasant Grove Christian Church, 1324 Pleasant Drive.

23 Saturday, West Plains, Missouri

24 Sunday, West Plains, Missouri

30 Saturday, Alamosa, Colorado
7:30 p.m., Adams State College Audit., 3rd St. & Richardson Ave.

JULY

1 Sunday, Alamosa, Colorado
10:30 a.m., Morning Worship Service, Adams State College Audit. 3:00 p.m., Mass Meeting, Adams State College Auditorium.

R. G. Talks cont.

the folly of such thinking by planting a crop of rice and harvesting it in six months. Then we plowed the ground immediately and planted another crop of rice and took two good crops off in one year.

The thing that irritates me is that college graduates who probably never did any successful farming in their lives, swallow the native nonsense and then give us a long-haired wise discussion on the reason. I have talked to a number of them. That is the only thing that bothers me concerning our Peace Corps. It is a wonderful idea and would work if we would send a few practical farmers over there to show them how to till the ground. Our natives in Africa don't even have a hoe, to say nothing of a plow. That's why they wait a few years and then cut the jungle again with a machete, burn the ground bare, and sow another crop by making a hole with a stick and dropping the seed in the ground. The next year the ground is covered with vegetation so they can't plant it again. Think what could be done if they could plow that vegetation under.

The farmers in this country wouldn't get a crop if they planted with a stick with weeds on the ground higher than your head. If we are going to send a Peace Corps over there, let's give them a couple of years of training on the farm, plowing and planting, and then have them take a few tractors, plows and cultivators over with them. That is what we are doing in Liberia, West Africa and Peru, South America, in perhaps the two most dense jungles in the world. The natives will learn more by watching the operation for ten minutes than you could tell them in ten years.

Mr. Bouillenne's article further states that — *"In most parts of the world the progressive clearing of forests to acquire virgin humus has been practically unbridled. Only in Europe, where agriculture has been established for a long time and where the consequences of certain states of imbalance have been gradually recognized, is this not true. Elsewhere, cultivation is abandoned when the soil becomes unproductive. Then herbaceous plants appear and are generally used as pasture. Because of the need for pastureland, grassland has been burnt off so that it will not become wooded. Where this is done, a great number of useful plants disappear, to be replaced by a small number of pyrophilous varieties that are often not suitable even for pasture."*

Don't let these agricultural scientists fool you. I didn't get enough education to understand some of Mr. Bouillenne's big words, but I stopped in the jungle long enough to design a machine that takes a swath 20 ft. wide right down through the jungle faster than you can walk. Trees up to 5 ft. in diameter don't stop it. It just crushes them under its feet and keeps right on going. And I've stuck around long enough to see 10,000 acres of worthless jungle on the headwaters of the Amazon in Peru converted into good pasture with 2,000 head of cattle living well on it, besides producing vegetables, all kinds of fruit, rubber, coffee, etc. Most people in the lands he talks about wouldn't know what a plow was for if they saw one.

When I read wonderful stories about what happened thousands of years ago, I can't help but sort of wrinkle my eyebrows. There may be a few places where there are salts and acids that make the ground unfruitful, but a little drainage and fresh rain can cure that. But you have to plow it.

In the days when my Lord and Saviour, Jesus Christ, was here on earth, the people understood that much. "And some fell among thorns; and the thorns sprung up, and choked them." (Matthew 13:7) Of course continuous burning is not good for the land, but if you plow that humus under and get a little rain on it, you will get a crop.

Mr. Bouillenne says, *"The beautiful forest region of the Lubilash, in the Congo, is established on sand covered with a thin layer of humus. Clearing such a forest for agricultural purposes brings about a rapid exposure of the sterile subsoil. The soil becomes unproductive after 3 or 4 years and has to be abandoned."*

He further states in his article that *"If we are to protect man's habitat we must first know and understand what it is we are trying to protect. That knowledge is still incomplete. This is particularly true of certain regions situated in the tropics. And the possibility of acquiring much of this knowledge is rapidly slipping through our fingers. We know that 110 species of mammals alone have ceased to exist in the last 2000 years. In 200 years 600 species of animals have declined to the point of extinction."*

I have been in the Belgian Congo too where they have that coarse grass prairie, but I'll bet you would be surprised what a good plowing would do to the land. You have to open it up and let the nitrogen from the air get in or give the mammals a chance to work if that's what it takes. A little



Banana trees and grass have been planted on this reclaimed jungle in Liberia, Africa.

irrigation works wonders and it makes the desert blossom like a rose. Cutting the jungle might decrease the rainfall a little in Liberia where we have 200 inches, but that would be helpful rather than detrimental, and raising crops on the dry land will put more moisture in the air and give more rain.

Mr. Bouillenne states further that *"Even among our contemporaries, however, there are many who remain ignorant of the problem. They do not realize that this is a fundamental question for our age, and that the future of our civilization depends upon its solution. They do not see that man is now disrupting the operation of natural laws and leaving to his descendants, through the destruction of plants and soil, the prospect of insufficient food and perhaps of widespread famine."*

I'm just one of the scientist's ignorant contemporaries who believes that with more machinery to do the work and just a little agricultural knowledge, the world could produce a hundred times more food for mankind than it is producing today.

Sincerely yours,
R. G. LeTourneau
President

He that tilleth his land shall have plenty of bread; but he that followeth after vain persons shall have poverty enough. Proverbs 28:19

And ye shall eat in plenty, and be satisfied, and praise the name of the Lord your God, that hath dealt wondrously with you: and my people shall never be ashamed. Joel 2:26

And the Christ that fed the 5,000 with a miracle will come again and straighten out the mess this world is in long before there's a famine because the world can't produce enough food.

WHEN YOU MOVE

Please notify us as soon as possible. Return postal rates have increased from 2 cents to 10 cents and it is costly to us when you move and do not notify us immediately. Therefore we would greatly appreciate your cooperation. USE A STANDARD GOVERNMENT CHANGE-OF-ADDRESS CARD, or a post card. Be sure to give your old address as it appears on this issue and your new address. Mail direct to NOW, P.O. Box 2307, Longview, Texas.

Roy LeTourneau New Executive Vice President



Roy LeTourneau has been named executive vice-president of R. G. LeTourneau, Inc. according to an announcement by R. G. LeTourneau, President.

The new executive vice-president, who is a son of the president and founder, was formerly vice-president and general manager of LeTourneau of Peru, Inc., where he managed the firm's jungle clearing, road construction, farming and cattle raising activities.

He joined the company in 1946 and before going to Peru in 1954 was manager of the experimental and equipment testing department. He is a graduate of Wheaton College Academy and attended Texas A & M College.

Mr. and Mrs. Roy LeTourneau and their four children recently returned to Longview, Texas, after spending eight years in the mission fields in Peru.

New Chaplain Appointed

Dr. Allen Tyler, President of LeTourneau College, has announced the appointment of Rev. R. W. Hubaker as college chaplain. He has assumed the duties of Rev. Barney Walker, who resigned to accept the pastorate of a local church. Rev. Hubaker received the M.A. degree in theology and Christian education from Trinity College in Clearwater, Florida.

Although his original home was Toledo, Ohio, Rev. Hubaker and his wife and three daughters have been living in Florida.

Rev. Hubaker has had 20 years of experience as pastor and evangelist in interdenominational work. He comes to LeTourneau College from a short period as supply pastor of the Southview Community Church in Kansas City, Mo. He is an experienced personnel worker who understands the problems of the young people of today.

He is already at work planning attractive chapel services and a sound religious program at the college, and he requests the prayers of the readers of NOW for the success of the program.

LeTourneau College NOW

Robert H. Selby, Editor

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"Behold NOW is the accepted time: behold NOW is the day of salvation" — II Corinthians 6:2.

LeTourneau College is a Christian, coeducational, technical and liberal arts college granting degrees in Bachelor of Science, and Bachelor of Arts in several fields. Full information can be had by writing to the Director of Admissions, LeTourneau College, Longview, Texas.

A Contrast In Mothers

Ahaziah, king of Judah, reigned a year in Jerusalem. "He walked in the ways of the house of Ahab, for **his mother was his counsellor to do wickedly**. Wherefore he did evil in the sight of the Lord like the house of Ahab: for they were his counsellors after the death of his father to his destruction." (2 Chronicles 22: 2-4).

Athaliah was the mother's name. She, and the members of the house of Ahab, counselled Ahaziah to disobey the Word of the Lord. Hence, it is not to be wondered at that Athaliah is called, "that wicked woman" in 2 Chronicles 24:7. "There is no wisdom or understanding or counsel (that can prevail) against the Lord" (Amplified Ver. Proverbs 21: 30).

There is no record of her children rising up and calling her "blessed" (Proverbs 31:28).

By way of contrast, Mary, the mother of Jesus, said: "All generations shall call me blessed" (Luke 1:48). She counselled people to obey the word of the Lord.

While at a wedding feast in Cana of Galilee, she said to the servants: "Whatsoever He saith unto you, do it" (John 2:5). They acted upon His word, and immediately that which was lacking was abundantly supplied.

Mary's good counsel should be heeded by people everywhere. Every father, mother, son and daughter of us should do as He says.

Who has a better right to tell us what to do? He is our Creator, and also the One who died for our sins and rose again.

All who heed His command to "repent" (Luke 13:3,5) and respond to His invitation "Come unto Me" (Matthew 11:28) shall find rest of soul.

What a blessed day for mothers that will be when the Lord Jesus shall reveal to them the full results of their godly example and counsel to their children and others!

A Mother's Prayer

I do not ask riches for my children,
Nor even recognition for their skill;
I only ask that Thou wilt give them
A heart completely yielded to Thy will.

I do not ask for wisdom for my children
Beyond discernment of Thy grace;
I only ask that Thou wilt use them
In Thine own appointed place.

I do not ask for favor for my children
To seat them on Thy left hand or Thy right;
But may they join the throng in heaven
That sing before Thy throne so bright.

I do not seek perfection in my children,
For then my own faults I would hide;
I only ask that we might walk together
And serve our Savior side by side.

—Phyllis Didriksen

Castro Seeking Ransom Again

After trying and convicting 1,179 prisoners of the unfortunate Cuban invasion, by a military tribunal, Fidel Castro has demanded $62 million for their ransom.

Last Spring he said he would exchange the prisoners for tractors. A "Tractors for Freedom Committee" was formed, and it estimated the tractors would cost $2 million. After the Committee collected many contributions, Castro made it known that he wanted large, heavy tractors which would cost $28 million. The project was dropped.

The prospects are not bright for the raising of the demanded $62 million, hence the men face thirty years imprisonment.

We only refer to the incident to remind readers that all have sinned and come short of the standard God has set (Romans 3:23). We were captives of sin and Satan. And we were utterly helpless to change our condition; for no man "can by any means redeem either himself or his brother, nor give to God a ransom for him. For the ransom of their life is too costly and (the price they can pay) can never suffice" (Psalm 49: 7,8 Amplified Version).

The good news is that upon a personal confession "I have sinned and perverted that which was right, and it profited me not," God will be gracious unto him and will say, "Deliver him from going down to the pit: **I have found a ransom"** (Job 33: 24-29).

What we could never do, God has done! He has found and provided the Ransom for us. And, wonder of wonders, the Ransom is His beloved Son.

The Lord Jesus said of Himself: "The Son of Man came not to be ministered unto, but to minister, and to **give His life a ransom for many"** (Matthew 20:28).

And He accomplished that mission. He not only ministered to the poor, the halt, the blind and the diseased, but actually died and rose again.

The Apostle Paul is happy to inform us that there is one Mediator between God and men, the Man Christ Jesus; **who gave Himself a ransom for all,** to be testified in due time (1 Timothy 2:5,6).

Paul was made a preacher and an apostle; and he made it transparently clear that the forgiveness of sins is preached through the Lord Jesus Christ, and that "by Him all that believe are justified from all things" (Acts 13:38,39).

There need be no hesitancy on anyone's part to place personal faith in Him and rejoice in God's provision of such a perfectly satisfactory Ransom.

Ransomed Captives

The happy morn is come;
Triumphant o'er the grave,
The Savior leaves the tomb,
Omnipotent to save:
Captivity is captive led;
For Jesus liveth that was dead.

Who now accuseth them,
For whom their Ransom died?
Who now shall those condemn
Whom God hath justified?
Captivity is captive led;
For Jesus liveth that was dead.

Christ hath the ransom paid;
The glorious work is done;
On Him our help is laid,
By Him our victory won:
Captivity is captive led;
For Jesus liveth that was dead.

Tom M. Olson's PAGE

Value of discussing Malthus: focusses attn on land, scarcity thereof..

Is hard to lay away Malthus 100%. Food – leaves + thought that shd be concerned re economizg on land

Drive home pt. that higher livg standards do not Δ pop. Then problem is to go on & Δ material standards, get more use from land.

High b.r. people can afford less land, hence you find high b.r. on poor land — just as high b.r. people are poorer in all respects, are outbid for things. This may be effect, not cause — i.e., because they have high b.r. they are poor, not v.v.

So neurotics produce capital, others children. Inheritance problem created.

These false standards have served a useful function in our society, allowing us thinking time before we learned to control pop. by other means — which

me haven't yet. Note - the expanding peoples are not the Sensuely pop., but the Europeans. Those w/o false standards weakened selves by large pop.

Add to article that the incorrect anticipations involved with public improvements calculated to raise land values, & draw revenues from that source, is major area of miscalculations of future - such vague revenues foreseen, - not

Natural selection is more rigorous in other countries, not only because of higher death rates, but also because of the many who never marry -- e.g., soldiers in Chinese Red Army. I have tended to take it for granted that "in nature", everyone who survived got a crack at reproducing, but even among cave men, must have been many bachelors -- & spinsters.

Over

Metro'd I.D. was put thru by city vote, country being more against it — hence opposition of rural taxpayers. Besides last they just couldn't pay — & when one looks at the farms there one sees clearly that no one is collecting much net rent in M.I.D. Some areas are just impoverished — I thought at first they were new developments, new land settlement, the houses are temporary shacks. But I'm told they

are not being newly settled.

—

Grandpa Porter an interesting & shrewd character. Very intelligent - but his use of intelligence is limited to farm prices. One might call such a one dull, & & regret that he is reproducing, but in fact his native intelligence is very high, as evinced by his family's bringing forth Mongie.

—

Cotton.

—

Race suicide is as much a matter of false standards, much of which we fondly call 'our higher standards', as it is of more intelligence. Is there any reason to believe those who fall for the false standards are more intelligent than others? True, often there is a strong seeming correlation, but perhaps it is not native intelligence, but only polish & education that are part of the false standards & which allow

What intelligence is there to show thru, that makes us think the more intelligent have lower birth rates. Maybe it is the more neurotic -- etc.

—

MISSOURI FARM NEWS SERVICE
College of Agriculture University of Missouri
Columbia, Missouri

Entered at the Post Office, Columbia, Mo.
as Second Class Matter.

Gilts on Limited Feed Reach Maturity Earlier

Gilts will reach sexual maturity earlier if fed a low-energy ration, says Bill Day, University of Missouri animal husbandman.

In University tests, gilts on a low-energy ration reached sexual maturity at an average age of 174 days compared to 182 days for the full-fed group. Day says the study was to determine effect of two levels of energy in the ration on reproductive performance in gilts.

Limited-fed gilts also showed more sexual receptivity at time of breeding and fewer reproductive irregularities than the full-fed gilts. Gilts fed the low-energy ration weighed an average of 21 pounds less than full-fed gilts at time of puberty.

Full-fed gilts had access to a self-feeder containing a complete mixed ration. Limited-fed gilts got the same amount of protein supplement and about 75 percent as much corn as was consumed by the full-fed group.

These gilts were bred later to furnish information on ovulation rate and early embryonic mortality rate. The one group was continued on limited feed except for a short period of full feeding just before the gilts were bred.

Not much difference was found from the two treatments in the number of gilts that became pregnant or in the ovulation rates. Neither was there much difference in number of living embryos present on the 25th day of gestation.

One advantage of early maturity is that gilts will then usually have more heat periods before being bred. And Day says a gilt usually ovulates more eggs at each successive heat period. This makes bigger litters possible.

Day notes the advantage of increasing the nutritional level of gilts immediately prior to breeding. It has been shown that ovulation rate decreases if gilts are limited-fed immediately prior to breeding. However, when limited-fed gilts are "flushed" for two or three weeks before breeding, little difference has been found in ovulation rates of limited-fed and full-fed gilts.

cf. Oregon's anti-Malthusian

Farms by Chemistry on Fifth Of Acre Without Dirt or Plow

9-18-61

TUSCALOOSA, Ala. (AP) — Harold Wood can relax in his air-conditioned office and survey his entire farm with satisfaction.

It covers precisely one fifth of an acre.

Neighboring farmers look upon Wood and his farm with derision. They call it "new-fangled nonsense." But Wood says he has a good thing.

He goes about his chores without tractor, plow, barn, mule or anything else that might get in the way — including dirt. It is called hydroponic farming or farming by chemistry.

Farming by chemistry originated with the ancient Egyptians. Wood and one employe are doing their bit to revive the idea in the twentieth century with a five-bed tomato farm.

Wood puts in about 17 hours a day, but he estimates additional pumping equipment will soon cut his work day to four hours.

The concrete beds are 110 feet long and three feet wide. They are filled with gravel, used to support the plants which grow a foot apart.

A chemical solution is pumped into the beds three times daily and drained immediately.

"We can produce tomatoes in 55 days after planting and daily thereafter," Wood says. "It has been proven that the number of tomato plants that would produce five tons in six or seven months of regular farming will yield 200 to 300 tons during the same time our way."

He said hydroponic farming costs him $23 an acre per month compared to an estimated $45 an acre for dirt farming.

TRADE IN WOOLS TOP FOR PRICES

JAPAN'S POP. INCREASED DURING THE WAR. WARTIME PSYCHOLOGY SEEMS TO INCR-
EASE POP. IN EVERY COUNTRY.

Malthus p. 39 North Am., with less than 1/10 world pop, grows 1/4 worl cereals. Asia, with over ½ world pop, grows c. 1/3 cereals. (so they must be underusing their land? They have more area than N.Am. 5152

→ p 85 yields per acre of imp. crops hv not Id much, on ave, since 1900. 5137

ALMOST STATIONARY.

IT WOULD NOT BE TRUE TO SAY THAT EC. OPPORTUNITY IN AMERICA INCREASED BIRTH RATE IN SWEDEN, FOR THE RATE DECLINED. HOWEVER YOU MIGHT SAY IT PREVENTED THE BIRTHRATE'S DECLINING AS FAST AS THE DEATH RATE, AND THAT IT CAUSED THE BETTER CONDITIONS WHICH ALLOWED THE DEATHRATE TO DECLINE, AND WHICH ALSO ALLOWED MORE PEOPLE TO LIVE IN SWEDEN.

ALL WESTERN EUROPEAN COUNTRIES ARE FOLLOWING THE SAME"CYCLE."BUT IT'S NOT A CYCLE. IT COES NOT REPEAT ITSELF REGULARLY. IT IS A REACTION TO PARTICULAR CONDITIONS WHICH MAY OR MAY NOT RECUR.

SWEDEN NOW HAS 6 M., IN 1750 2 M.

ACTUALLY THE PRESENT P.E. SYSTEM DOES NOT SET A LIMIT ON THE POP THAT MAY BE SUSTAINED WITHIN IT. THE U.S. WITH A SMALL DENSITY IS "TOO CROWDED", GERMANY WITH GREATER DENSITY WANTED MORE POP. LATIN AMERICAN COUNTRIES, SPAIN AND ITALY ARE PRIME EXAMPLES OF TOO EXTENSIVE LANDHOLDINGS MAKING A COUNTRY SEEM CROWDED WHEN IT NEED NOT. THE COMMON LAND SYSTEM PROVIDES THAT A COUNTRY SHALL NOT SEEM CROWDED UNTIL ACTUALLY THE LIMIT OF PRODUCTION HAS BEEN REACHED WITH KNOWN METHODS. THIS, IT SEEMS TO ME, SHOWS THAT COMMON LAND SYSTEM IS "PERFECTION"---NO IMPROVEMENTS, EXCEPT IN DETAILS, POSSIBLE. THIS IS A DANGEROUS VIEW OF ANYTHING, BUT HOW IS GREATER CROWDING POSSIBLE? 1800S, THE CENTRUY FOLLOWING MALTHUS, EUROPE TRIPLED POP AND GREATLY RAISED LIVING STANDARD ALSO.

IT MAY BE OBSERVED OF THE "LAW OF DIMINISHING RETURNS" THAT THE POINT OF DIMINISHING RETURNS IS HIGHLY VARIABLE. AGRICULTURAL LABOR SAVING DEVICES, AND OTHER DEVICES THAT SIMPLY REPLACE MEN IN OLD TASKS, MAKE FEWER NUMBERS OF MEN USEFUL ON THAT LAND. HOWEVER OTHER KINDS OF INVENTIONS MAKE IT MOST EFFICIENT TO HAVE THOUSANDS OF MEN ON A SINGLE ACRE. (THIS IS OF COURSE THE REASON FOR THE GREAT MOVE TO CITIES OF LATE) FOOD IS STILL THE GREAT SPACE USER: THE INVENTION THAT SYNTHESIZES FOOD WILL DO MORE TO INCREASE WORLD POP THAN ANY IN HISTORY.

ANYWAY, YOU CANNOT SAY THAT INCREASING POPULATION NECESSARILY BRINGS US CLOSER TO THE POINT OF DIMINISHING RETURNS. THE GROWTH OF POP IS ACCOMPANIED BY (IN WESTERN EUROPE) INVENTIONS AND NEW WAYS WHICH MAKE IT POSSIBLE TO APPLY MORE MEN TO THE SAME LAND AND PRODUCE MORE IN PROPORTION TO THE MENS' NUMBER. INTENSIVE AGRICULTURE IS THE LEAST SPECTACULAR DEMONSTRATION OF THIS, ONE IN FACT WHICH SEEMS TO BEAR OUT THE PESSIMISTS. INDUSTRIES AND TRADE ARE QUITE DIFFERENT. IF THE PERCAPITA WEALTH IS HIGHER NOW THAN THEN, IT PROVES THAT PRODUCTIVITY PER CAPITA IS GREATER, WHICH MEANS WE ARE FARTHER FROM DIMINISHING RETURNS NOW THAN THEN. A STATIC METHOD OF PRODUCTION, AS IN INDIA, MAKES POP INCREASE OMINOUS. IMPROVED PRODUCTION ALLOWS GREATER POP; ALTHO FROM ONE VIEW ONE COULD FOOL HIMSELF INTO THINKING THAT INVENTIONS DECREASE NEED FOR MEN. THEY DECREASE NEED FOR MEN AS LABORERS, INCREASE ABILITY OF LAND TO SUPPORT MEN. AND AS DEMAND FOR NEW GADGETS ARISES, THEY INCREASE DEMAND FOR LABORERS.

WHEN EVERYONE HAD HIS OWN FARM AND WANTED PLENTY OF KIDS TO WORK ON IT HE HAD PLENTY OF KIDS. BUT IN THE CITY WHERE HE OWNS NO LAND AND KIDS ARE STRICTLY AN ECONOMIC LIABILITY, HE HAS FEW. IF ONE WERE NOT EXPECTED TO SUPPORT THEM IN STYLE, AND IF THEY COULD WORK EARLY, THEY WOULDD NOT BE A LIABILITY AND PEOPLE WOULD HAVE THEM. THAT IS WHY THE POOR STILL DO HAVE THEM. IT IS NOT JUST OPPORTUNITY FOR THE KIDS, BUT ALSO A NEED FOR THEM. BUT THE TWO ARE INTERRELATED, AND I COULD PROBABLY FIND A MORE USEFUL CONCEPT TO EXPLAIN THE SITUATION IF I TRIED. THE EXPENSE OF HAVING A CHILD VS THE PROFIT TO BE DERIVED FROM HIM AND THE ABILITY OF THE FATHER TO MAKE HIS LIVING AND THE OUTLOOK FOR THE CHILD TO MAKE HIS IN THE STYLE TO WHICH HIS FAMILY WANTS HIM TO BE ACCUSTOMED ALL INFLUENCE NUMBER OF CHILDREN. CLEARLY THE PSYCHOLOGY OF THE ECONOMIC SITUATION IS A LARGE INFLUENCE. I SHOULD LIKE TO SEE A STATISTICAL STUDY OF CORRELATION OF SIZE OF FAMILIES AND EC STATUS VS CORRELATION WITH MEMBERSHIP IN CATHOLIC CHURCH OR OTHER BIRTH CONTROL OPPOSERS. I VENTURE IT IS NOT CATHOLICISM SO MUCH AS INCOME THAT DETERMINES THE SIZE OF FAMILY.

