

planes will mean that the Reich, too, will have to counter with broadside weapons of its own.

Superiority of the Defiant can be attributed mostly to its armament and not to other features. A single-engined two-seater, its top speed of less than 330 miles an hour makes England's "secret weapon"

slower than most fighters, little faster than most bombers and not as fast as some of the newest. Single-engined multi-seaters have been abandoned by the U. S. Army Air Corps for that reason, but it should not prove impossible to utilize the Defiant's principle of gun-power on twin-engined combat planes.

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mother, Alpha, nor his grandmother, Dwina, accepted and properly cared for their first babies. Instead they behaved as if surprised and bewildered. The babies might have died had it not been for the intervention of human care.

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PSYCHOLOGY

Ape Babies To Be Trained In New Experimental Nursery

Infants Separated From Mothers at Birth Will Have Benefit of Scientific Care and Will Wear Diapers

See Front Cover

SOMETHING new in experimental nurseries has just been completed at Orange Park, Florida.

Infants separated from their mothers at birth will be brought up entirely under a scientific, controlled regime directed by an experienced psychologist, Dr. Henry W. Nissen.

Behavior problems will be studied. Growth and development will be watched and measured. Comparison will be made between the infants in this spic-and-span scientific nursery and those brought up by the "instinctive" care lavished by a mother.

If you could walk into this nursery, you would be charmed by the infants, dressed simply in the conventional three-cornered garment of babyhood, but you would not try to enroll a baby from your own family. Reason: The nursery is exclusively for chimpanzees.

At Orange Park, the Yale Laboratories of Primate Biology are building up a colony of apes—close relatives to man—of known birth date and recorded life history. Now the young of animals born in the colony are providing for science the second and third generations of animals for whom family and life records are available. With individuals from this third generation enrolled in "nursery school," it will be possible to control factors of training and to a certain extent those of heredity.

Little Alf, now a six-month-old baby, and one of the first in the new nursery, represents the first step taken toward breeding the chimpanzee to specification as a laboratory animal, Dr. Robert M.

Yerkes said in reporting the new nursery. (*Science*)

His father, Frank, is extraordinarily gentle, intelligent and co-operative. The mother, Alpha, daughter of famous old Pan and Dwina, is a docile creature used all her life to cooperating in psychological experiments.

Should little Alf "take after" father and mother, and should he respond to the careful training he will receive in the new nursery, he will be "peculiarly valuable" both as a subject for scientific study and as a future parent for new experimental animals with desirable characteristics.

Incidentally, the new nursery serves a real and necessary purpose in the colony. For apes, surprisingly, are not always good mothers. Neither Alf's

INVENTION

Hall of Inventions Opens At N. Y. World's Fair

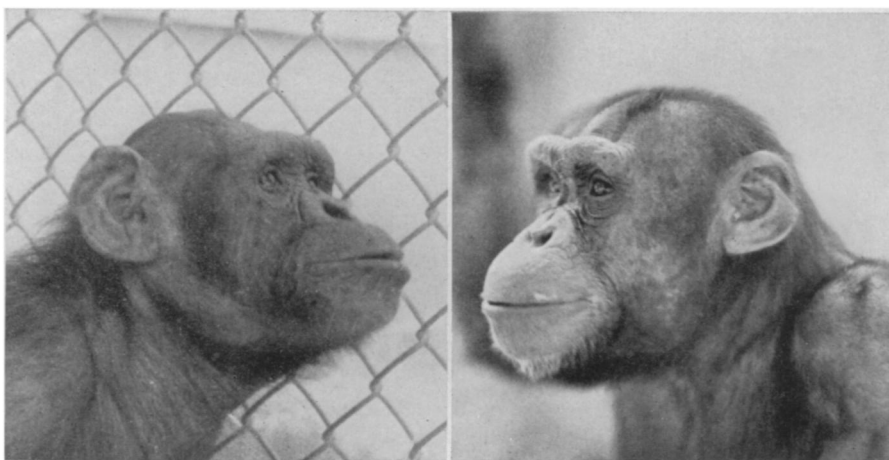
TO SHOW America's inventive progress and to honor the more than 2,000,000 inventors of the past 150 years, a new Hall of Inventions was dedicated on June 7 at the New York World's Fair.

At ceremonies participated in by U. S. Commissioner of Patents Conway P. Coe, and Harvey D. Gibson, chairman of the board of directors of the World's Fair of 1940, the Hall of Inventions and its many displays was formally opened. Watson Davis, director of Science Service, was master of ceremonies.

The display marks the 150th anniversary of the founding of the American patent system. Occupying a prominent location on Rainbow Avenue, many historic inventions are shown. The U. S. government is participating by loaning priceless patent models. One display is the original Selden automobile. In a garden adjoining the building, patented plants will be seen growing, many of them flowers of great beauty.

Science Service will have a continually changing display, showing the latest inventions.