ONE NEED NOT THEN TAKE THIS PARTICULAR EXAMPLE WHICH SUPERFICIALLY SUPPORTS "ECONOMIC DETERMINISM" AND CALL A MAN ONE BECAUSE HE MAKES THE STATEMENT.

Amazing new and improved crops, created by plant breeders since World War I, will enable America to feed a starving world.

Revolution in the Plant World

By J. SIDNEY CATES

HITLER'S economists know it. Our own agricultural experts are aware. But only a handful of laymen, mostly farmers, realize that in recent years science has fashioned green, growing tools for agriculture that rival, in efficiency, the awesome industrial forces we also have turned to war. The all-important creations of little-known plant breeders and fellow biologists make the work of the late Luther Burbank look tame indeed.

Working with the great staple crops of agriculture, these plant doctors have produced wheat so sure in yield that granaries are bursting. If necessary, we could grow grain to feed half the world. They have created cotton with double-strength fibers, soon to be spun into sheer, silkless hose. Their sweet corn, in your garden, is just as tasty on the cob, but no longer a dish for bugs and disease. Their field corn, in the great Midwest, stands up in high winds, resists drought and corn borers, and performs any one of a dozen other miracles to suit the farmer and outyield all sorts that have gone before.

A glance at the carefully kept statistics of the Department of Agriculture shows the potent forces that are at work. At the time of the first World War it took 15 per cent of our gainfully employed to grow and harvest 90 per cent of the stuff that went from farm to market. Today only 9 per cent of our workers do the same job. Agriculture has made a 40 per cent cut in labor needs.

That is not all—perhaps not even half—due to increased productivity. Yields per acre of many staples have climbed steadily, but there are 12,000,000 fewer work animals on farms than twenty-five years ago, releasing perhaps 50,000,000 acres of cropland from the burden of production for horse feed. More important, the tractors and tractor-drawn machines that replaced the horses, such as the combine harvester, have so increased the efficiency of farm labor as to create another miracle that is a story in itself. Some of agriculture's mechanization, however, could not have occurred without the plant breeders' ingenuity to spur it on. Miles and miles of drought-fighting grain sorghum, for instance, came to the hard-hit Southwest only after the plantsmen perfected a low-growing type with erect stalks that the combine could easily take into its maw.

The big biological revolution of the past quarter century has hit, one by one, all our major crops. It has created most of the headaches for the planners, who were concerned with keeping production down and farm prices up. Example No. 1 is wheat, normally a war-boomed crop, but now clogging storage space and held up in price by a Government crutch.

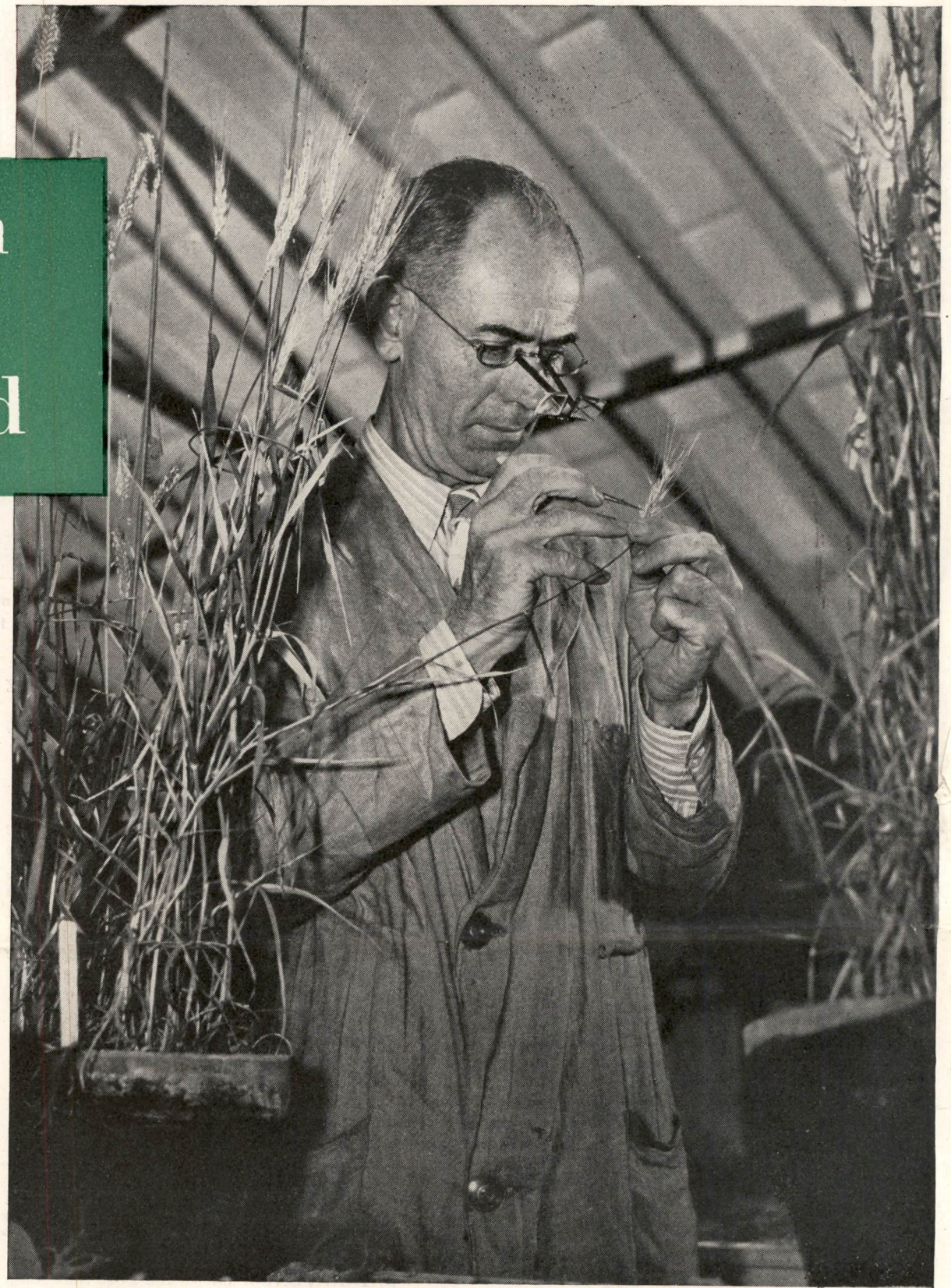
The big curse of wheat was rust; stem rust in particular. Given a few weeks' period of muggy weather near harvesttime, black powdery pustules would form along the stem that leads from the ground up to the wheat head. The rust would suck the stem dry, and where full mellow grain should have formed, only worthless heads developed. Back in 1916, when wheat was selling above $2.20 a bushel, an epidemic of black stem rust in two weeks cut nearly 200,000,000 bushels off the spring crop of the northern-plains country.

Nobody at that time would have dreamed of planting wheat commercially in the lower South or on the plains of South Texas. Wheat everywhere was a hazardous crop, because the ample moisture toward harvest, so necessary for a full yield, always invited rusts.

This whole picture is changed today, and America could raise possibly 2,000,000,000 bushels of wheat without any very great effort. Plant breeders have taken the hazard out of the crop in regions where it has long been grown commercially, and in vast new areas as well. And the new wheats, in addition, have a 50 per cent higher vitamin B content than the old rusting varieties. Wheat gets its uplift and new liberty of location from a close relative, little known in this country, called emmer. Emmer has long been grown as a feed grain in cold, wet sections of Eurasia. It is rust-immune.

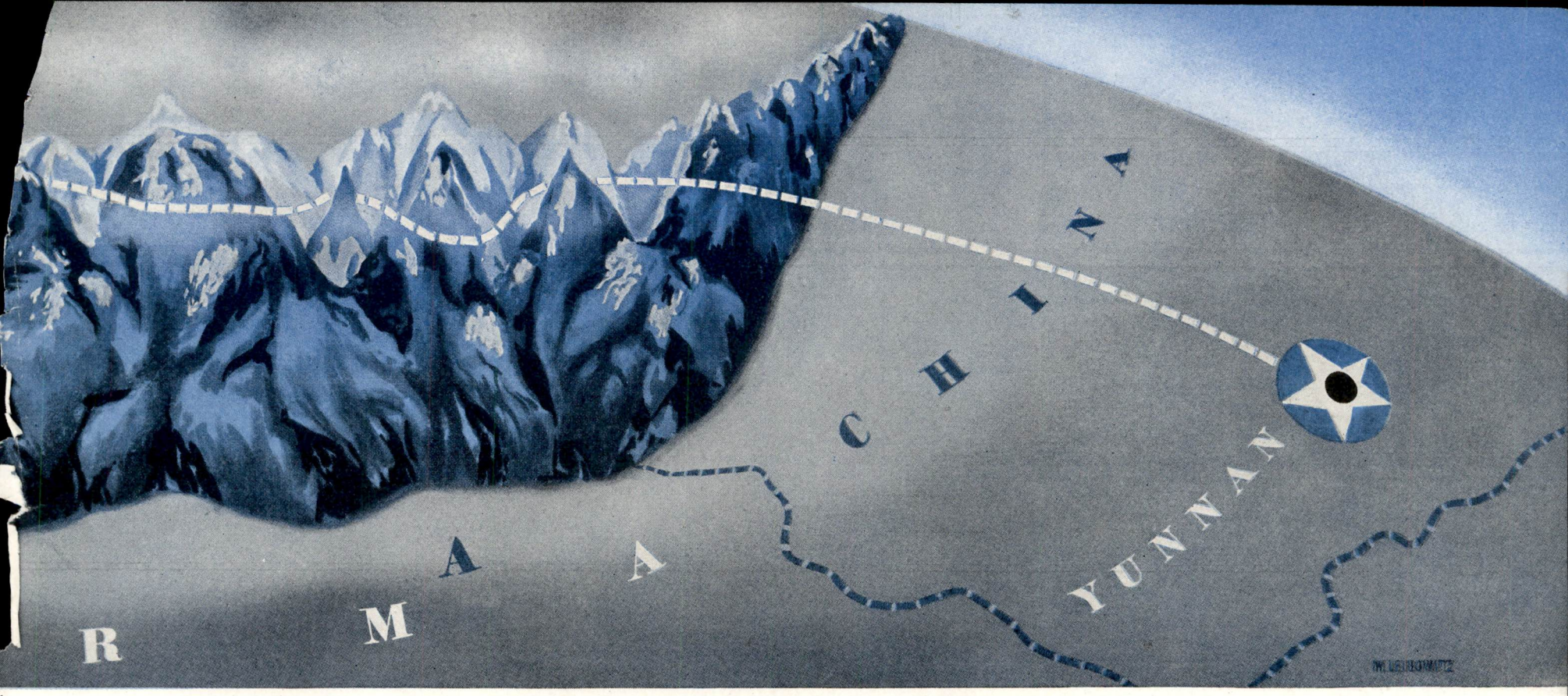
Emmer, however, has a different chromosome count from wheat. And when the microscopic life particles called chromosomes are not equally distributed in plant cells, our probing scientists now know, the chances of a successful mating between two plants are very remote. But about twenty-five years ago E. S. McFadden, of the Bureau of Plant Industry, did produce a stable hybrid between emmer and wheat. Two offspring of this hybrid were saved. One got the designation of H-44, and the other was named Hope. These new plants had all the characteristics of wheat, but they were feeble yielding and undesirable, even though more or less immune to stem rust.

And then back in 1927, J. Allen Clark, of the United States Department of Agriculture, found out that Hope or H-44, when mated back to wheat, would transmit this *(Continued on Page 81)*



U. S. DEPARTMENT OF AGRICULTURE PHOTO BY MITCHELL

Blessed event in the making. With the aid of special magnifying eyeglasses, U. S. Department of Agriculture agronomist William J. Sando laboriously transfers pollen from one plant to another to produce a new strain of wheat. Scene: U. S. Horticultural Station in Maryland.



The Himalayan ferry, over the roof of the world, is now our main supply line to China. Planes carry airplane parts, ammunition and gasoline to Southern Yunnan and Northern Burma, bring back tin, tungsten and tung oil to India.

thought of my first trip in Yunnan, by caravan. This one leg of my journey to Burma had taken me ten days—as it had also taken Marco Polo, some six hundred years earlier. Now we had pushed it behind us in a single hour, and in two more hours we would be sitting on the shelf of Mt. Everest. A decade ago even the trip to Talifu had to be organized as an expedition, and when I traveled with Joseph F. Rock here, we were accompanied by forty bodyguards. And some of the mountains we were now approaching formerly had been hidden from the eyes of white men perhaps since the beginning of time.



ACME

Col. Robert Lee Scott, Jr., the first Army flier to get into action over Burma, and the author's pilot on this flight.

We headed south towards Burma, avoiding dense cloud masses over a country where unannounced peaks have a habit of abruptly getting in your way. Only a few days earlier some of our bombers had paid tragically to learn about that.

Our load also forced us lower and farther south. Only the pilots had oxygen masks.

We were passing above spectacular gorges through which the mighty Mekong River roared down from Tibet, when our radio operator suddenly became active. He passed up to Scott a message which he had picked up from Chennault's efficient warning net.

"Japanese planes," it said, "within twenty miles of your position."

Twenty miles is about four minutes as the Japanese Zero flies. I took a grip on my tommy gun and tried to do the same thing with myself. This fellow Nance went on quoting poetry and talking about the higher emotional life.

"You see," he said, fingering his tommy gun, "I am really a pacifist by conviction."

Dodging the High Ones

ONE of the crew men soon sighted what looked like an enemy plane. Scott pulled the ship up close to its ceiling. We bumped along just under the soup, ready to go into it if necessary. Down below lay a city. Opposite it on the west bank of the Salween River were remnants of a Nipponese vanguard which had been bombed by the AVG. Somewhere not far beyond was a swarm of Japanese aircraft which had been pounding Yunnan, now in our wake.

The enemy plane, if such it was, was soon lost in the white sea around us, and we got over the gorges finally with no bullet holes in our wings. Then we began to climb. At 17,000 feet we were as high as we could take our tin. Up there, without oxygen, it is a struggle to stay conscious.

For an hour we kept up there, hoping that there were no peaks 17,000 feet high in our path—hoping but not knowing whether there were or not. Maps were useless. There was a stiff wind blowing us off course, and all around us an eerie twilight, as at the gateway to Shangri-La.

Once a shaft of sunshine broke through and a few miles off to the right we saw a black mountain raising its snow-plumed head a good couple of thousand feet above us. In a moment it was gone again.

While Scott tried to find this peak on his maps, I wondered how many more like it were lying around modestly and inconspicuously between us and Assam. But an hour passed and we saw nothing more, and because we had hit nothing I concluded that we were over India.

We were on instruments, but even instruments and a grade-A pilot like Scott couldn't guarantee our location or let us downstairs through the close-drawn curtains surrounding us. A range of snow peaks lies within sight of *(Continued on Page 63)*

"PANCAKE, YANKEE"

EDGAR SNOW cables the Post that some of the world's best radio listening is available around the American Army air base in Yunnan when a Japanese pilot pays a strafing visit. General Chennault, sitting in his operations office, will hear one of his pilots report from aloft: "I've got a Nip in my sights and I am going to let him have it."

Then, in an aside to his adversary, the Yankee pilot will yell: "Hello, palsy-walsy. You lousy (highly censorable epithet), get ready to join your unworthy ancestors."

This will be followed by a burst from his sturdy 50-caliber machine guns.

The Jap often enters into the spirit of the occasion, if he ducks the fusillade, giving as good as he gets, in repartee.

"Thanks, please," he will say in jerked Stanford English, and add a few well-chosen phrases condemning the Yankee's soul to the Oriental equivalent of hell. "Pancake, Yankee, pancake. Much obliged. So sorry for you, so sorry." Meanwhile, he will be doing his best with an ineffectual 30-caliber gun to make the American pancake to the ground.

The pilot of an American transport, waiting to take off from a field near the Burma border, with a valuable freight cargo, had the unique experience of hearing a three-way colloquy involving an American fighter pilot, a Jap pilot, and Chennault, all on the same wave length.

General Chennault, on the ground, was warning his pilot up overhead that he felt in his bones that Jap planes were nearing the field. Uncannily, as Chennault finished talking, a flock of enemy ships arrived to confirm his intuition.

The transport chauffeur got his C-47 off and, when safely away from the shooting, headed for India and sat back to be entertained via radio. In his earphones he heard the Yankee pursuit pilot cussing a Nip, the Nip swearing back, and Papa Chennault mixing in, offering advice to his man and roaring choice references about Hirohito's ancestors. The Jap was sent down in flames, followed by short-wave imprecations from the Yankee pilot and his boss down below in the operations office.

from its protein, oil or starch. Our corn breeders are rushing hybrid combinations that produce starch with all the characteristics of the root starches, like tapioca, that we now find it difficult to import.

Since the other war we have stepped up our national rice yield from an old level of twenty-five bushels to the acre to a new level of well over fifty bushels to the acre. And our plant breeders have produced new sorts with table quality so superior to the old rice that if the ordinary American knew how to buy them by name, I am sure we would far more than double our rice consumption.

Speaking of good things to eat calls attention to the vast change and betterment in national diet due to plentiful winter vegetables and citrus fruit. The term "in season" has almost ceased to have a meaning to young housewives. The plantsmen who created foods for shipping, freezing or canning are now looking toward the production of vegetables with far higher vitamin content. Already a big nationally sponsored vegetable-breeding station at Charleston, South Carolina, has produced a cabbage with double the vitamin content of ordinary cabbage.

Agriculture has been as much enriched by the development of totally new and different crop plants as by the improvement of old sorts in the period since the other great war. A 1917 Government report, calling attention to the growing soybean industry, estimated 15,000,000 pounds of seed required for planting. Today 15,000,000 bushels, which is sixty times as much, will not do the planting job, and soybean acreage still soars.

The most amazing plant gifts to hundreds of thousands of farmers in the past twenty-five years are all in a great group of lowly hay and pasture legumes. These new plants have the trait of growing vigorously on poor, sour land. They gather nitrogen as well as carbon from the air, and build soil riches as they grow, under conditions that have discouraged every other sort of crop plant we have ever tried. They already blanket 60,000,000 acres—which is equal to the land area of Virginia and Wisconsin combined—and are still rapidly expanding.

New Forage Crops

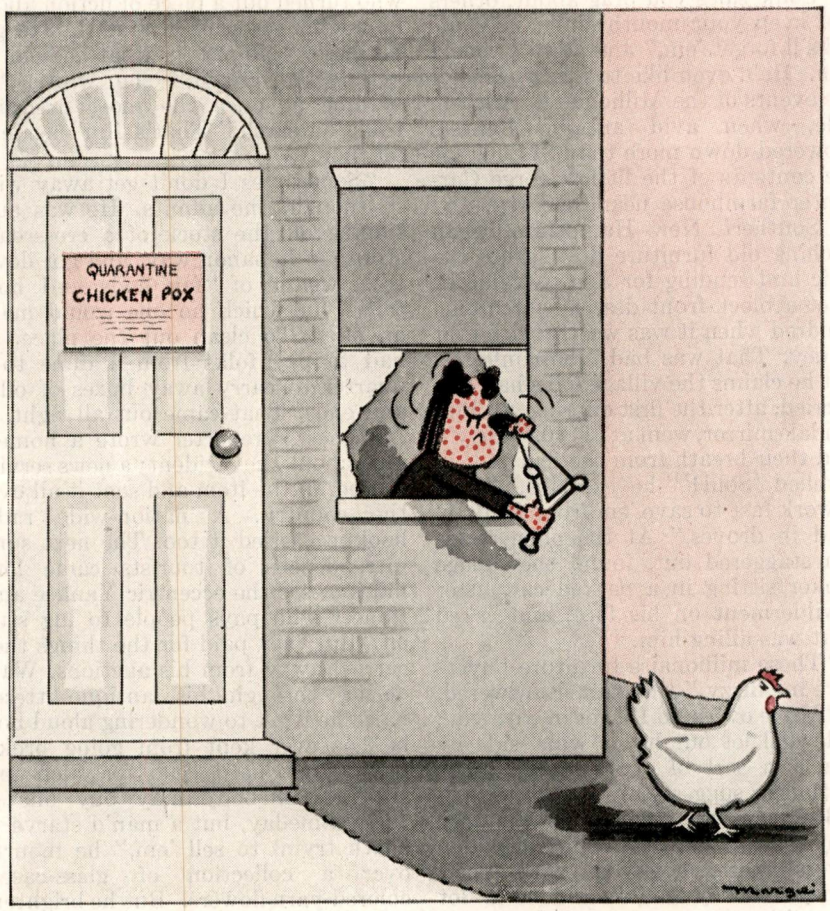
The jinni of Aladdin's fabled lamp could hardly do a better job than these new plants are doing in making over poor land into rich land and in making over the lives of the people who are tied to these areas. Kudzu, a trailing tropical bean that lives over from year to year, is filling up gullied acres all over the South and turning them into profitable forage areas. The lespedezas, both annual and perennial sorts, already cover some 50,000,000 acres between the central Corn Belt and the middle South. Missouri alone boasts 8,000,000 acres of Korean lespedeza. Its value as livestock feed and the new, almost plowless agriculture it has brought are turning the formerly notoriously poor Ozark region of the state into a prosperous and rich farming section.

Crotalaria, a lush-growing plant newly up from the tropics, throughout the lower South will put its feet down in almost pure sand and gather from the air a vast tonnage of soil-fattening organic matter. For the poor lands of the Northeastern states we are just learning the worth of a species of lotus which looks and yields like alfalfa. The difference is that its rich forage demands none of the soil liming and fertilization alfalfa needs. It grows on what heretofore have been considered near-worthless, worn-out acres. Zigzag clover is reaching out toward a similar role over much of the Northern States area, though still in a more experimental stage. It is becoming apparent that marginal land is merely an area for which we have not yet found highly adapted crop plants.

Cotton has had one revolution during the past quarter century, in meeting and conquering the boll weevil. We are fighting the weevil with arsenic dust, it is true, but we also have sidetracked him with new-type cottons that set a heavy crop of fruit before the grandchildren of the overwintering weevils come of age. And we hurry up still further these new naturally early cottons by another ingenious quality that the breeders can pass on from plant to plant.

With the bands spiraled around at forty-five degrees there is a tensile strength of about 40,000 pounds to the square inch. When the wrapping is at a twenty-five-degree angle the strength goes up to more than 100,000 pounds per square inch. These two types of cotton were graded alike by old standards. Frantically, the cotton breeders are now working to equip the industry with low-angle varieties. When the job is done, we ought to be in a more commanding position in world markets—if any. Anyway, we can have better cotton stockings right at home when this newest cotton is a little further along.

Of all the instances of plant magic during the past quarter century, nothing exceeds in brilliance of achievement and importance of results what has happened to our sugar production.



LITTLE LULU

device. We dust the cotton seed at planting with a potent chemical that kills disease spores on the seed and in the near-by soil. The young cotton seedling, relieved of these pests, is then able to grow vigorously in very early season, under conditions where, without the treatment, the seed would have rotted in the ground. The plants thus mature ahead of the weevil. These two developments have expanded the potential Cotton Belt several hundred miles farther north.

And the cotton industry now seems definitely headed toward another revolution. Research has at last uncovered the mystery of the structure of the individual cotton strand. It is a tube wrapped about each day of its development with another and another band of cellulose. This wrapping is a sort of corduroy. The angle at which these wrappings are laid down determines the strength of the strand. And the angle is a variety characteristic—a quality that the breeders can pass on from plant to plant.

Our farmers now could produce at least the present rationed quota, and there are many who think we could far exceed this amount if the factories to treat more beets and cane could be built.

Twenty years ago, both our beet and cane sugar industries were in serious trouble. In the case of sugar beets we were dependent upon imported seed for the yearly planting. And throughout the whole region west of the Rocky Mountains, factory after factory was closing down because of a mysterious malady in the growers' fields. Modern genetics came to the rescue, breeding beets which not only resisted the disease but which carried more sugar and made better growth than the old beet sorts. But there remained the problem of a seed supply.

We did not dare send these new beet strains to Europe, where labor was cheap enough to produce seed commercially. We might get back something inadvertently cross-pollinated with old beet types, and thus void of the resistance so laboriously achieved. The seed had to be grown isolated from all other beet strains.

The Old World method of producing beet seed is entirely too laborious for our labor-cost standards. Over there they grow the beet one year, harvest it and store it over winter, and plant it again in the field the second year. This second year it does not grow any more as a beet, but sends up profuse branches which bloom and set seed.

Early in the 1920's, Dr. W. W. Garner and Harry A. Allard had discovered that it is the daylight period and the degree of temperature which primarily determine when a plant blooms and seeds. These studies gave a clue to a new, corner-cutting method of beet-seed production.

We plant beet seed in warm intermountain valleys in December. The little fingerling beets get up a few inches high, and stand there stunted and chilled, but not weather injured, throughout the winter. And when spring comes they seem to forget all about developing into a real beet, and hurry to send up shoulder-high stems which bloom profusely and set a heavy seed crop.

Raising Cane

Two tons of beet seed per acre, all machine-grown, is not an abnormal crop. And so we not only have disease-resistant seed but we have cheap home-grown seed of better strains than the sugar industry ever had before. Today it would not be hazardous or difficult to produce half our sugar needs from this salvaged beet-sugar industry.

Equally romantic is the revolution which has taken place with cane sugar in this country. Twenty years ago, our Louisiana and Florida plantations were generally conceded to be on their last legs. The story was that constant cropping to sugar cane over a long period had at last exhausted the land.

Dr. E. W. Brandes and his brilliant staff of plant pathologists and geneticists focused the new biology on the sugar-cane problem at the same time the beet researches were going forward. And the results were almost parallel. He soon found that it was not exhausted soil but an obscure disease that had trimmed down the cane yield to a point where it didn't pay to harvest. New disease-resistant canes were introduced, and over a long period still better-yielding sorts and more disease-resistant sorts have been bred, and today the sugar-cane industry, if given the chance, could probably hike present production from 600,000 tons to well over 1,000,000 tons of sugar a year. Cane, like sugar beets, has been restricted in planting by Government edict in very recent years.

Maybe we have got too much new agriculture. Maybe. But a full smokehouse and granary and fruit bin are most comforting at a time when the world has gone mad. Agriculture manifestly has the plant tools to do its part in whatever emergency the war may bring. And the cost of all this nation-building research has been only a small drop in the hogshead of our national budget; yet already it has been dangerously pared in the name of economy. Maybe our plant scientists have prepared too well. Maybe, on the other hand, these great achievements are simply too little known. In any event, the job is far from finished. It has only begun, but without adequate funds progress will be halted.

YANKEE AUCTIONEER

(Continued from Page 28)

Jim Hall sets a heap of store by catnip tea, calls it the world's noblest concoction.

Catnip tea is a homespun sort of a drink, but Jim Hall is still a homespun sort of a fellow, proud of his origin and breeding, close to the soil. It took a heart-wearying lot of years, following the plow, pitching hay, milking the cows, doing farm chores five days a week, auctioneering on Saturdays and gradually licking his fear of crowds, before Jim Hall got his big break. He had turned thirty and was beginning to wonder if he'd ever get anywhere, when out of the murky prospect came a chance to handle the regular bimonthly dairy-stock sale of the Vermont Holstein-Friesian Association at its big pavilion in Brattleboro.

The big crowd awed him, but Jim knew dairy cows from hock to horn, could value them like a professional drover. After a try or two, the buyers quit taking liberties with the farmer from upriver and developed a keen respect for his punches. He held that job for two years, averaged more than $20,000 worth of cows sold every auction, and even visioned himself getting good enough to work at the great National Stock Show itself.

Then a patriarch of the near-by village of Walpole died and left his all to charity, and Jim was called over to handle the auction of his effects. "Some sales you have to make and some make themselves," he'll tell anyone. He didn't have a single thing to do with making this one. He just rode the crest, trying to keep track of the bids, when a free-bidding crowd of fresh-bitten antique fanciers, city visitors every one, took charge, fought to pay more than $8000 for the departed gentleman's household effects, estimated to be worth, perhaps, $1500.

That was back in 1914, with the search for Early American heirlooms just starting to roll. Jim Hall, bewildered, pocketed the biggest fee he had ever earned. He still loved dairy cows, thrilled to auction bouts with the hard-bitten drovers, but his canny Yankee blood told him he'd better look into this new angle of the business. He haunted antique shops, talked with dealers, bought good books on the subject, studied high-priced pieces. By the time the ready cash of the Coolidge boom made antique hunting one of America's favorite outdoor avocations, Jim had a strangle hold on Early American lore, was ahead of the trend, and good enough to stay on top of any auction.

Today, he can talk museum pieces with the experts and confound them with his almost limitless information. With knowledge came love of the products of pioneer Yankee cabinetmakers, glass molders and china glazers. He lives with their handiwork, in a home chock-full of mellow-surfaced old highboys and lowboys, crickets, chairs and sofas and bedsteads, plate rails and cabinets lined with ancient glass and china. Mrs. Hall boasts a collection of antique pitchers—gallon-large and thimble-small—that experts sigh over.

"Some sales you brag about, others you keep your mouth shut and hope folks'll forget 'em," Jim admits with a grin. He'd even like to forget some of the events of the Millionaires' Auction Sale, when avid antique hunters showered down more than $14,000 for the contents of the little George Carpenter farmhouse near Swanzey, and all Southern New Hampshire began fetching old furniture down from the attic and sending for Jim to value it. "Let a block-front desk go for fifteen hundred when it was worth twice that money. That was bad," he confesses. But he claims the village folks had him worried, after the first offering, a Chippendale mirror, went at $1100. "They'd hold their breath from the first bid till I yelled 'Sold!'" he explains. "Had to work fast to save 'em from droppin' dead in droves." At the noon recess Jim staggered out, found the village banker sitting in a parked car, utter bewilderment on his face, and asked what was ailing him.

"These millionaire furniture buyers have me dizzy," the banker answered.

"Move over and I'll get in with you, and we'll let our heads whirl side by side; I'm sort of dizzy myself," the auctioneer suggested.

But it would be hard to convince him that the boom-time antique buyers were hog-wild with their money. "They could've done a lot worse," he asserts.

The Yankee auctioneer is tough medicine, all right, swapping punches with an auction crowd, but he's a push-over for the kids for miles around. While we were sitting on his sun porch, three local boys came to the door, wondered if he could put them in the way of making $1.50 for a bat and ball to start the season; they polished furniture for a couple of hours and went away with the cash. No lad asks in vain for a pay job at the Hall auction barn. Out of a barrel of kitchen odds and ends, Jim plucked a Sandwich-glass salt dish, a miniature of the Steamer Lafayette, he knew he could get five or six dollars for. When he put it up, an eager little girl, a favorite of his, chirped a twenty-five-cent bid, and he yelled "Sold!" before anyone else could make an offer.

Some time back, a woman writer who turned out a piece of fiction about an auctioneer studied Jim Hall to get her hero. "No matter what he held up before the crowd," she wrote, "it became at once the most desirable thing on earth." That's Jim's system, all right.

"Sometimes I don't get away with it, though," he admits. He was auctioning off the stock of a crossroads store, up Lebanon way, and got down to a welter of "fag ends and bobtails" for which no one would make an offer. To clean out the place, he had to pay folks from a dime to a quarter to carry away boxes of odds and ends. That came out all right. A Manchester reporter wrote a homely item about the incident; a news service picked up the item and sent it all over the country. A nation-wide radio hookup carried it too. The next summer, dozens of tourists came long miles to see the eccentric Yankee auctioneer who pays people to lug stuff off. But they paid for the things they carried away from his auctions. Wandering through his antique-littered barn, he'll get to wondering aloud how he has ever kept from going broke, paying out hard cash for such fool stuff. "Somebody may buy one of these someday, but a man'd starve to death tryin' to sell 'em," he mourns over a collection of glass-cased, colored-yarn flowers. But he brightens up at the sight of a bunch of haircloth-covered chairs, stickers once, but now worth ten dollars apiece at any auction, and stops to tell his favorite story of the lightly clad flapper who sat down on some prickly haircloth. "She found out why grandma wore eight petticoats."

Jim Hall regards the honest work of pioneer craftsmen with sincere respect. He'll stop in the middle of even a swift-moving auction to trace the probable history of a mellow-surfaced old highboy, sketch a vivid word picture of father and the boys coming through the wood lot, spotting a straight, century-old hard maple, picking it to make the highboy and chest that mother's been hinting she'd like for her birthday. Jim will act out the felling of the tree, hauling the logs to the sawmill, hiding the boards in the hayloft to season for months, sneaking them off to the hilltop shop of some pioneer cabinetmaker, selected after long discussion with the girls and the neighbors. "Folks, there's love of home, love of family, love of fine craftsmanship built into every joint," he'll assure his audience. Of course, a talk like that never did hurt an auction, but Jim really does feel that way.

The Yankee auctioneer understands thoroughly why people will pay high prices for attractive, useful, tradition-laden old things. But Early American primitives still leave him gasping, even though primitive candlestands have come to be his yardstick for measuring the turns of the antique market. He met his first candlestand at an auction in Charlestown, thirty-odd years ago. Way back when the colonies were young, some pioneer handyman had axed out a rectangle of cherry wood, smoothed it, rounded its edges with jack plane and drawshave, burned a hole in its center, set in the hole an upright with an adjustable crossarm, candle sockets in its ends. Battered, dirt encrusted, tallow spattered, that first of Jim Hall's candlestands went for sixty cents. He saw it change hands next at five dollars, then at fifty dollars during boom days, finally end up, as priceless, in a noted museum. Last fall he sold one almost like it for $32.50. "The market's on the way back up, all right," he commented.

REVOLUTION IN THE PLANT WORLD

(Continued from Page 22)

immunity to stem rust. That discovery began years of painstaking breeding and selection. Today rust-resistant varieties are available for all sections.

The same sort of magic has worked a parallel line of wonders with oats. The chance introduction, some fifteen years ago, of an oat strain highly resistant to rust and smut gave breeders an opportunity they had never hoped to find.

New oat varieties which have been built up by combining this disease resistance with fine growth habits of the best of our old sorts put this ages-old crop in an undreamed-of new light. In the Corn Belt, new synthetic varieties carrying high disease resistance increase yields ten to twenty bushels to the acre when seasons are normal. In seasons of plentiful moisture they double the outturn of old varieties growing alongside.

The new oats, like wheat, also have spread the area where the crop can become commercially important to far places. In even the most humid parts of the old South, made-to-order sorts are not uncommonly giving a 100-bushel-per-acre yield.

Greatest of our American crops is corn. With its wanton breeding habits and its wind-blown pollen, corn has been most difficult to improve. The first-generation hybrid turned the trick. The scientist first selects two sorts that have qualities he wants to combine. Persistent inbreeding, year after year, fixes these characteristics in each strain, though degeneration of size and vitality may occur.

The season finally comes when the breeder is satisfied that his inbred types of corn are ready to combine. The corn which is to serve as the male parent is planted in one row, flanked on both sides by rows of the other strain. The pollen, or male fertilizing element of corn, is produced on the tassels at the top of the plant. The female organs that receive this pollen and cause the seed to develop are the silks on the ear. As his plants mature, the breeder carefully cuts all tassels from the mother rows, thus insuring that the ears below are fertilized only by pollen from the tassels of the male plants. The seed of this cross, from the mother rows only, is that which is saved.

Specially bred hybrid seed has fetched up the acre-bushel corn yield in key states from well down in the thirties to well up in the fifties. Soon the whole country will be equipped with well-adapted hybrid sorts with a potential stepping up of yield of some ten to twenty bushels to the acre. Here, too, a vast expansion of the possible commercial acreage is in sight.

Moreover, the corn borer, which a couple of decades ago threatened to devastate this basic item in our diet, is reduced to a more or less minor pest when we confront him with certain hybrid corn combinations. The Jap beetle, which is given to gnawing off the corn silks and thus making for a bare cob at harvest, has been found to balk like a spoiled child when offered certain hybrid varieties. Even the grain weevil, so prevalent in parts of the South, balks at other combinations.

Hybrids are so sturdily rooted that they fare better in dry weather. And these new corns are standing straight as gateposts when fall storms have put old sorts flat on the ground. They made the labor-saving two-row mechanical corn picker practical.

Today we can put together hybrid combinations that vary the stuff in the grain itself. We can add to or subtract

LIFE, 4 FEB '46

1937, SUCCESSFUL STRIKE IN STEEL AGAINST ALL COMPANIES, UNION COMES OF AGE.

SMALL COMPANIES CANNOT AFFORD PAY RAISES AS CAN LARGE ONES, LARGE UNIONS DRIVE SMALL COMPANIES OUT OF BUSINESS. THEY DO NOT HAVE THE EC RENT THE OTHERS DO.

TAKES WORKER 50 MONTHS TO MAKE UP LOSS OF ONE MONTH STRIKE, IF HE WINS A RAISE.

TAX LAWS ALLOW U.S. STEEL TO REMAIN CLOSED ALL YEAR AND STILL MAKE $149 MILLION ON REBATES. THE RICH ARE STILL RIGHT IN THERE IN WASHINGTON GETTING WHAT THEY WANT.

LIFE, 3 SEPT '45

GERMANY IS NOW IN POP DECLINE. I DID NOT THINK SO, THOUGHT THEY HAD BEEN GROWING PHENOMENALLY DURING HITLER REGIME.

WARS HAVE LITTLE EFFECT ON LONG RUN POP TRENDS(?) OF COURSE WHAT MAKES POP INCREASE IS OPPORTUNITY TO LIVE, WHICH MIGHT BE CALLED ECONOMIC OPPORTUNITY. WHEN THERE IS PLENTY OF LAND FREELY AVAILABLE, OR PLENTY OF JOBS, FAMILIES ARE LARGE. ONE CAN MAKE ENOUGH TO SUPPORT KIDS, AND EXPECT THEM TO FIND A PLACE IN THE WORLD. BUT IN DEPRESSIONS ONE NATURALLY EXPECTS PEOPLE TO MARRY LESS, HAVE FEWER KIDS. RUSSIA IS VERY SPARSELY POPULATED AND THE COMMUNIST REGIME OFFERS SOME ECONOMIC OPPORTUNITY, IN FACT ALMOST LIMITLESS OPPORTUNITY, SO CHILDREN ARE TO BE EXPECTED. WHEN JAPAN WAS A TRIUMPHANT EXPANDING NATION SHE, TOO, COULD INCREASE POPULATION, BUT NOW WITH DEPEAT WHE MUST STOP DOING SO. WARS DO, THEREFORE, INFLUENCE POPULATION GROWTH. IF ENDLAND LOSES HER EMPIRE WHE WILL HAVE TO STOP GROWING. FREE TRADE WOULD ALLOW ALL NATIONS TO GROW MUCH MORE. A NATION IS OVERCROWDED WHEN ITS P.E. SYSTEM DOES NOT ALLOW POP TO SUBSIST ON ALLOTED LAND. IF P.E. SYSTEMS WERE BETTER, NATIONS WOULD NOT NEED TO EXPAND. BUT SUPPOSE EVERY NATION ADOPTED THE BEST PO SIBLE P.E. SYSTEM, THERE WOULD PRESUMABLY BE A GREAT POP INCREASE OVER THE NTIRE WORLD. THEN WOULD THE CHECKS OF BIRTH CONTROL AND VEBLEN ATTITUDES OPERATE BEFORE OVERCROWDING OCCURED OR THE STANDPOINT OF THAT SYSTEM? X//ØØØØX//XX/ I THINK THEY, OR OTHERS, WOUDD. TWO KI S TO A FAMILY IS PRETTY STRICT RATIONING, BUT WE COULD STAND IT.

U.S.A. IS STILL GROWING, RUSSIA MORE SO, ITALY CONSTANT, ENGLAND FRANCE GERMANY DECLINING, ORIENTAL COUNTRIES INCREASING.(INTRODUCTI N OF WESTERN P.E. SYSTEMS CAUSES THIS.)

WORLD'S LAND AREA:51,000,000 SQ MILES; CULTIVABLE AREA: 10,000,000 SQ MILES, OR 20%.(THIS FIGURE CAN BE INCREASED CONSIDERABLY I'M SURE BY GREATER TRADE AND MATERIAL PROGRESS) THAT'S ONLY 3 ACRES PER PERSON. CAN IT BE? U.S. ABOUT 9 ACRES A PERSON I FIGURE. 6 ACRES IN ILLINOIS, COUNTING IT ALL GOOD. I DIDN'T REALIZE WE LIVED ON SO LITTLE.

SWEDEN: ABOUT 1750 DEATH RATE WAS CONSIDERABLY BELOW BIRTH RATE, BOTH WERE HIGH AT 140 PER 1000 AND 190/1000 RESPECTIVELY (ANNO, I PRESUME) STARTING ESPECIALLY IN 1800 DEATH RATE LOWERED, UNTIL IT REACHED 60/1000 (PER ANNUM) IN 1940. 1860 EMIGRATION TO STATES ON LARGE SCALE COMMENCED, BUT STILL SWEDEN'S HOME POP. INCREASED MOST RAPIDLY IN THIS PERIOD. PREVIOUSLY, 1750 TO 1800, POP INCREASE HAD GONE OFF TO FINLAND, RETURNED IN 1815S. WHY? WAS THERE THEN GREATER EC. OPPORTUNITY IN SWEDEN? DID RUSSIANS OR FINNS DRIVE THEM OUT?) THE CHANGE IN 1800S WAS NOT IN THE BIRTH RATE BUT THE DEATH RATE, WHICH LOWERED DUE TO BETTER LIVING CONDITIONS. THAT IS HOW AN INCREASE EVIDENTLY STARTS, OR STARTED THEN. THEN ALL DURING THE 1800S BIRTH RATE DECLINED UNTIL NOW IT IS DOWN TO 80/1000/ANNUM AND POP IS AGAIN

West Gaining in Population Race

EDITORIAL

AN ENGLISH ECONOMIST of great distinction in Britain, though latterly a resident of Australia, Colin Clark, has come up with some reassurance for those who fear the teeming East will one day overwhelm the less fecund West by sheer weight of numbers. Clark finds the balance of population increase to be shifting from East to West; in another generation, he says, the increase in North America and Western Europe will be considerably faster than in Asia and Eastern Europe.

Nothing short of a "population revolution," according to Clark, has gone on in the world in the last 20 years. The trend toward small families in the white man's countries of the Western world has been reversed. At the same time the population growth of Eastern countries, including Russia, has slowed up.

As to the countries of the Western world, Clark's statements find corroboration in a recent bulletin of the Population Reference Bureau of Washington, D. C. He says the low point in the growth of North American, British, European and Australian populations came in the 1930's. The Bureau's figures show that the excess of births over deaths has more than doubled in a decade in the United States, Great Britain, Norway and Sweden; has risen more than 50 per cent in the Netherlands and Chile; has increased considerably in Mexico, somewhat in Italy, and—most remarkable of all—in France, 20 years ago pointed to as the sad example of declining population, deficit has been replaced by a substantial excess.

Clark points to Canada, Finland, Spain and Portugal as the leaders in the trend to larger families; their average has now grown to between three and four children. In the United States, Europe, South Africa and New Zealand Clark finds that the average of children has risen from two to "at least three."

In the advanced countries where death rates are kept down population changes depend chiefly on changes in the birth rate. There depression brings down the birth rate; it was in the depression years with their relatively few births that prophets were seeing the population of the United States leveling off by 1980. Improved economic conditions since have knocked these prophecies for a loop.

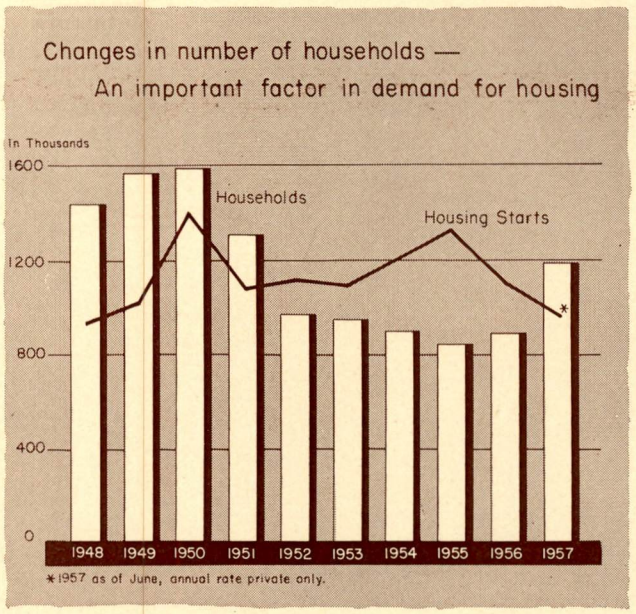
War and grim conditions of life have slowed Russia's once rapid growth. Millions of people were lost in the war; other millions were deliberately starved so the Kremlin could use their grain to buy machinery. Ill-fed people reproduce little, starving people still less. Since compulsory farm collectivization, says Clark, the Russian birth rate has dropped sharply.

The population of ill-fed China has been increasing only slowly for a long time. Now its long period of wars, the mass purges (there is considerable testimony that the Communist rulers have deliberately set out to reduce the population) and the general confusion and recurring famines have put red ink on the balance sheet.

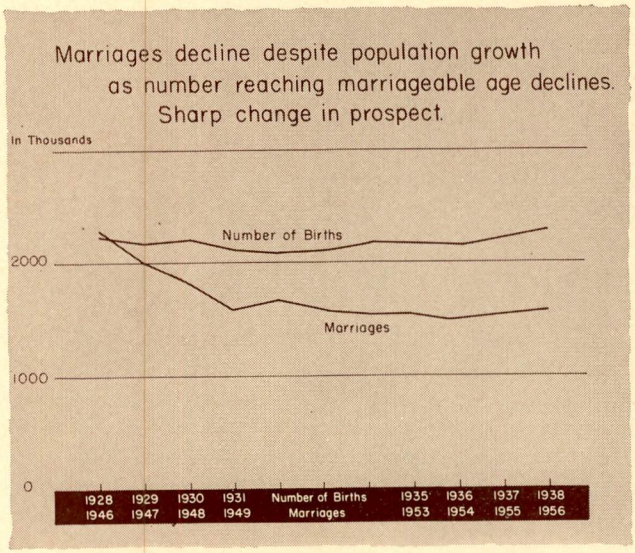
Economist Clark's conclusions are intended to comfort the inheritors of the old "yellow peril" fear. Yet they do not seem to be too comforting to those students of population who see the world—which, after all, is only so big—acquiring more people than it can care for. Yellow or white, Eastern or Western, they all must eat, they all count equally in what the earth can support. The race is between human production, now aided by life-saving medical advances, and man's ability to grow more and more food. Man's ingenuity produces more and more bread and meat but each addition to the food stocks reacts to produce more eaters. Some students think the race can be won indefinitely; others feel sure there is a limit.

mation—Important Economic Force

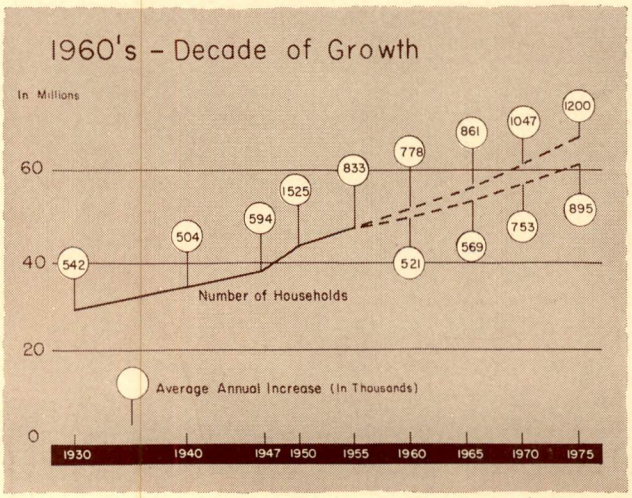
Obviously, changes in the rate at which new households are formed are important factors in the residential construction picture. That is not the same, by any means, as saying that the demand for housing can be calculated solely from the ups and downs in the number of households. The availability of funds at rates satisfactory to both lender and borrower can, of course, dominate the situation. Also, the relation between changes in households and the number of housing starts is affected by demolitions, conversions of structures, and changes in the vacancy rate. Nevertheless, knowledge of the marked drop in household formation is helpful to an understanding of the decline in housing starts from the peak in 1950.