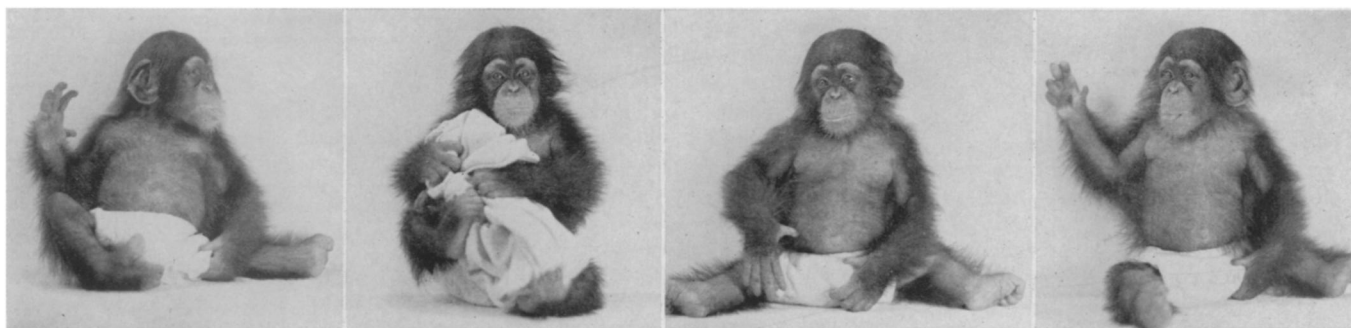
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MAMMA

PAPA

Here are Alpha and Frank, gentle, cooperative parents from whom have been taken little Alf, one of the first pupils in the new experimental nursery at Orange Park. These excellent portraits were taken by Dr. Robert M. Yerkes.



CANDID SHOTS

Here is baby Alf, six months old, caught in playful and pensive mood by the camera of Dr. Henry W. Nissen. See also front cover.

NUTRITION

Is the World Facing Famine? Dark Question Haunts Experts

While United States Has Plenty, Hunger Stalks in Large Parts of Europe and China; Wheat Crops Bad

IS THE world being drawn toward famine?

This dark question haunts the food experts, who soberly admit they cannot see far ahead in this continually surprising war. But reports from the world's food front, that mean bread, or none, for large masses of the world's two billion people, are not bright.

There is hunger now in parts of Europe, hunger in northern China. The United States, more fortunate, sees no menacing shadow of food shortages on its own horizon.

At start of Europe's war, the world's granaries overflowed with largest wheat supplies known in history. The 1939 crop, plus record-breaking reserves, totaled the tremendous amount of 5,459,000,000 bushels, not counting the wheat in Soviet Russia and China, for which available figures are never complete.

Now, the wheat situation is less favorable. Wheat, which means bread to one-third of the world, has been attacked by severe winter in northern Europe,

and by a late spring, shortage of field labor, devastation in embattled countries. The crop is forecast as less than needed for consumption.

Meanwhile, ironically, the reserve that was record-breaking in 1939 is apt to be about 250,000,000 bushels larger than in July, 1939, when it stood at 1,189,000,000 bushels. A large part of this reserve is in the hands of the Big Four wheat exporting countries—Australia, Canada, the United States, Argentina. Shipping and financing limit the amount that can be exported now. By another July, in 1941, the carry-over will be on the down grade, it is believed. Oddly enough, the Wheat Advisory Committee, back in 1938, forecast the carry-over of the world's wheat to be expected in the summer of 1940 at 1,369,000,000 bushels, which is close to the reality, though that forecast was based on an assumption of "normal conditions."

The saying of World War days, "wheat will win the war" may be heard again if strife spreads and lengthens. Germany's recent invasions have damaged crop prospects of lands that never produced enough grain for themselves at best. The United States in an ordinary year would expect to send 80,000,000 bushels of wheat to Belgium, the Netherlands, Denmark, and Norway. Feeding 20,000,000 Belgians, Dutch, and Danes next winter is a problem that Germany faces. And Germany's conquests have not yet brought her major grain resources to meet her own needs.

Reports of the world's wheat future include these:

Japan's wheat crop is now expected to be 24% less than the official estimate, due to adverse weather and not enough fertilizer supplies.

Finland lost quantities of grain in the ceded area, and found its imports of grain from Scandinavia cut off, when war broke out there. Finland expects a shortage of grain next winter.

France has the burden of 5,000,000 refugees, with the Red Cross as the only stop-gap aid in meeting the problem.

North China has been faced with hunger, and latest reports of the wheat crop there are conflicting, some encouraging, others not.

A bread-basket land like Hungary is rationing its flour to handle exports.

The United States' wheat crop is forecast a little smaller than last year, totaling 489,000,000 bushels of winter wheat, 215,000,000 bushels of spring wheat, and a carry-over in July, 1940, of about 288,000,000 bushels.

Spain, which spent a grim winter, with some towns going two days at a time without bread, has another scant cupboard to look forward to. The wheat yield is forecast at 20% below normal, due to scarcity of fertilizers, poor agricultural machinery and low acreage. Spain offers a preview of what other lands enduring war can expect.

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● RADIO

Prof. John M. Fogg, Jr., University of Pennsylvania botanist, will tell how you can become an amateur scientist and study and collect wild flowers in your vicinity as guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, June 20, 4:00 p.m., EDST, 3:00 EST, 2:00 CST, 1:00 MST, 12:00 PST.

Listen in on your local station. Listen in each Thursday.

● Earth Trembles

Information collected by Science Service from seismological observatories resulted in the location by the U. S. Coast and Geodetic Survey of the following preliminary epicenter:

June 5, at 6:01 a.m., EST

Same location as quake of May 28. Latitude 68 degrees north. Longitude 138 degrees west. Strong shock.

For stations cooperating with Science Service, the Coast and Geodetic Survey, and the Jesuit Seismological Association in reporting earthquakes recorded on their seismographs, see SNL, Feb. 24,