Market analysts and others charged with keeping tabs on consumer demand for durable goods are particularly interested in future trends of household formation. The slump in the rate of growth of households after 1950 was due to declines in marriages and in the rate of undoubling. Not much stimulus to accelerated household formation will come from further undoubling, but a big boost from a sharp increase in marriages appears likely in the 1960's. The declining number of marriages after 1950 goes back to the low birth rates of the 1930's, and it is likely that the influence of small numbers of births through World War II will be felt for some years to come. When the flood of postwar babies reaches marriageable age, however, household formation and the demand for housing and household items should surge strongly.



The first large increase in marriages should appear between 1965 and 1970, reflecting the big gain in births between 1945 and 1950. The Census Bureau has four series of projections (not predictions) of possible levels of household formation during the next 20 years. The high and low series are shown in the opposite chart. The high projection shows an average annual increase from 1955 to 1960 of 778,000, as compared with 833,000 during 1950-55. In the first half of the next decade, however, the indicated increase is 861,000. The rate of growth then doubles, and the estimated average annual increase from 1965 to 1970 is an imposing 1,047,000. The current relatively lean years of household formation will be followed by a renewed advance that will provide the economy with a powerful expansionary force in the Sixties.



Treasury Financing—
Fiscal 1957 and Fiscal 1958 To Date

(Continued from page 5)

certificates in four operations. The results of the refundings during fiscal 1957 were as follows:

Maturing Securities Amount	Description	Redeemed for cash	Exchanged	New Securities Offered
July 1956 Refunding:				
12,388	2% Notes due 8/15/56	860	11,528	2¾% Notes due 8/1/57
550	1½% Notes due 10/1/56	22	528	
12,938		882	12,056	
December 1956 Refunding:				
9,083	2⅝% C/I due 12/1/56	500	1,312	3¼% C/I due 6/24/57
			7,271	3½% C/I due 10/1/57
			8,583	
February 1957 Refunding:				
7,219	2⅝% C/I due 2/15/57	282	6,394	3⅜% C/I due 2/14/58
			543	3½% Notes due 5/15/60
2,997	2⅞% Notes due 3/15/57	578	1,498	3⅜% C/I
			920	3½% Notes
531	1½% Notes due 4/1/57	9	522	3⅜% Certificates
10,747		870	9,878	8,414 of 3⅜% C/I 1,464 of 3½% Notes
May Refunding:				
4,155	1⅝% Notes	1,156	2,351	3½% C/I due 4/15/58
			647	3⅝% Notes due 2/15/62
			2,999	

The net result of debt operations during fiscal 1957 was the reduction of the national debt subject to statutory limitation to $270.2 billion on June 30, 1957, compared with $272.4 billion at the end of fiscal 1956. Short maturities were characteristic of most of the offerings in debt operations, reflecting the strong competition for funds by private borrowers. Consequently, the average maturity of the marketable debt was 4 years and 9 months at the end of fiscal 1957, compared to 5 years and 5 months at the end of fiscal 1956. Despite reliance upon short-term issues, the Treasury was forced to accept progressively higher interest rates during the fiscal year. Although the movement was somewhat obscured in the case of relatively low rates established on securities for which payment through a credit to Tax and Loan Accounts was permitted, a comparison of the first and last refunding issues shows a sizable increase from the 2¾ per cent rate on the 12½ month note issued July 16, 1956, and the 3½ per cent on the 11½ month certificate issued May 1, 1957.

Treasury Financing in Fiscal 1958 to Date

If current efforts to cut $1 billion from 1958 spending, which was estimated at $71.8 billion in the January budget message, are successful, and if receipts reach their estimated $73.6 billion level, the administrative budget surplus for the current fiscal year will be $2.8 billion rather than the $1.8 billion projected in January. The receipts estimate rests on an assumption of high and moderately rising levels of income and corporate profits and continuation of present tax rates. In the fiscal 1958 cash budget, receipts are estimated at $85.9 billion and expenditures at $83.0 billion, which would yield a $2.9 billion cash surplus, slightly above that of this year.

At the beginning of fiscal 1958, the Treasury faced the prospect of refunding $47.6 billion of maturing securities, exclusive of Treasury bills, and $5.7 billion of callable bonds, as indicated in the chart. Of the $24 billion of maturities coming due in the first half of fiscal 1958, 39% were publicly held; 73% of the $23.7 billion of maturities due and 93% of the $5.7 billion of bonds callable during the second half of the fiscal year are publicly held.

In July 1957, the Treasury completed the first refunding of the current fiscal year. This refunding included all maturities due in the first half of fiscal 1958, as indicated in the chart. However, the four-month certificate offered as an optional exchange in this refunding will mature in December. The results of the refunding were as follows:

Maturing Securities Amount	Description	Redeemed for cash	Exchanged	New Securities Offered
July 1957 Refunding:				
12,056	2¾% Notes due 8/1/57	337	8,893	3⅝% C/I due 12/1/57
			1,790	4% C/I due 8/1/58
			1,036	4% Notes due 8/1/61
3,792	2% Notes due 8/15/57	373	978	3⅝% C/I
			1,328	4% C/I
			1,113	4% Notes
7,271	3¼% C/I due 10/1/57	325	—	3⅝% C/I
			6,638	4% C/I
			308	4% Notes
824	1½% Notes due 10/1/57	49	—	3⅝% C/I
			743	4% C/I
			32	4% Notes
23,943		1,085	22,859	9,871 of 3⅝% C/I 10,499 of 4% C/I 2,489 of 4% Notes

The Treasury carried out its first cash borrowing of fiscal 1958 through the auction of $3.0 billion of 264-day Tax Anticipation Bills, dated July 3. The issue, unprecedented in size for an auction, was sold at a price to yield 3.485 per cent on the average. In the second cash borrowing of fiscal 1958, $1.75 billion special bills, dated August 21, 1957, and due April 15, 1958, were sold at a price to yield 4.173% on the average.

Since the debt subject to statutory limitation stood at $270.2 billion at the end of fiscal 1957, when the limit reverted from the temporary $278 billion ceiling to the permanent $275 billion level, either expenditures must be reduced sharply, another temporary increase in the debt limit must be permitted by Congress, or the Treasury must resort to a number of bookkeeping devices to avoid exceeding the ceiling.

Treasury Financing—

Fiscal 1957 and Fiscal 1958 To Date

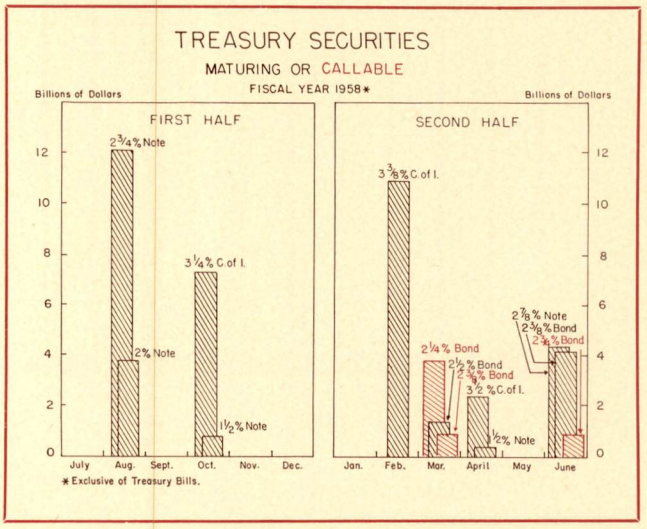
A $1,645 million surplus in fiscal year 1957, which ended last June 30, marked the fifth balanced budget since 1930. The realization of a $1.6 billion surplus for the second consecutive year was possible despite the highest level of budget expenditures since 1953, because expanding income tax receipts were derived from a rising national income level. The surplus, $19 million greater than that of fiscal 1956, was considerably greater than had been expected initially, as the following table of successive changes in budget projections for fiscal 1957 indicates:

	Net Budget Receipts	Budget Expenditures	Surplus
Jan. 1956, Budget Message	66.3	65.9	.4
Aug. 1956, Midyear Review	69.8	69.1	.7
Jan. 1957, Budget Message	70.6	68.9	1.7
Actual	71.0	69.3	1.6

The increase in expenditures over the original budget estimate reflected a $2.4 billion step-up in defense spending and smaller but substantial increases in the postal deficit, interest cost, Atomic Energy Commission expenditures, and stockpiling outlays. The largest offsetting contraction in spending occurred in the housing program, reflecting the Federal National Mortgage Association's decision to pay for its mortgage buying activities through the sale of debentures to the public rather than through withdrawals from the Treasury, as scheduled in the original budget. Other sizable reductions in expenditures from projected levels occurred for foreign aid, the Interior Department, General Services Administration, and the Civil Aeronautics Administration.

In recent years the cash budget has run a greater surplus or a smaller deficit than the administrative budget by about $2 or $3 billion; this difference largely reflected the excess of receipts over expenditures in Government trust funds, which are not taken into account in the administrative budget. However, the cash surplus (receipts and payments basis) of $2.1 billion for fiscal 1957 exceeded the budget surplus by only $0.5 billion, compared with the fiscal 1956 cash surplus of $4.5 billion, which was greater than the administrative budget surplus by $2.9 billion. The narrowing of the spread between the cash and budget surplus figures in fiscal 1957 primarily reflected increased expenditures in the cash budget: a rise in Old Age and Survivors Insurance outlays, attributable to the liberalization of coverage and benefits under recent amendments, and the redemption of Treasury notes by the International Monetary Fund as a result of the Middle East situation and other balance of payments difficulties. (Although original issuance of these notes constituted budget expenditures, their redemption was a cash expenditure.)

In addition to these pressures upon the Treasury's cash resources, substantial drains were reflected in both the administrative and cash budgets from unexpectedly heavy defense and foreign-aid spending. Increasing Savings bond redemptions and relatively high attrition on refundings combined with the spending pressures to result in $13.5 billion of new cash borrowing during fiscal 1957, compared with $8.7 billion during fiscal 1956. (This fiscal 1957 figure excludes the tax anticipation bills sold in January and February to replace earlier obligations issued for new money; if included, this would raise the new cash borrowing figure to $16.7 billion.)



Treasury Offerings and Refundings in Fiscal 1957

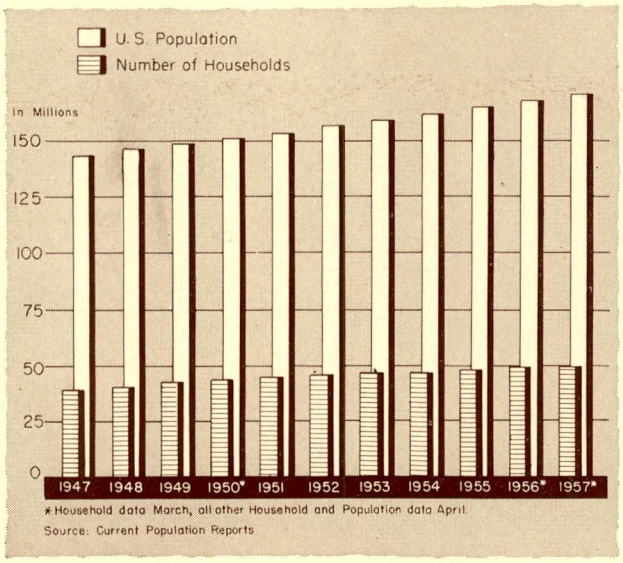
Of the $13.5 billion of new money, $7.6 billion was borrowed during the first half of the fiscal 1957 and $5.9 billion during the last half. In addition to the $1.1 billion raised through additions to the weekly bill auction level for seven weeks beginning January 28, 1957, the Treasury offered the following issues for cash:

	Billions of Dollars
2¾% Tax Anticipation Certificate, Mar. 22, 1957	$ 3.2
2.627% Special bills, Jan. 16, 1957	1.6
2.617% Special bills, Feb. 15, 1957	1.8
2.585% Tax Anticipation Bills, Mar. 22, 1957	1.0
3⅜% Certificate, Feb. 14, 1958 / 3½% Note, May 15, 1960	3.2
2.825% Tax Anticipation Bills, Sept. 23, 1957	1.5
	$12.3
Additions to bill auction level	1.1
	$13.4

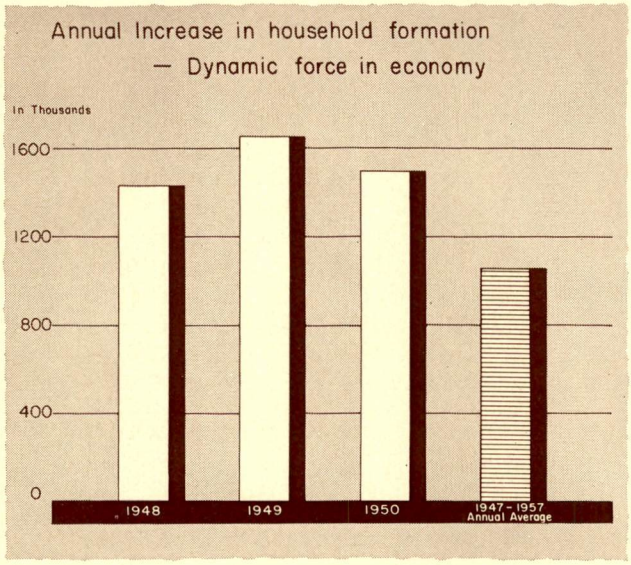
Exclusive of Treasury bills, total refundings undertaken by the Treasury in fiscal 1957 amounted to $36.9 billion compared with $30.2 billion the previous year. By combining refunding operations the Treasury was able to refund 5 maturing notes and 2 maturing

(Continued on page 8)

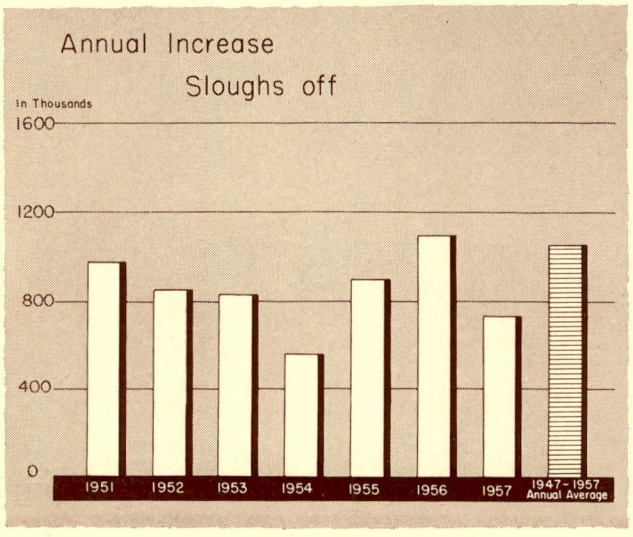
Changes In Trend of Household For



One of the less audible explosions since World War II, but with an economic chain reaction second to none, has been the upsurge in the growth of population. One of the more significant components of this growth meriting careful attention is the increase in households. Since 1947 the latter has increased 27%; total population has increased "only" 19%. The boom in household formation stemmed mainly from the sharp increases in marriages and from the undoubling of families that had been living together. Obviously, the sharply increasing number of households after World War II was a dominant factor in the demand for housing and consumer durable goods.



Within the period 1947-57 there were sharply divergent trends. Up to 1950 the influence of the principal factors affecting household formation was very strong. The number of doubled-up families was at its postwar peak in 1947 at 2.9 million. Married couples not maintaining their own households accounted for 8.7% of all married couples in that year. This represented a much greater potential for new household formation than does, for example, the 3.3% of March of the present year. Similarly, although the number of marriages each year declined considerably from the peak reached in 1946 when there was an unprecedented rush from a state of war to a state of matrimony, it was still at a very high level in 1950. Thus, the growth in household formation was at its greatest strength in the early postwar years.



After 1950, household formation weakened considerably. From 1947 to 1950 the average annual increase in the number of households in this country was 1,525,000. In the next three years, however, the rate of growth slumped to 902,000 and then fell off still more to 840,000 from 1953 to 1956. As shown in the opposite graph, with one exception each of the annual increases since 1950 was less than the average for the entire postwar period 1947-57. The series hit bottom in 1954 with an increase of 559,000 households, only one-third of the gain realized in 1949. There was a pickup in 1955 and 1956 but a sharp drop in the year ending April 1957. Thus, household formation has not been the dynamic force in the economy in recent years that it was in the earlier years of the postwar boom.

S 541, p. 21, Est. mem from household

Date	No. (m)	Net Δ mem yr bef.
4-47	32.7	
48	34.1	1.4
49	35.7	1.6
3-50	37.3	1.6
4-51	38.6	1.3
52	39.6	1.0
53	40.5	.9
54	41.4	.9
55	42.2	.8

p. 7 Suggests maybe growth rate of rings is ~~tapering~~ slowing a little. But it may just be growth rate of growth rate that is slowing.

Look to orig. data.

p. 11 Declining size of household, calling for more & smaller houses:

1850	5.6 persons	(Some of this due to lower b.r.; rest to undoublings. Latter can be undone
1900	4.8	
1920	4.3	
'30	4.1	
'40	3.8	
'50	3.4	

✓ Probly will start getting larger again now, offset Δ pop.

p. 12 Hi postwar hsg demand related to hi rate of fmly fmtn.

(now this rate is down; Δ of pop. won't Δ demand for separate hsg if Δ pop is under 18)

✓

p. 15

	Million d.u. 1950	Change since 1940
Urban	29.3	+7.6
Rural nonfm	10.1	+2.1
Fm	6.5	-1.2
	45.9	+8.6

✓

6 m new nonfm homes built, '40-'50, (incl. temp. wartime) (still used '50)

p. 21 Median no. of rooms per "home":

1940	4.8
'50	4.6

Fifty Million More Opportunities

An interest-catching phrase with considerable vogue at present is "the Golden Sixties." These prophetic words describe the booming business volume envisioned by many for the decade beginning in 1960. For the most part, this glittering prognostication rests on the amazing rate of growth of population during the past ten years—double the rate of the 1930's—and the great increases in population and family formation expected to occur during the 60's. Recent estimates by the Census Bureau indicate that by 1975 the population of the United States may be pushing the 228 million mark. If this be true, in the next 18 years the nation will add 58 million persons—8 million more than the 50 million increase in the preceding 30 years.

The surging growth of the postwar population has already left an indelible mark on the nation's business and social structure. In conjunction with the tremendous backlog of deferred demand from World War II, it created a dynamic economy and embarked it on the longest and strongest boom in history.

That an expanding population and its consequent changes in composition will automatically produce prosperity is not necessarily true. The world, unfortunately, includes many a country in which the growth of population has outstripped resources and technological progress and created economies of indigent, low-productive workers. Whether the Sixties will indeed be gold-plated or of a much baser nature will depend on the success achieved in keeping the labor force at work and in increasing the productivity of its efforts. In brief, there will be no Golden Sixties unless there exist a minimum of unemployment and a maximum of productivity gains.

School Problems Just Beginning

Given this nation's generally adequate natural resources, however, and assuming continued success in keeping unemployment near minimum levels, in advancing productivity and maintaining a sound monetary and credit structure, population increases should sharply stimulate business activity. In the following analysis particular importance is attached to the changes occuring in the composition of the population in terms of age groups.

One of the very visible deficiencies of the postwar period has been the inadequacy of classrooms for swelling enrollments in grammar and high schools. The sharp drop in births from 1924 to 1933—unbroken except for a slight increase in 1930—was reflected in declining school enrollments from kindergarten to the eighth grades all through the 1930's and up to 1944. This trend was reversed as a consequence of the sharp rise in births beginning in the late thirties and was given an increasing upward tilt by the large numbers of births beginning in World War II and continuing unabated through the postwar period. In the relatively short period, 1950-56, enrollments increased 31% in kindergarten and elementary schools and 28% in high schools.

Projections by the Department of Health, Education, and Welfare indicate that the increase in the school-age population is far from spent. It is estimated that elementary school enrollments will increase 22% in the last half of the present decade and another 10% from 1960 to 1965. During these two periods high school enrollments will show gains of 20% and 32%.

The headaches of shortages—of classrooms, teachers, and operating funds—suffered through the postwar period by municipal officials will then beset presidents and deans of colleges and universities to an increasing extent. Many of them are already striving to prepare, physically and financially, for the vast increases in student rolls in prospect.

College Enrollments to Double

Estimates are that from 1954 to 1959 the number of boys and girls age 18-21 will have increased 10%. In the following five years, however—from 1959 to 1964—the increase will jump to 25%, and still another gain of 25% will be piled on between 1964 and 1970.

The impact is already being felt in schools of higher education. After declining slightly from the 1954 peak of 2,414,000 students, enrollment in colleges and professional schools rose sharply to 2,883,000 in 1956. Increases in prospect for the college-age population, 18-24, together with the gradual increase in the percentage of young people entering college, indicate that the number of college students by the early 1970's will be double the 1955 total—some 5 million!

Problems arising from these swelling waves of new students—currently most serious in elementary schools, shortly to become particularly onerous in high schools, and then to bear heavily on colleges—are especially pronounced in the Fifth District. As shown in the accompanying table, with the exception of Maryland, District states have larger proportions of their populations under 17, in preschool and compulsory school ages, than does the nation. Accentuating the problem of providing adequate school facilities in the Fifth District are the relatively low income levels in much of the District.

PERCENTAGE DISTRIBUTION OF ESTIMATED CIVILIAN POPULATION BY BROAD AGE GROUPS, UNITED STATES AND FIFTH DISTRICT
April 1, 1950 and July 1, 1955

	Under 5		5-17		18-44		45-64		65 & over	
	1950	1955	1950	1955	1950	1955	1950	1955	1950	1955
U. S.	10.8	11.3	20.4	23.0	40.1	36.5	20.5	20.6	8.1	8.7
Md.	11.2	11.2	19.9	23.0	42.3	39.3	19.6	19.5	7.0	7.0
Va.	11.9	12.5	22.8	25.3	41.2	36.8	17.5	18.3	6.6	7.2
W. Va.	12.0	11.4	24.9	27.1	39.1	34.8	17.2	18.7	6.9	8.0
N. C.	12.5	12.4	25.6	27.2	40.8	37.3	15.6	16.8	5.5	6.2
S. C.	13.3	13.5	27.4	29.0	39.2	36.1	14.7	15.3	5.3	6.1

Source: Bureau of the Census, *Current Population Reports*, Series P-25, Number 151, February 11, 1957.

A more pleasant aspect of steadily increasing numbers of school-agers and teenagers is the vast array of opportunities for manufacturers and retailers and everyone else connected with businesses that feed, clothe, teach, and entertain the "future leaders of the country." Figures like those in the table (showing the distribution of population by age groups) conjure up a multitude of attractive market opportunities in almost every conceivable line of business activity.

PERCENTAGE INCREASES IN CIVILIAN POPULATION BY BROAD AGE GROUPS, UNITED STATES AND FIFTH DISTRICT
April 1, 1950 to July 1, 1955

	Total	Under 5	5-17	18-44	45-64	65 & over
U. S.	8.5	13.3	21.9	— 1.3	8.9	15.4
Md.	15.9	16.2	34.3	7.7	15.4	14.8
Va.	6.7	11.9	18.4	— 4.9	11.3	16.2
W. Va.	— 1.1	— 5.8	7.4	—11.9	7.6	15.5
N. C.	5.8	5.3	12.4	— 3.1	13.7	20.0
S. C.	7.4	8.9	13.8	— 1.0	11.6	22.6

Source: Bureau of the Census, *Current Population Reports*, Series P-25, Number 151, February 11, 1957.

Retirement Ranks Swell

Swing over to the other end of the population range, and one finds that large growth is also in store for the 65-and-over group. It is estimated that, whereas by 1975 the number of youngsters under 18 may be 40% greater than their 1955 count, the 65-and-over class is likely to record a growth of 46%. If this materializes, this high-age group will account for 9.3% of the total population in 1975 as compared to 8.5% in 1955.

As seen in the accompanying tables, the number of persons 65 and over has been growing more rapidly in most Fifth District states than in the nation. Even so, the proportion of total population in this group in the United States is substantially higher than it is in any Fifth District state. The contrast is quite pronounced in North and South Carolina where the 65-and-over group comprises only a little over 6% of the total population compared to almost 9% in the nation.

The relative importance of this age group—its size as a per cent of total population—has been increasing steadily for years. Although the national rate has been higher than the District rate, the gains have been greater in the District—in recent years. For the nation, the percentage increase in this group, 1950-55, was less than double the gain for the total population, but in Virginia it was more than double; in West Virginia there was a substantial gain in persons 65 and over whereas total population actually declined; in North and South Carolina the percentage gains for the 65-and-over group were more than triple the increases in the total populations of these states.

If these recent substantial gains in the 65-and-over group continue, they will exert a significant impact on the economies of District states. It will take the form of market opportunities to provide for both new and expanding needs and demands of those reaching retirement age as well as creating problems for those who must support many of this older group. The financial problems are accentuated for the labor force and public agencies in the Fifth District by reason of the latter's income structure. Census data show no state in the District with as high a proportion of its dependent population with some income as is the case in the nation.

Relative Decline in "Productive" Group

In contrast to the sharp rate of increase since the end of World War II in the growth of the "nonproductive" groups (those under 18 and 65 and over) the number of persons aged 18-64 has continued to show much the same steady growth that has characterized this group in recent decades. This is an important development since it reversed the prewar decline in the ratio of persons in age groups under 18 and over 65 to the number in the 18-64 group. And its significance may be better appreciated when it is remembered that the latter group supplies most of the labor force. With the exception of Maryland, the 18-64 group is a smaller percentage of the total population in each of the District states than it is in the nation.

As stated earlier, the projected growth to 1975 of the age group 18-24 shows the biggest percentage gain of all the major age groups. The 25-64 group, however, is expected to have the smallest relative growth of all groups and to decline from about 48% of the total population to around 44% by 1975. Thus, the group that bears the brunt of producing the nation's goods and services and is the major support of the rest of the population, is expected to grow at a rate less than what would appear to be commensurate with the demands to be placed upon it.

Such a possibility tends to place many postwar economic developments in a new light. Many of the personnel shortages—engineers, teachers, and skilled construction workers, for example—regarded in recent years as temporary consequences of abnormally high levels of business activity, are likely to persist for years to come. In another area, the vast outlays for new plant and equipment that some feel may be leading to over-capacity and depression, may well turn out to be inadequate in the light of prospective production requirements, labor supply, and spending power.

In his economic report to Congress in January, President Eisenhower referred to the great "opportunities and potentials of our free economy in the next quarter-century" and to the responsibilities that "must be borne by Government and by the citizen." Surely both opportunities and responsibilities will be greatly affected by the developing changes in the age-group structure of the population, both in the District and throughout the nation.

U.S. Pop	1950	1956	Δ	Δ/yr
	~~150m~~	~~164m~~	~~14m~~	~~2.~~
	149.6 m	164.3	14.7	2.45
[Urban pop	95.9	103.6	7.7	1.28]

$.16 \frac{\text{acres}}{\text{pop}} \times 2.5\text{m pop.} = 400{,}000 \text{ acres}$

$.16 \frac{\text{acres}}{\text{pop}} \times 150\text{m urban pop} = 24\text{m acres}$

Society forbids parents to put their children to work in cities. Landlords won't take you if you have children. So the only people who can afford children are the ones who can put them to work, and the unregulated section of the economy increases while the regulated part decreases. Not only social regulation, but the foolish mores of a dominant & decadent class -- not utterly decadent, but restrictivist - tending --- prevent its members from reproducing. For you must put your son in college, & mustn't make him work, that reflects on your

manhood. Wife must be pampered like a houri in a harem. Children must be prevented from competing with adults as long as possible.

This is not the least of the ways in which restrictivist segments of society choke themselves to death. Laws against child labor, social pressures against it, etc, prevent repreduction. The farmers and the Catholics take over.--and the communists, Hindus, & Chinese.

My children will do useful work early: housework, gardenwork raising food, clerical assistance,&whatever work for pay society won't stop.--meddling fools.

(Commerce means cities; cities mean low birth rates. Thus commerce & industry solve their own problem of lowering birth rates. The idea of the population explosion following industrial-

[redacted]

ization is pretty nonsensical. It didn't stop Japanese industrialization, e.g., one could hardly point to a country where it did stop it.

Opportunity reduces b.r., ~~in~~ if that kind of opp. -- i.e. opp. to get ahead by education, or cap. acc. If opp. is to farm by child labor, increases b.r. But commercial life lowers it.

LAND FOR TOMORROW: THE UNDERDEVELOPED WORLD. *By* L. Dudley Stamp. *Indiana University Press. $4.*

The distinguished British geographer argues that the aims of Point Four will be better achieved by increasing food production in the middle latitudes than by attempting rapid agricultural development of the fringe areas.

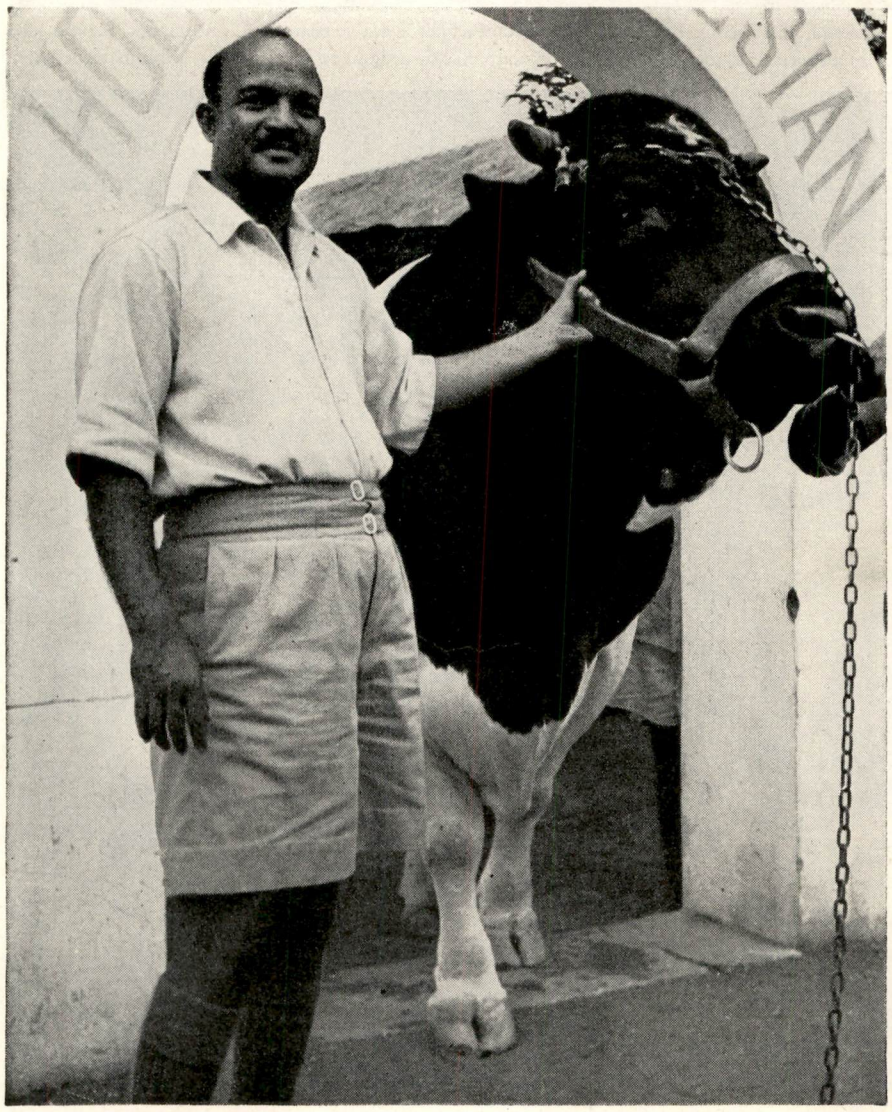


AMBASSADOR BIDDLE runs his six governments from a cluttered flat overlooking London's Berkeley Square. The problems of Europe's smaller countries, with which Biddle is concerned, will become increasingly important as peace draws near. The Ambassador, famous also as a sportsman, socialite and fashion plate, has turned out to be a first-rate diplomatic legman.



MRS. BIDDLE, almost as active as her husband, keeps herself busy in London by running five clubs for U. S. girls in the services. Together, the Biddles entertain a wide assortment of Londoners, exiled diplomats and Americans at their extraordinary country house, Little Portnall. Mrs. Biddle, the daughter of a Montana copper magnate, is also an author and dog fancier.

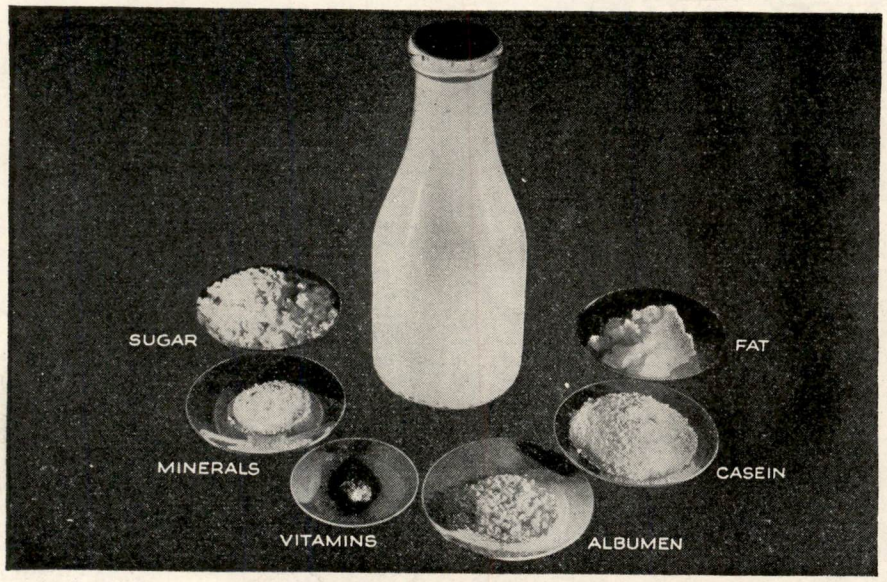
SUPER-COW, Carnation Ormsby Madcap Fayne, holds all-time record for milk production. At left in wheelbarrow is what she eats in a day. At right is her average daily yield: 55 quarts of milk (nine times U. S. average). In a year she yields 24 times her weight. If all cows were like Madcap Fayne, and ate as well, world milk production would be over a gallon a day per person.

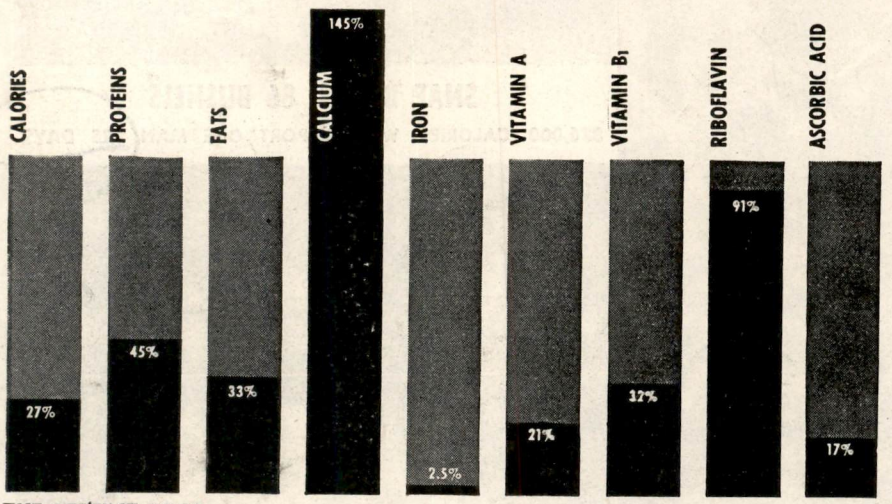


ARTIFICIAL INSEMINATION is the quick way to increase milk yields. Germ plasm from bulls like this splendid Holstein, which is owned by Maharaja of Mysore, will service whole herds.



DEHYDRATION is revolutionizing milk distribution. Once the most perishable of foods, milk can be shipped anywhere in dried form. Powdered milk has one-third the bulk of whole milk.





THE PERFECT FOOD, milk contains every element of a good diet. One quart provides high percentage of daily requirements (shown as 100%). At the top: the solids contained in a quart.



SACRED INDIAN COWS recline on a sidewalk in Calcutta, guarded by a Brahma bull. They cannot be confined, killed or bred for milk production. Their milk record is the world's worst.

MORE MILK IS FIRST NEED OF ALL THE WORLD'S DIET

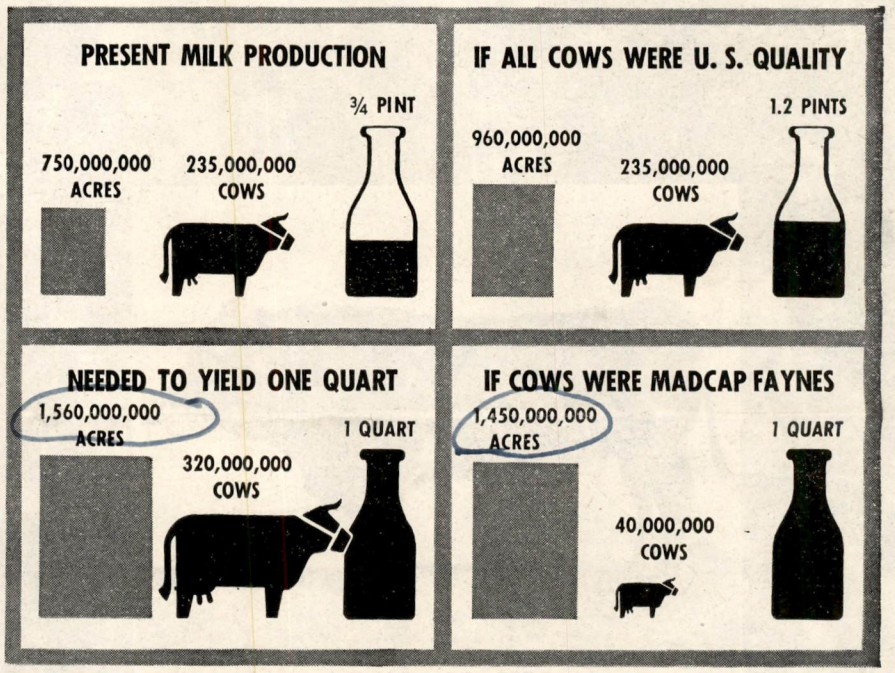
If there is one thing, above all others, which will quickly raise the world standard of nutrition, it is this: increase the milk supply.

Milk is man's best food. As the chart at left shows, it contains every one of the vital elements in a good diet. Most deficient diets are deficient in precisely the elements that milk provides. Hence, by adding milk to almost any poor diet, it is possible to bring that diet close to a satisfactory level.

When Vice President Wallace remarked that the war is being fought to give every human being a quart of milk a day, he was looking a long way ahead. But if a quart a day is utopian, a pint a day, *as a world average*, is not.

According to best estimate, there are in the world about 235,000,000 cows. If they produce, on an annual average, 1,200 quarts of milk per cow for human consumption, this comes to a total of 282,000,000,000 quarts. Evenly distributed, this would give every person almost three-fourths of a pint a day. Not all of this, however, is consumed as liquid milk. A considerable part—about half in the U. S.—goes into butter, cheese, etc. Thus liquid milk consumption is probably less than half a pint for each person as a world average. There is a good deal of guesswork in all these figures but they serve to illustrate the problem.

To double this world production it is not necessary to double the number of cows. It is necessary only to improve them. At present their milk output varies all the way



A QUART OF MILK A DAY is distant goal. At present 235,000,000 cows live on 750,000,000 acres, produce three-fourths of a pint of milk per day for every human being. (Only part is consumed in liquid form.) If all cows were of U. S. quality the same number would produce 1.2 pints. But 40,000,000 cows as good as the super-cow on next page could produce one quart.

from 350 quarts a year (the average for cows in India) to 19,500 quarts for the world-champion cow on the opposite page. The average output of U. S. cows is 2,200 quarts, of Dutch cows 3,500 quarts. Taking the U. S. figure as a reasonable goal, it can be figured that if all cows were brought up to that level, they would produce over one billion quarts a day or better than a pint for every person.

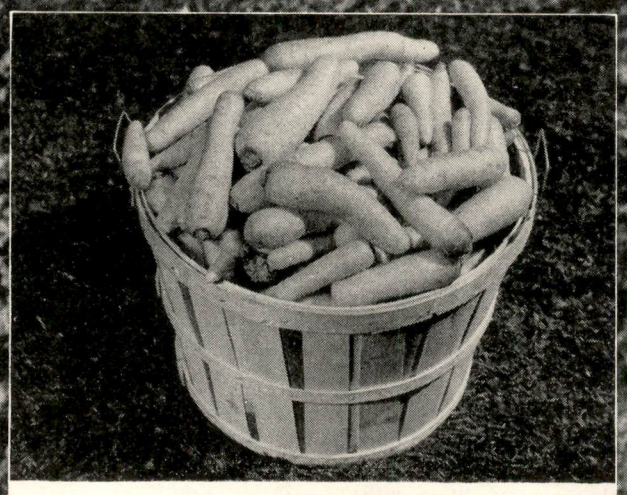
Insofar as breeding will increase milk yield, the problem is not difficult. India, which has 30% of the world's cows but only 10% of the milk, is a good example. India's Brahma cow, though a poor producer herself, can be crossbred with the Holstein to produce a first-rate milker.

Breeding, however, is not enough to increase milk yields in a poor and densely populated country. The cattle of India are scrawny and dry principally because, like the Indians themselves, they do not get enough good feed. The problem is to get enough land to raise enough feed. To support one cow in the style to which U. S. cows are accustomed requires 4.1 acres of U. S. farmland. In many countries the land is not available. Indeed there are some overpopulated parts of Asia where it would take every acre of arable land just to grow the feed for enough cows to produce as much milk (one quart daily) as Americans consume in all forms.

From a physical point of view this problem is easily soluble. By means of dehydration, milk can now be shipped into any country of the world. The nub of the problem is how the recipient countries can pay for it. Thus the problem of providing enough milk comes back to the problem of national income and foreign trade.

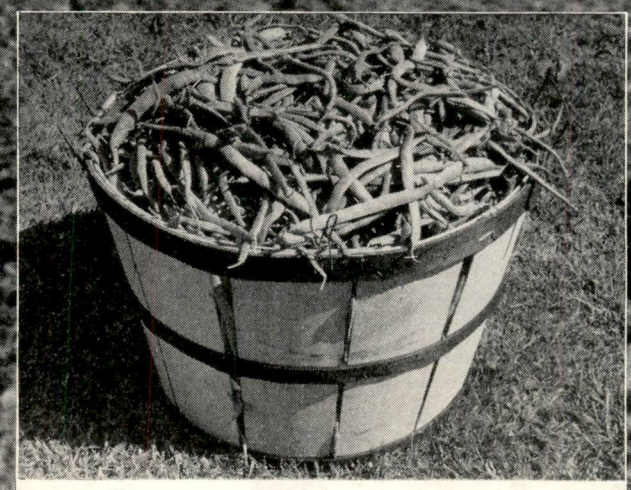
In the meantime the world's milk consumption can be greatly, if not evenly, increased. The nine prosperous countries which consume a pint a day per person can come closer to a quart and the backward countries which get only an ounce or so can perhaps get half a pint while they are waiting to enter Mr. Wallace's age of plenty.

WHAT AN ACRE WILL PRODUCE



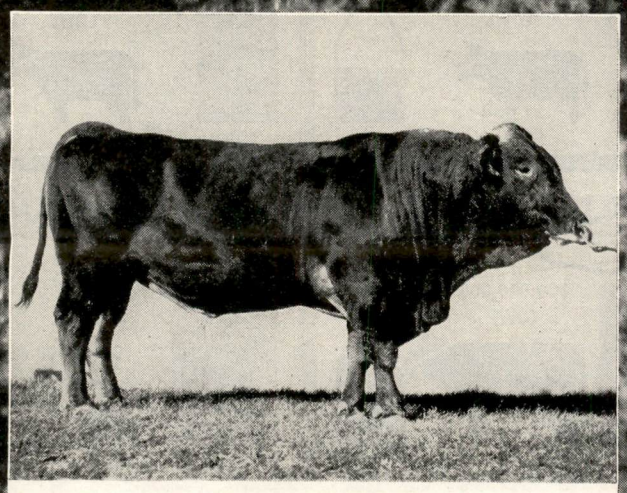
CARROTS: 472 BUSHELS

3,540,000 CALORIES: WILL SUPPORT ONE MAN 1,180 DAYS



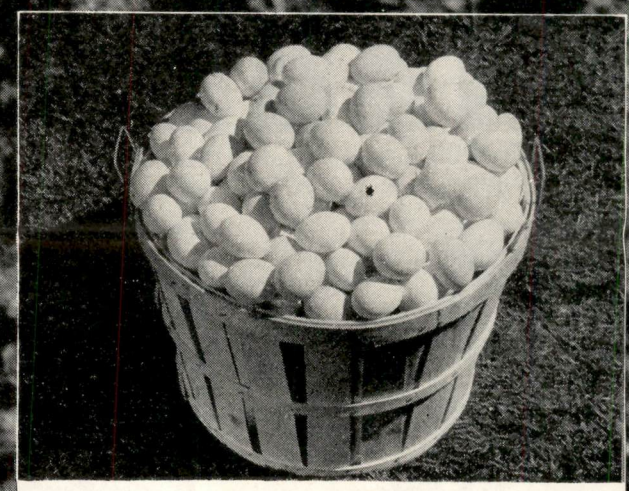
SNAP BEANS: 86 BUSHELS

376,000 CALORIES: WILL SUPPORT ONE MAN 125 DAYS



BEEF: 94 POUNDS

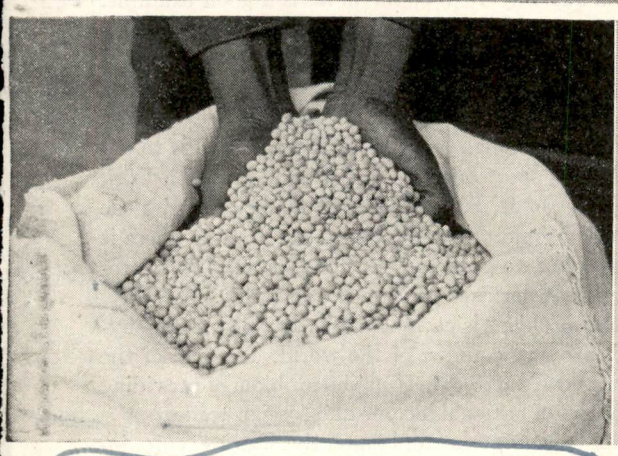
47,000 CALORIES: WILL SUPPORT ONE MAN 16 DAYS



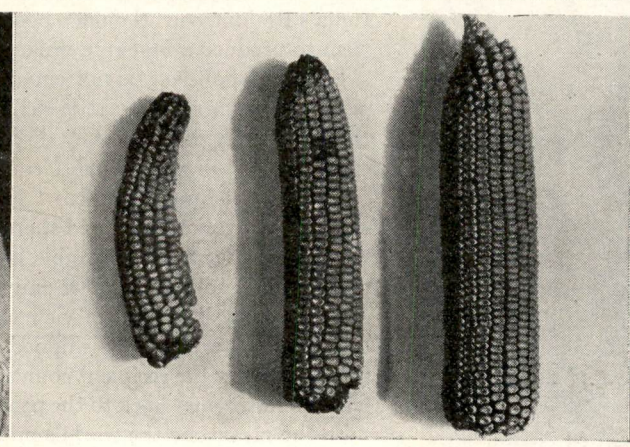
EGGS: 239 POUNDS

144,200 CALORIES: WILL SUPPORT ONE MAN 93 DAYS

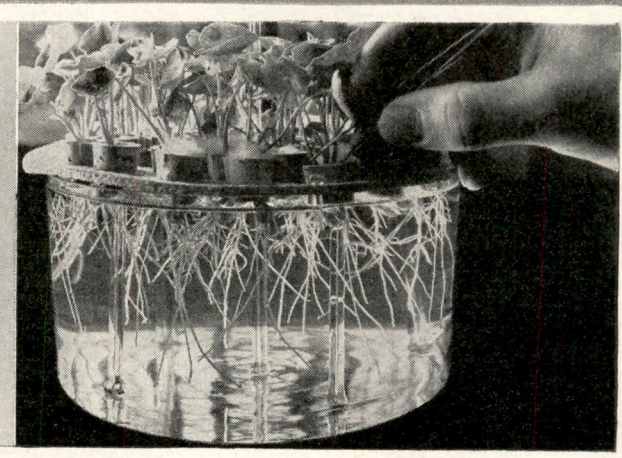
IN THE CASE OF SECONDARY PRODUCTS (HOGS, BEEF AND EGGS) IT IS ASSUMED THAT THE ACRE WAS PLANTED TO THE NORMAL FEED CROPS FOR EACH OF THE END PRODUCTS



NEW CROPS Soybeans (*above*) yield highest nutritional value per acre of any crop.

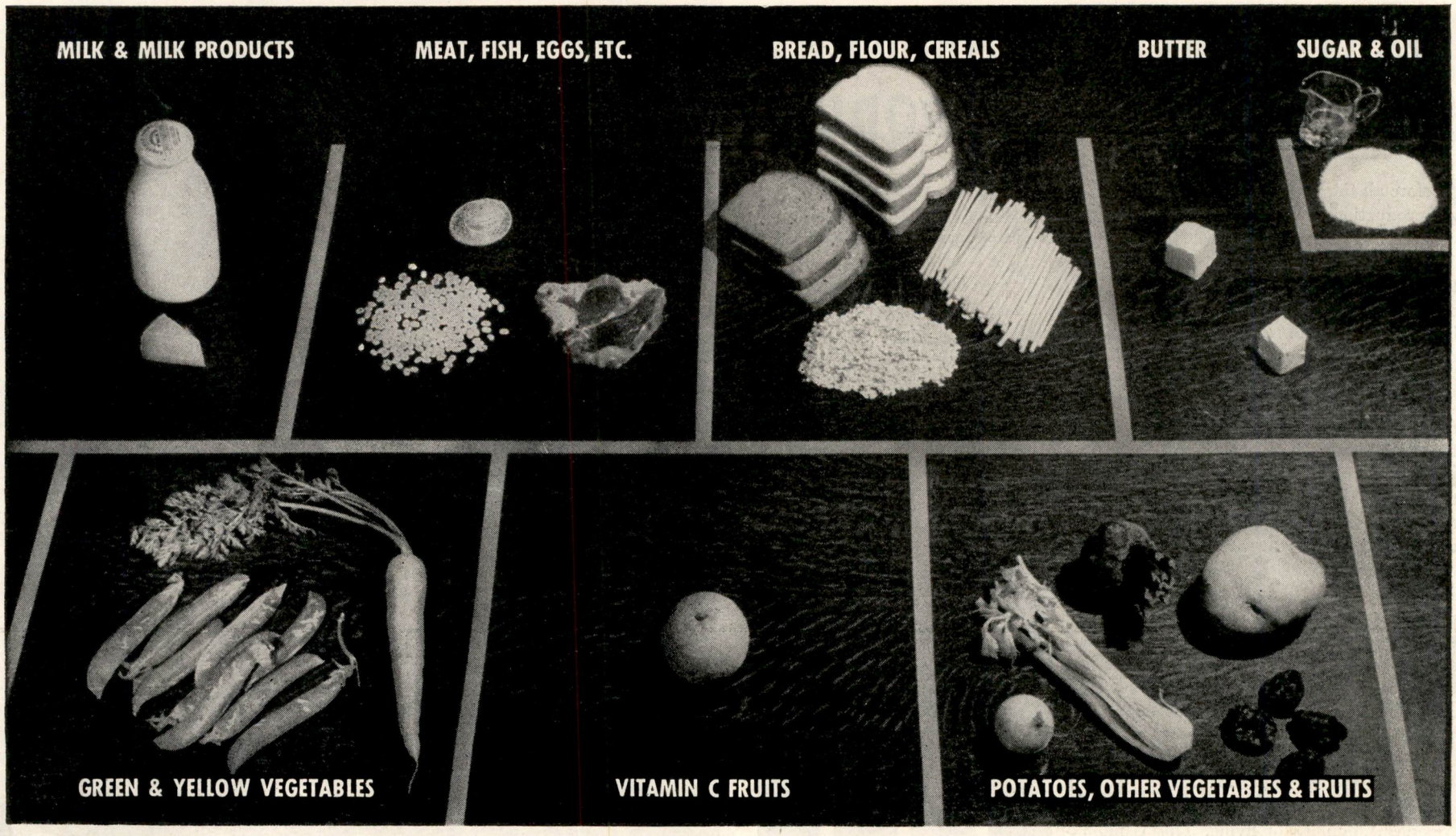


PLANT BREEDING Last year hybrid corn added 629,000,000 bushels to the U. S. yield.



HYDROPONICS Growing plants in chemical solution is new agricultural frontier to be explored.

CONTINUED ON NEXT PAGE



ONE DAY'S FOOD in a minimum good diet is divided into seven food categories (plus sugar and salad oil) that have been worked out by U. S. Department of Agriculture. All of the groups provide calories in some degree but the variety is needed for proteins, vitamins and minerals. Meat group, for example, provides protein, also Vitamins B and G and iron. This is the cheaper of two such diets suggested by the National Research Council. More expensive diets, equal in food value, contain more meat, fruit and vegetables, less cereals.

GOOD DIET INCLUDES PROTEIN, VITAMINS, MINERALS

There are three essentials of a good diet: protein, minerals and vitamins. These are the elements in the protective foods which build the body and keep it healthy. Since they come primarily from costly foods like meat, eggs, milk and green vegetables, most diets are deficient in all three.

Protein should compose not less than 10% of the total calories. Some nutrition experts distinguish further between "good" protein (animal products) and "poor" protein (vegetable), but others regard the distinction as unimportant. Vegetarians can have perfect health.

There is still a lot to be learned about vitamins. Vitamin B, for instance, is now known to be a whole complex including Vitamin B_1, riboflavin, niacin, etc. But enough is known to estimate fairly closely the dietary standard which will keep a man in health and vigor. Along with his supply of calories (including 10% protein), he needs:

Iron	12 milligrams
Calcium	800 milligrams
Vitamin B_1	1.8 milligrams
Riboflavin	2.7 milligrams
Niacin	18 milligrams
Vitamin C (Ascorbic Acid)	75 milligrams
Vitamin A	5,000 International Units
Vitamin D	400-800 International Units

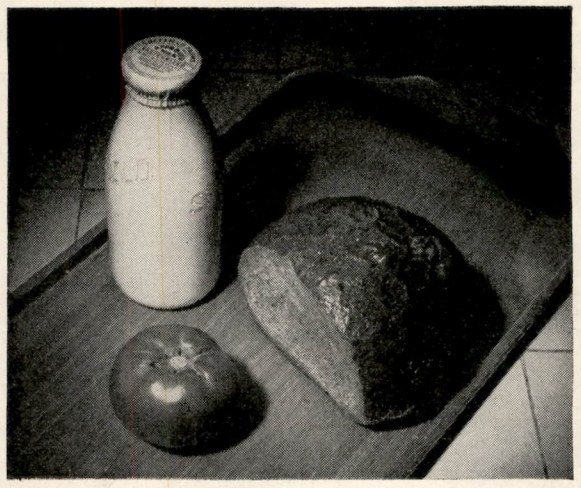
The importance of vitamins needs no emphasis today. The vitamin fad in this country has reached such proportions that vitamin pills and concentrates accounted for one-fourth of all drugstore sales last year. A lot of this represents money wasted. So far as nutritionists can tell, vitamins consumed much in excess of the fixed daily needs are of no value. A good diet requires no vitamin supplement.

Such a diet, following National Research Council recommendations, is shown above. To keep cost down, it gets 30% of the calories from cereals. Yet, only about one out of three U. S. citizens eats as well as this but more of them could if they bought wisely. The necessary food value can be obtained from bread and milk just as well as from steak and asparagus (*see below*).

THESE THREE MEALS ARE EQUAL IN FOOD VALUE



EXPENSIVE: this big steak dinner furnishes one-third of a day's food requirements (plus extra iron and protein).



CHEAP: this meal also furnishes one-third of a day's requirements (in addition to extra calcium and thiamin).



CONCENTRATED: Army K Ration: meat, vitamin biscuits, chocolate, sugar. All three meals have 1,148 calories.

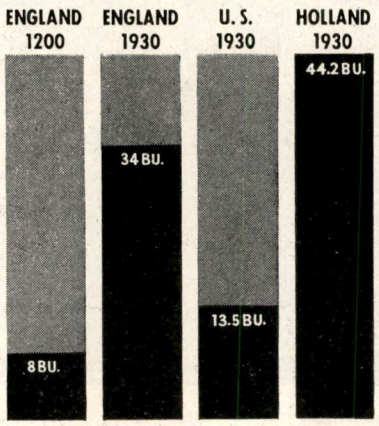
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EVERY ACRE OF FARMLAND MUST YIELD MORE PRODUCE

Before all the world can enjoy a good diet, there must be a vast increase in food production. Especially there must be an increase in those "protective" foods which are most needed for health but most expensive of agricultural resources.

The problem is presented in the picture-chart at right on an acre of typical farmland. If a U. S. farmer plants this acre to corn, he can reap 44.3 bushels of corn. This contains 2,861,000 calories or enough to support a man for 954 days (although his health would fail for lack of enough protein, minerals and vitamins). But if, instead of selling the corn for direct human consumption, he feeds it to hogs, he gets 308 lb. of hog meat. The net food product of the acre is thus reduced to 500,000 calories. This will give the man who eats it a better diet but it will support him for only 167 days instead of 954. If the acre is used to support beef cattle, it will yield only enough food for 16 days.

These figures are based on the prevailing conditions of agriculture in the U. S. But these conditions are not fixed. Over recent centuries the yield of an acre of land has multiplied several times. In England, as the chart at right shows, the wheat yield rose from eight bushels in 1200 to 34 bushels in 1930. Even today yields vary almost as widely from country to country. Holland gets 44.2 bushels per acre, the U. S. only 13.5. By intensive, scientific agriculture the yield can certainly be pushed higher, not only for wheat but for carrots, eggs, beef or any other product.

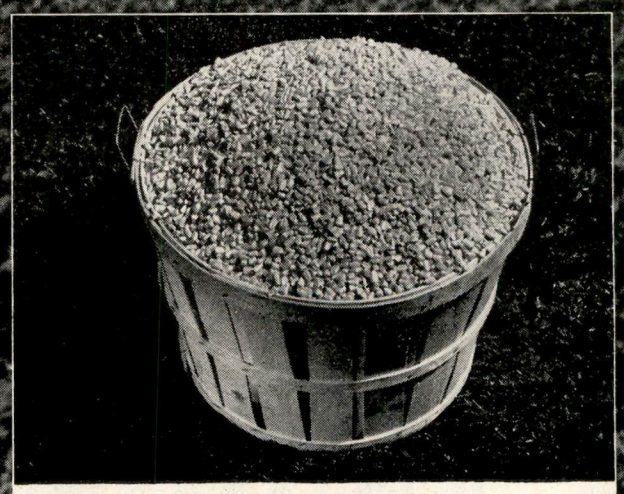


AN ACRE'S YIELD IN WHEAT VARIES WIDELY BY COUNTRY

The world's arable land, as shown on page 97, is limited, although not all of it is yet under cultivation. At present it takes 2.4 acres of crop land to support one person on the American standard of living. This is more land than is available in most of the densely populated countries (India has only seven-eighths of an acre of arable land per person). But the figure of 2.4 acres of land is based on a relatively extravagant agriculture. Just where the theoretical limit is, no one knows but some "agrobiologists" have figured that an acre planted to the most efficient crops could support 24 people. This would permit a world population of well over 100,000,000,000. Only somewhere in this zone of fancy would mankind reach the final Malthusian showdown, when the last morsel of protein had been wrested from the earth to feed the next-to-last mouth.

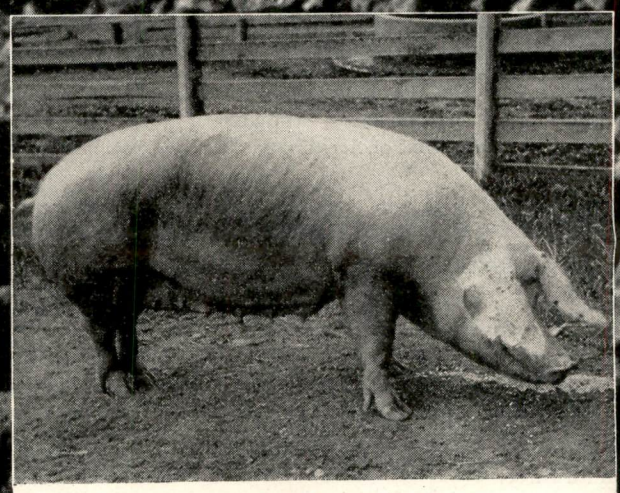
The chief practical means of increasing the productivity of land are shown in the pictures across the bottom of these pages. They are directed at two things: 1) creating the most fertile possible soil; 2) planting the best varieties of the best crops. Plant breeding has already made a spectacular improvement in the yields of many crops. In the last war, for instance, Marquis wheat, because it ripens in ten days less time than older types, pushed the limit of the Canadian wheat belt 100 miles farther north.

Denmark is the classic example of a country which put its agriculture on the most efficient basis. Early in this century the Danes realized that they were losing their European market for cereals to the cheaper producers of the Western Hemisphere. With the help of Cooperatives, the whole country was switched over to the production of milk, eggs, hogs, beef and vegetables. Agricultural science was employed to the limit. As a result the average Danish farm income was trebled before this war.



CORN: 44.3 BUSHELS

2,861,000 CALORIES: WILL SUPPORT ONE MAN 954 DAYS

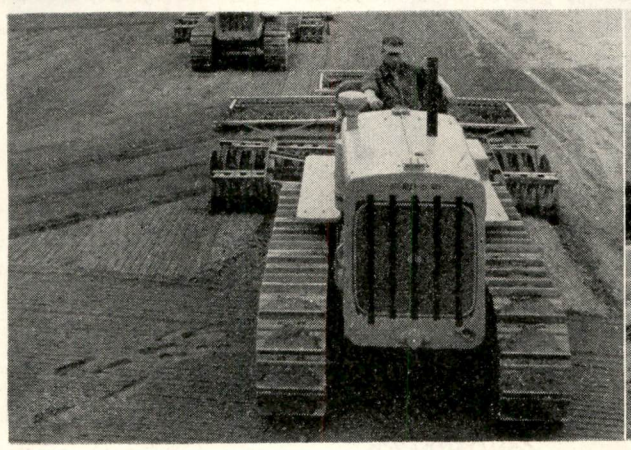


HOGS: 308 POUNDS

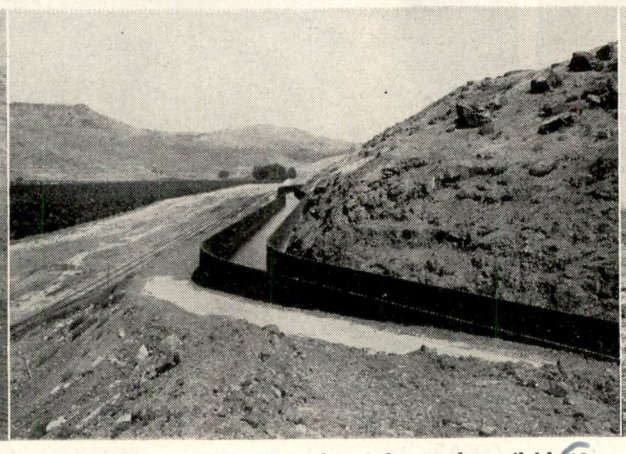
500,000 CALORIES: WILL SUPPORT ONE MAN 167 DAYS

THIS SHOWS WHAT CAN BE GROWN ON AN ACRE OF TYPICAL AMERICAN FARMLAND

THESE ARE SOME OF THE WAYS IN WHICH THE PRODUCTIVITY OF LAND CAN BE INCREASED



MECHANIZATION U. S. corn yield per man-hour has been multiplied six times over the 1910 level.

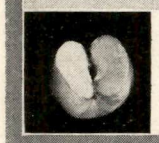


IRRIGATION In the U. S. alone it has made available 13,300,000 acres of new farmland since 1900.



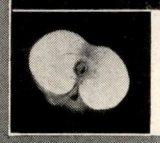
FERTILIZATION South Carolina farmers get $3.58 back per $1 spent for fertilizer.



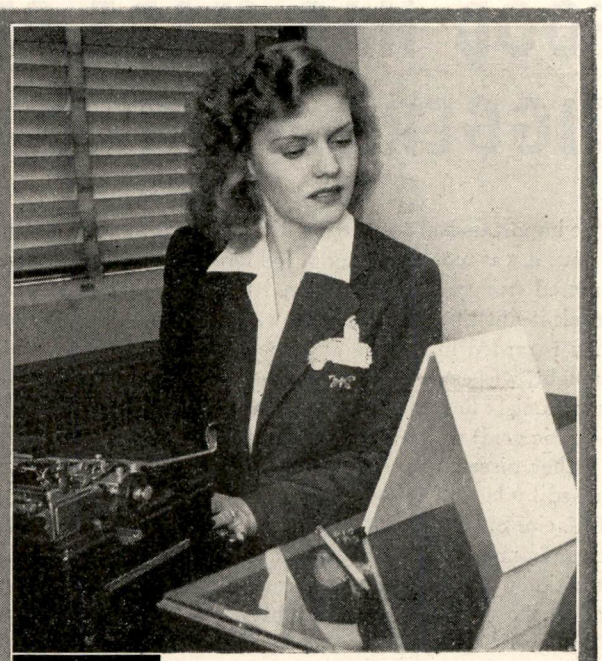


TAKING A BATH
40 calories: half an apple





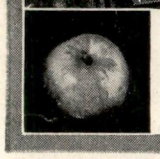
MAKING UP
44 calories: half an apple





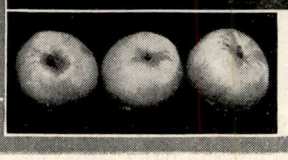
TYPING
55 calories: two-thirds of an apple



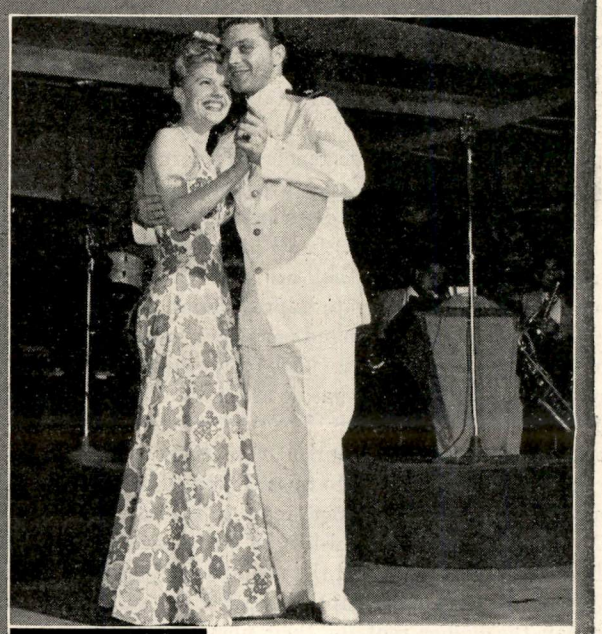


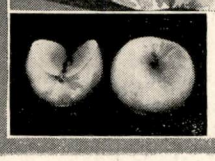
PLAYING PIANO
80 calories: one apple





SWIMMING
234 calories: three apples





DANCING
127 calories: one and two-thirds apples

CALORIES ARE USED UP by any kind of physical activity. This girl requires 1,400 calories a day just to live, plus extra calories for everything she does. In the pictures above the calories needed for half an hour of various activities are shown by apples (one apple = 80 calories). Thus half an hour of typing uses up 55 calories, half an hour of swimming 234.

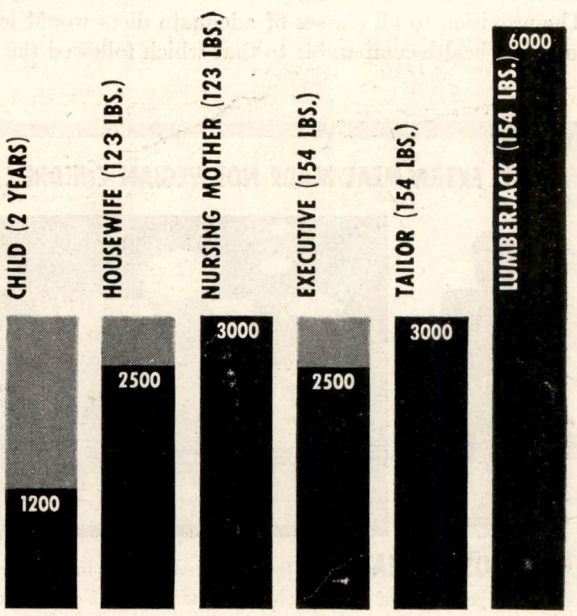
GIRL BURNS UP CALORIE A MINUTE

The young lady in the pictures above is 23 years old, weighs 125 pounds and stands 5 ft. 7½ in. To maintain life she must consume about 1,400 calories a day or, roughly, one a minute. But over and above that minimum for existence, everything she does takes extra calories. In a normal day, with work and exercise, she burns up about 2,500 calories.

Every person needs a certain number of calories every day, depending mainly on his size and his activity. A man of 154 pounds, leading a moderately active life, needs 3,000 calories (the average basic figure used by the Hot Springs conference). But the same man chopping trees needs 6,000.

Without enough calories, a person loses weight and energy or, in the case of a child, fails to grow normally. The children of Oliver Twist's day were chronically underfed, as the records of diets in English children's institutions prove. Under war conditions today, the day laborer of Marseille, according to the American Friends Service, is getting only 1,400 calories a day or 1,600 short of his needs. But in the U. S. almost everyone—even the Southern Negro—gets enough calories. Many get more than they need, grow fat.

About one half of all the world's inhabitants, chiefly Asiatics, are dependent on rice for the great bulk of their calories. Large parts of the Western world used to be almost equally dependent on wheat, barley and rye, but the rise in food standards of the last 30 years has been marked by a decrease of cereal consumption. In the U. S. wheat consumption per capita fell from 320 lb. in 1894 to 220 lb. in 1934. This, however, is not wholly due to improvement of diet. To some extent the decrease in cereal eating has been balanced by a jump in sugar consumption. Unlike the cereals, which contain a fair amount of protein (especially if they have not been milled), sugar is pure calories with no "protective" value at all. Americans usually eat about three times as much sugar as demanded by good diet.



CALORIE NEEDS per day depend on weight, mode of life. Children need more per pound of body weight than adults.

FOOD HAS MADE PEOPLE BIGGER AND HEALTHIER

The importance of food to health is obvious to anyone. But until this century it was more a matter of folklore than of science. British sailors, who suffered from scurvy, discovered long ago that lime juice helped them, drank it until they became known on every waterfront as "limeys." But they regarded lime juice as a medicine for a disease which, the doctors thought, was caused by a prolonged exposure to sea air. Only in 1920 did nutritionists find that scurvy is caused by lack of Vitamin C (also called ascorbic acid) which is found in citrus fruits and green vegetables.

Other diseases are likewise traceable to food deficiencies. Beriberi is caused by lack of thiamin, rickets by lack of Vitamin D, pellagra by lack of niacin. Still other diseases, though caused by germs, derive their chief terror from an alliance with malnutrition. Tuberculosis follows the level of nutrition with deadly accuracy, striking at those countries which eat badly and at those classes in each country which are lowest in the dietary scale. Throughout human history, plague has followed famine.

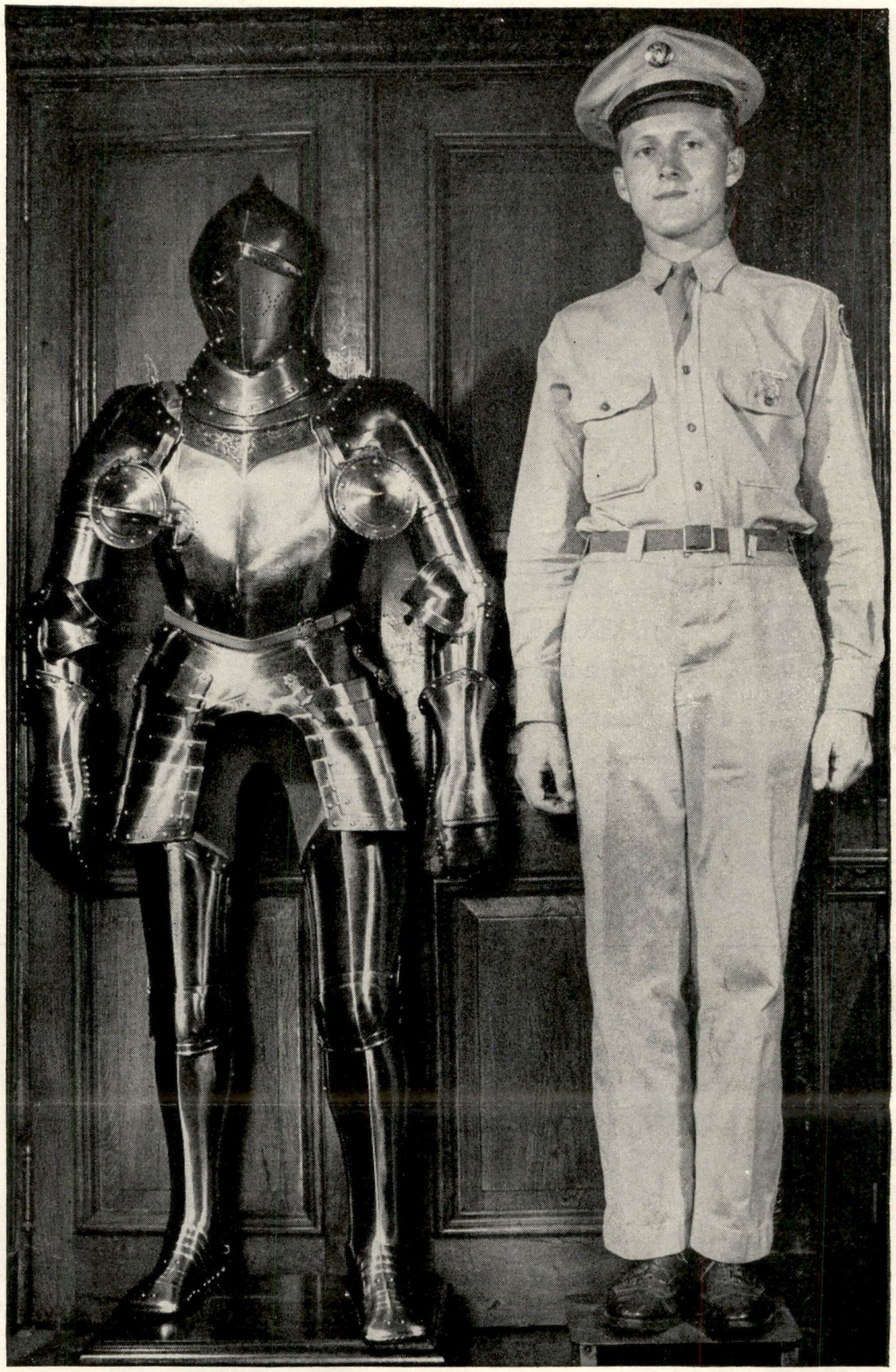
One of the most striking effects of diet is seen in human stature. Throughout the Western world the increase in the standard of living in the last two centuries has brought with it a steady increase in average stature. This common observation is confirmed by records kept in various European countries which have had compulsory military service. In America, the trend is particularly marked in women. Most Colonial dresses are too small for modern wearers. Entrance measurements at women's colleges show a steady rise. Miss America of 1921 was 5 ft., 1 in., Miss America of 1943 is 5 ft., 8 in.

The limit is by no means reached. In certain countries experiments have been made in feeding schoolchildren an extra meal containing the food elements which their normal diets lack. (The most famous of these, the Oslo breakfast, is shown below.) In all cases the children who got the extra meal grew taller and huskier than others. Extra food for children in school is one of the quickest ways to improve public health.

Good diet does not demand particular foods. People can be well fed on a great variety of foods, provided they contain the needed nutritional elements. The Eskimo, who has no arable land at all, is relatively well fed on his diet of fish and blubber. The African tribesman, with plenty of fertile land, is miserably undernourished on his lazyman's diet of cassava roots.

In any postwar efforts to raise the world standard of living, food is only one factor. But there is some reason to think that it ought to rank first. This is suggested by the history of an English housing project in which a slum area was cleared and the residents re-housed in a new development. Their level of health promptly dropped. Investigators found that, in order to pay the higher rent for their new homes, the ex-slum-dwellers were skimping on food.

Nutrition authorities believe that good food will result in a sharp rise in public health. A draft memorandum prepared before Hot Springs conference declares: "Although the application of modern nutritional knowledge to public health is a development of only the last 25 years, we already know that sound nutrition will reduce the toll of disease and will also do more to secure sound minds in healthy bodies than any other social reform. In the 19th Century the discoveries of the bacteriologists and the achievements of the sanitary reformers greatly reduced the toll taken by infectious disease. The provision to all classes of adequate diets would lead to an advance in public health comparable to that which followed the work of Pasteur."

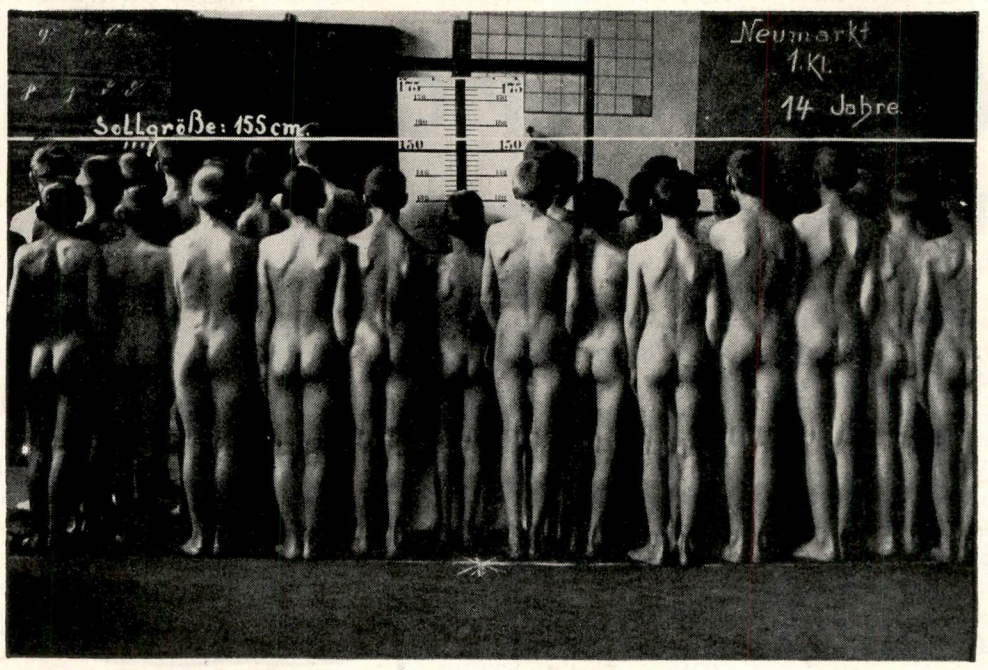


WARRIORS HAVE GROWN much bigger since knights wore armor. Average U.S. recruit (5 ft. 8.4 in.) could not get into this 16th Century fighting gear. Rise in stature is proved by military records of various countries. In the Netherlands the average size of recruits increased five inches between 1850 and 1907.

THIS EXTRA MEAL MADE NORWEGIAN CHILDREN GROW 4 IN.

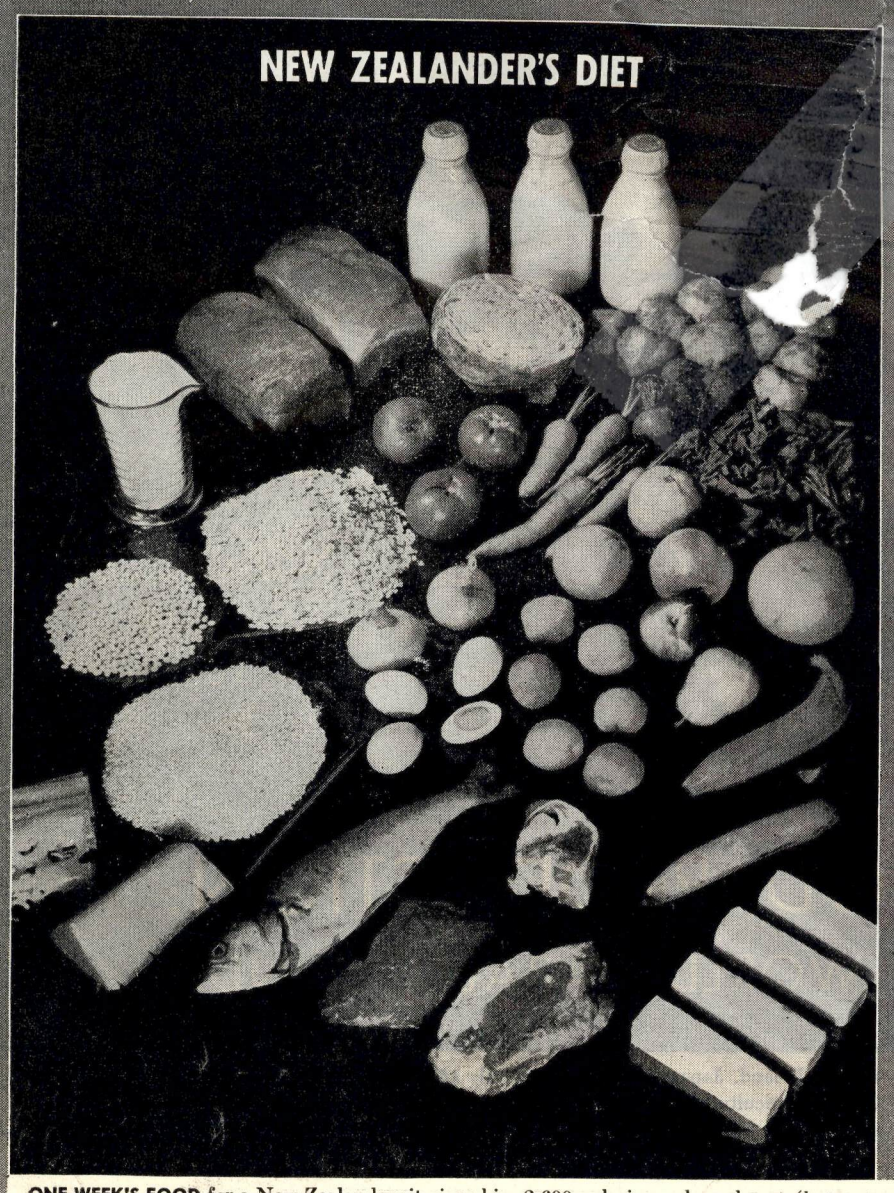


THE OSLO BREAKFAST, fed to schoolchildren in Norway, increased the average height of 14-year-olds by four inches. It consists of milk, orange, whole-wheat bread, cheese, rye biscuit, carrot and spoonful of cod-liver oil.

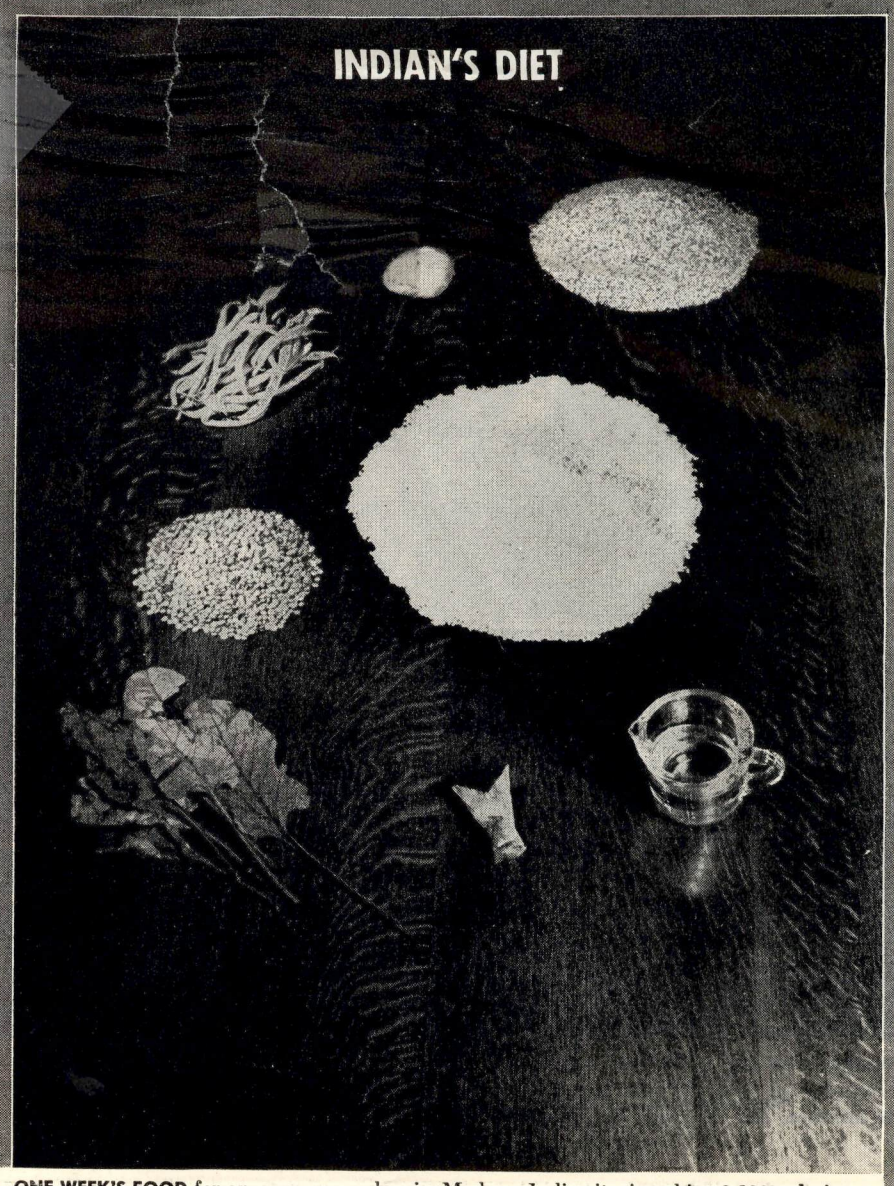


STUNTED GERMAN CHILDREN were the result of Allied blockade in World War I. At 14 these war children were far short of the normal height for 14-year-olds. Almost all European children will be stunted after this war, but Germans probably less than others since they still eat better than conquered peoples.

CONTINUED ON NEXT PAGE



ONE WEEK'S FOOD for a New Zealander: it gives him 3,600 calories a day, almost (but not quite) equals the good diet shown on page 101. This is based on the diet of urban workers.



ONE WEEK'S FOOD for an average worker in Madras, India: it gives him 2,300 calories a day (almost enough), not nearly enough protective foods like meat, milk, green vegetables.

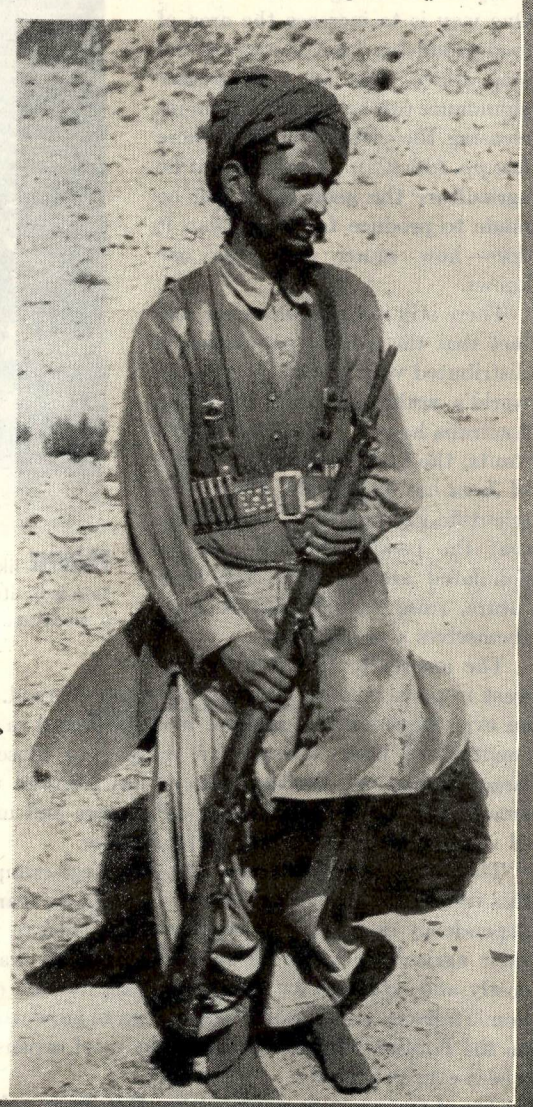


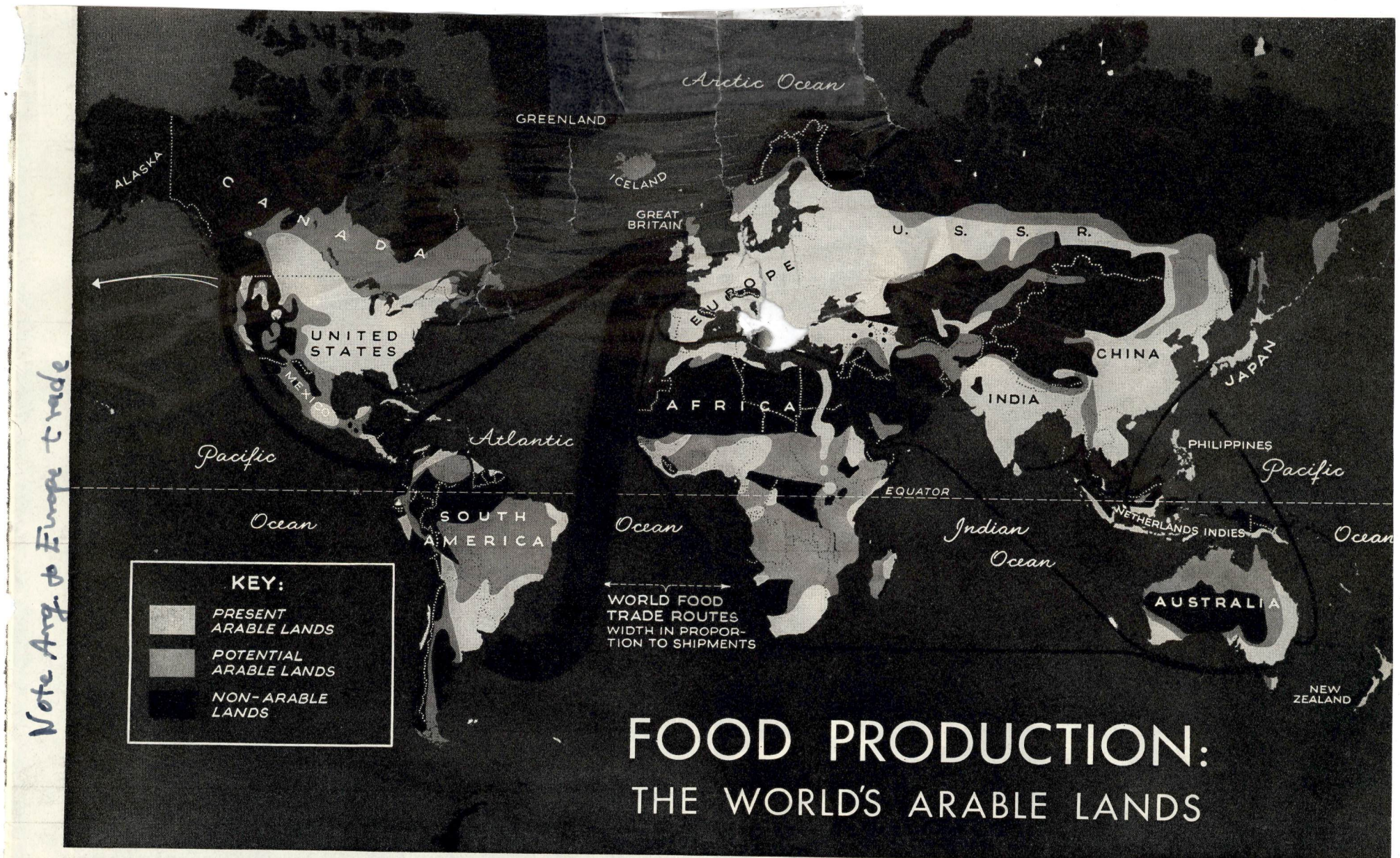
BEST AND WORST FED NATIONS SHOW RESULT

These pictures show the effect of food on human stature and health. The New Zealander is the world's best-fed person; the Indian is the worst fed. Above is what they eat. In the table below is the result. The New Zealander lives, on the average, two and one half times as long as the Indian. He is 5¼ inches taller, 34 pounds heavier, only one-sixth as likely to die from tuberculosis.

Whether, if the Indian ate as well as the New Zealander, he would be as big, is open to question. But some Indians, such as the Sikhs, who get good food, average taller than many Westerners. To be as healthy and long-lived as the New Zealander the Indian would also require Western standards of medicine and sanitation.

	NEW ZEALANDER	INDIAN
WEIGHT	154 LB.	120 LB.
HEIGHT	68¼ IN.	63 IN.
LIFE EXPECTANCY	65 YEARS	27 YEARS
DEATH RATE	9.2 PER 1,000	21.8 PER 1,000
TUBERCULOSIS DEATHS	39 PER 100,000	232 PER 100,000
INFANT MORTALITY	31 PER 1,000	167 PER 1,000



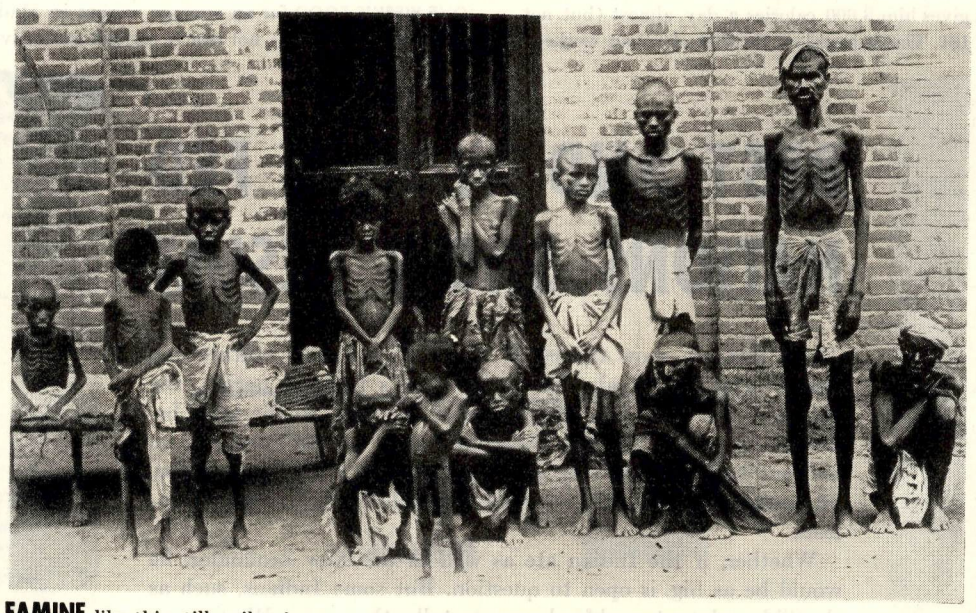


FOOD PRODUCTION:
THE WORLD'S ARABLE LANDS

WHERE FOOD CAN BE GROWN is shown on map, also based on Professor Bennett's researches. Only about 11% of the world's land surface is arable; more can be made arable by irrigation, fertilization, etc. The white areas, though considered arable, actually include smaller areas of nonarable land. Japan, for instance, is only 15% arable. Shown also is the volume of world trade in agricultural products in 1929–36. New pattern of agriculture recommended by food experts calls for a manifold increase in this trade to permit greater national specialization.

enough food *could* be grown to give every human being a healthful diet. One way is to increase the area of food-producing land, shown on the map above. But an even greater abundance can be expected from increasing the yield from every acre (*see pp. 102-103*). Through scientific agriculture the good earth can be made to produce far more than it does—how much more, no one knows.

There still remains, however, the fact that the world's population is distributed very unevenly over the world's arable land. Whereas big Australia has only 7,000,000 inhabitants, the little neighboring island of Java has 42,000,000. Even with scientific agriculture, it is unlikely that the people of these densely populated areas can, in the near future, raise enough food to give themselves a proper diet.



FAMINE like this still strikes in some parts of India, China, Africa. But while the problem of starvation is limited the problem of malnutrition is almost universal. The Government of China once began a report on nutrition to the League of Nations: "Most Chinese suffer from malnutrition all the time."

The answer to this problem, at least in part, is more international trade in food. To an ever larger extent, produce must be raised in the countries of large acreage and shipped to those of large population. Western Europe has followed this trend in the past century, importing more and more of its food from the Western Hemisphere.

The militarism of this century put a large crimp in this trend. Countries like Germany and Italy, fearing dependency on foreign sources for food, tried to put their agriculture on a self-sufficient basis. It was a costly and retrogressive effort, resulting in such economic fallacies as Mussolini's campaign to grow wheat on the Pontine Marshes (some of the most expensive wheat ever produced).

One of the great decisions of the Hot Springs food conference was to encourage a new pattern of world agriculture. According to this pattern the countries of large population in Europe would concentrate on growing the costly "protective" foods which take much manpower and are most difficult to ship. For their "energy" foods—the cereals—they would become largely dependent on imports. Some nations, like Denmark and the Netherlands, have already made the transition to "protective" foods and profited greatly thereby (until the war). It is the logical solution for Europe, but requires two conditions to make it work. First, a reasonable assurance of world stability, for a one-sided agriculture is a handicap in war. Second, enough money to pay for the imported food. Since the cereal-growing countries are not likely to want to import protective foods from Europe, this means that Europe must have an export balance in manufactured goods and services.

It will take some time after the war to create this new agricultural pattern for Europe. For, besides the peacetime problem of malnutrition, Europe has the pressing wartime problem of actual starvation. This was the hard fact which the Russian delegates kept repeating at the Hot Springs Conference. Before the peace planners can worry too much about protective diets they must provide energy foods quickly for the starving. This means, for a while, planting more cereals instead of less. Only after this transitional phase can the long-term pattern be put into effect.

Given a fairly free world trade, Europe's food problem looks soluble. But Asia's is far more difficult. For the densely populated countries of Asia are also backward industrially. They have no export balance and hence no money to pay for imported food. Barring a decrease in population or large-scale emigration, there is only one solution: a great industrialization. This is China's chosen course and may become India's too.

After the last war people worried a lot about the "overproduction" of food. Wheat rotted in the elevators of the Midwest, coffee was burned in Brazil and nations swapped bitter words about "dumping" agricultural produce on the market. In a world which is 80% malnourished there is no place for the idea of "overproduction." It will be a major job for the peace planners to find some way from this bitter farce to the bright but distant goal of freedom from want.

CONTINUED ON NEXT PAGE



WORLD'S STANDARD OF EATING (prewar) is reflected in this map, which was prepared from the studies of Professor Merrill K. Bennett of the Food Research Institute of Stanford University. It is based on the fact that poor diets contain a high percentage of cereals and potatoes. The white areas derive only 30–50% of their calories from cereals and potatoes, the black areas more than 90%. Actual famine does not occur regularly anywhere except in northern China. But other large areas suffer occasional famine and the world as a whole is badly undernourished.

FOOD

POSTWAR WORLD NEEDS TWICE AS MUCH FOOD TO LIFT THE UNIVERSAL BLIGHT OF MALNUTRITION

by JOSEPH J. THORNDIKE JR.

Of the two billion people in the world, well over two-thirds are badly fed. This stark fact in the 20th Century presents a staggering challenge to the architects of a new world order. For there can hardly be a stable world until most of the people who live in it have the first material necessity of a happy life. That necessity is food.

The map on this page shows in detail how poorly the world eats. The white areas, which have the best diet, lie in the United States, Canada, Australia, New Zealand, Britain, Germany, the Low Countries and Scandinavia. That is all. Yet even these fortunate countries are only relatively well fed. In the U. S. one-third of all the people are definitely malnourished, another third are below the dietary standard for good health fixed by the National Research Council (*see p. 101*).

The great problem for the postwar world is not starvation. As the map shows, there are only a few areas left where famine still occurs and only one (North China) where it occurs regularly. The problem is malnutrition. On the continent of Eurasia, the blight of malnutrition begins on the Atlantic beaches of France and sweeps across eastern Europe and Russia to reach its darkest in the teeming rice-fed basin of southern and eastern Asia. It covers all of Africa and all of South America. Through all these lands most of the people get enough food to stay alive but not the right kind of food to stay healthy or live long.

Nutrition experts divide food into two classes: "energy" foods and "protective" foods. Energy foods provide the calories that every human being needs to live and do his work (*see p. 101*). Protective foods keep the body strong and healthy. Energy foods are chiefly fats, sugar and the great cereals—rice, wheat and corn. Protective foods are the rarer, costlier products like meat, milk, eggs and green vegetables which are filled with protein, minerals and vitamins. Over the world many more people get enough energy foods than get enough protective foods.

A group of food authorities led by F. L. MacDougall of Australia has set down what the world needs to be well nourished. Their figures appear in the box on this page. They can be summed up in a sentence: The world needs twice as much food.

This may sound like Utopia. Many economists have asked the question: "Can the world ever be well fed?" and while some have said "Yes," others have firmly answered "No." The most famous "No" was delivered by Robert Malthus, an English economist, who wrote his essay on population in 1798. Malthus argued that population always pressed against the available food supply. As fast as more food was produced, there would be more mouths to feed. Since the food supply was capable of only limited expansion, whereas the fecundity of the human race was unlimited, mankind was doomed to remain forever on the verge of starvation.

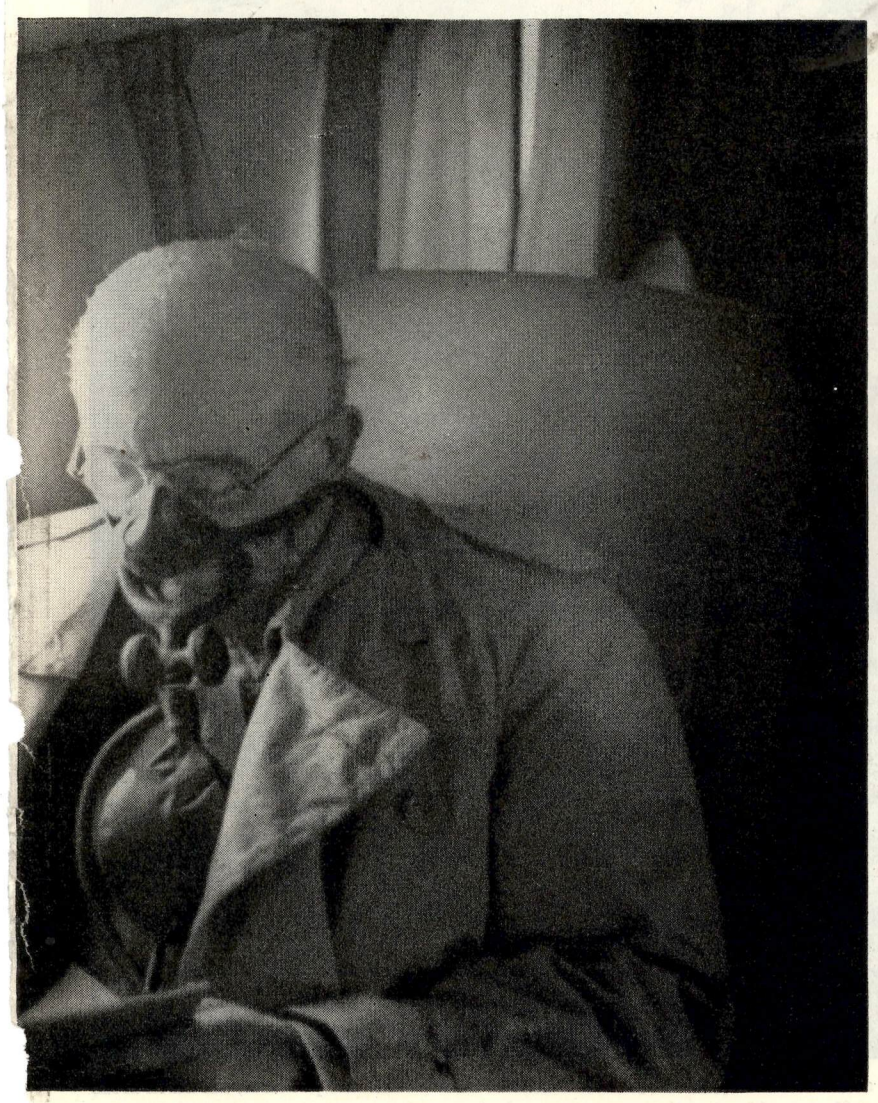
THIS IS WHAT THE WORLD NEEDS IN FOOD

- 50% MORE CEREALS
- 90% MORE MEAT
- 125% MORE MILK AND DAIRY PRODUCTS
- 125% MORE VEGETABLE OILS
- 300% MORE FRUITS AND VEGETABLES

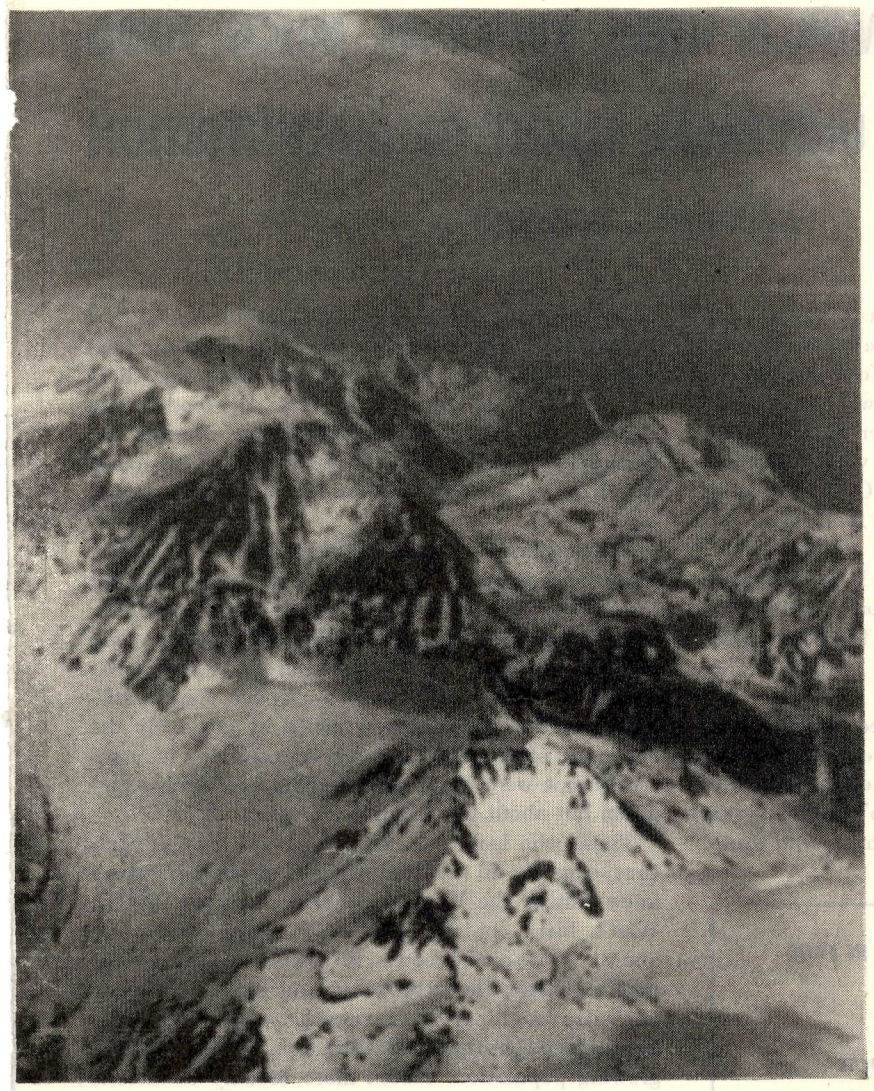
To the Europe of 1800, Malthus sounded plausible. Famines periodically swept the Continent; England was having to import grain to feed her growing millions. But the century that followed Malthus made him look silly. This is what happened in Europe: The population doubled. The food supply multiplied. Famine disappeared. The life span lengthened by years. By the beginning of the 20th Century the countries of western Europe were worrying not about too much population but about the falling birth rate.

Those who looked to Asia could not dismiss Malthus so lightly. In the teeming lands of the East, which knew neither the West's agricultural science nor the West's birth control, population continued to rise almost as fast as the food supply. Yet even those lands were eating a little better before war came. The bogey of hunger had a part in causing the war, for the Japanese argued that their little islands could not feed their growing population. Stated more broadly to include all natural resources, this became the German doctrine of *Lebensraum*.

Taking the world as a whole, it seems clear that



frontier, which corresponds to our West, I saw great cities, laid out in squares like our prairie towns, dotted with huge factories—one small Pittsburgh after another; little towns a few years ago, now with a population in the hundreds of thousands."



hundred miles of the world's coldest spot (Verkhoyansk). A plane forced down in these mountains could probably never be reached by rescuers. On May 31 Mr. Davies reached Nome and on June 3 he was back in Washington, 27 days after he started.

TASTE THE DIFFERENCE TONIGHT!

FEEL THE DIFFERENCE TOMORROW!



"HERE'S HOW I DID," says captivating CELESTE HOLM, comedienne of hit show "Oklahoma"



Miss Holm always insists on White Rock...claims it makes her drinks taste better...helps keep her feeling fit next day. White Rock is mineral water, SUPER-CHARGED, with a sparkle that stays to the end of your drink.



She takes a glass of plain, sparkling White Rock before going to bed and again in the morning for good health's sake...you see, White Rock is beneficial, more healthful...on the alkaline side.



The beneficial *natural* mineral salts in White Rock combat acidity, help keep you feeling fit next day.



White Rock
SPARKLING MINERAL WATER
ON THE ALKALINE SIDE

Save with the BIG BOTTLE! ...enjoy the best for about 3¢ a highball



Some student read de Castro for project. See if mono-culture is indeed bad - if principle of specialization is all wrong.

Mc Connaughy — What about effects of greater natural selection when more mortality.

Effect of threat of extinction on reproduction. of ~~xxxx~~ all species.

Do fm. p supports now Δ b.n.?

What of idea that recent increases in food production, the food not good? -- poison selves w. chemical fertilizers, sprays, etc.

Millet vs rice.

How about growth of Eur. pop.?

When very poor, conc. on starches, stay poor. Masai vs. Kikuyu.

Value sons, not daughters, in China, bcs they need farm labor & old age insurance. Train them in filial piety & ancestor worship, to help old folks along.

Doubleday, 1853, showed lack of food makes people reproduce fast.
Slonaker, Rats.

Psychologically
Physiologically
Ecly
} 3 main points, why poor reproduce faster.

Monoculture = latifundia. Import labor. ~~the~~ Feed them quick energy giving food, not good nutrition. Abandon subsistence agric. Import cheap canned food from Eur, get beri-beri; e.g.
He's vs mono-culture in gen'l, "colonial exploitation".
Wears out land, destroys much.
40m acres best land exhausted, U.S.

How about specialization? Vs it altogether?

(Specialization Δs l.v., brings in absentees, worsens distribution.

...d sales o...
...DA inspection.

Declare by Quarters

registering, every farm hterer (anyone engaged pri-ly in agricultural production resident operator of a farm, did not deliver more than 0 pounds of live-weight meat ;ale in 1941) must declare amount he slaughtered for by separate quarters of the 1941. The farm slaughterer then be given his quota for e three-month periods, equal e amount he delivered for in the corresponding quar- of 1941. Home-consumed is exempt.

butcher (anyone who did ughter more than 300,000 of live-weight meat in other than a farm slaugh- must declare the amounts ghtered by months in 1941. ch month after April 1 his for slaughtering will be me as for the correspond-nth in 1941.

l slaughterers (those who ered more than 300,000 of meat in 1941 and who registered with OPA as rers) are limited in their aughtering to 80 per cent amount by live weight red or meat produced in 1941, in addition to any id to government agencies r. Quotas for each suc- month will be announced irector of FDA and will d on the corresponding f 1941 production.

Direct Instruction

lerers in establishments ederal inspection (in the e packers) will receive ations direct from the tor, and will have separately according nditions. In this way, n can be given to in cities where un- ons prevail, as con- previous OPA regu-

charge...

Henrico Planning Food Supply Drive

Preliminary plans for the inauguration of the Home Food Supply program in Henrico County were discussed yesterday afternoon at a meeting of the county agricultural and home demonstration agents, home economics and vocational agricultural teachers, as well as others in the county agricultural extension service.

The program, prepared for presentation to the County Board of Agriculture at its meeting at 2:30 P. M. Tuesday, include utilization of community and neighborhood leaders throughout the county in carrying information to each home on the necessity of planting Victory Gardens and the conservation of foodstuff raised through canning and drying.

Miss Marion Lawrence, Henrico Home Demonstration agent, has been placed in charge of the program, which calls for a postal card survey of the entire county to ascertain those planning gardens and those needing assistance or advice.

Signs for Victory Gardens

Seek Business Secretary

WASHINGTON, (AP) — Senator Wiley (R-Wis.) and Representative Howell (R-Ill.) ... day that they would ... tomorrow calling ... an assistant-se... merce for sma...

B...

15

In cities, with their low b.r., there is a natural selection, in one sense, more severe than in the country. Only those who want children very much will have them, since they are no practical asset. City children come of purposely loving &/or confident families, then, & are more selected emotional stock.

Washington

POPULATION in the United States increased more than twice as fast in the five years 1946-'50 as in depression 1936-'40.

In Western Europe, according to the United Nations' 1951 demographic yearbook, only France had a higher rate of increase, and among those of the so-called backward areas which keep birth and death statistics only Ceylon exceeded the U. S. rate. (The rate in the U. S. commonwealth of Puerto Rico also exceeded that in continental U. S.)

The Population Reference Bureau, a private research organization, forecasts that if the U. S. rate keeps up Americans may have to do one of three things in about 1975 in order to eat as well as they do now:

1—Make farms produce more.

2—Export less food.

3—Import more food.

The bureau was established here in 1929 through private contributions to collect and distribute population data. Robert Cook is acting director.

In the 1936-'40 period the U. S. had 17.3 births per thousand population and 11 deaths, a net increase of 6.3 persons per thousand.

In 1946-'50 there were 24.1 births and 9.9 deaths. Births had increased, deaths decreased.

The population increase per thousand in 1946-'50 was 14.2—which was 7.9 over the rate of 1936-'40, more than double.

The bureau took figures on the U. S., seven Western European nations and 12 other areas from the demographic yearbook to find out how the U. S. population rate compares with that of the rest of the world.

The six with the greatest increase in the postwar period over the late depression years were: Ceylon 10.6 per thousand, France 9.4, Puerto Rico 9.2, U. S. 7.9, Japan and Mexico 7.2 each.

Down the list are nations commonly thought to be increasing their population much faster, such as Malaya with 3.5 and Italy with only one per thousand.

Cook says many people make the mistake of watching birth rates alone to estimate what is happening to populations. He cautions that deaths must be considered to get the actual increase—or decrease.

He says world population is increasing at the rate of 1 per cent a year. This seems low, but it means 25 million more people to feed each year, 68,000 more each day.

Cook says:

"It is the changes in death rates, rather than the birth rates, which are speeding up the tempo of population growth in most of the human race."

Low birth rates during the depression led some students to predict that U. S. population would level off before 1980. But during the improved economic conditions of the postwar years the rate jumped again.

This led Dr. B. T. Shaw, administrator of research in the Department of Agriculture, to tell Congress that the U. S. will need 120 million more arable acres by 1975 to preserve present American eating standards.

He figures that the U. S. could find 30 million acres by irrigation, drainage and clearing. The rest, he thinks, will have to be "found" by getting richer yields from the acres already being farmed.

He thinks the U. S. will have to use more and better fertilizers and hopes scientists will be able to find new means to increase the yield on sub-standard soils. He points out that hybrid corn increased yield per acre by 10 per cent.

If the farmer-scientist race fails to keep up with the growing number of American mouths, Shaw points out that the U. S. could cut down on the food it exports or it could import more food.

But Shaw is worried that either course might cause trouble with other nations. Nations that depend on the U. S. for food might resent any move to cut its exports. And if the U. S. goes into foreign markets to buy more food it will be competing with nations that have always had to buy large quantities of food abroad.

There is another way open to the U. S. if food production does not increase—it could eat less well, as other nations now do. Dr. Shaw doubts this will happen.

From the Associated Press