

the degree of use of this honorable name in numerous text books and scientific writings throughout the world," the element has been "re-named" nobelium.

Russian scientists, also attempting to duplicate the synthesis of the reportedly new element, started work in the fall of 1957. In the late summer of 1958, Dr. Georgy N. Flerov of the Dubna Laboratory near Moscow re-

ported that the Russians had also produced an isotope of element 102, but confirmation is lacking.

The Berkeley team making the 1958 report on element 102, in the first PHYSICAL REVIEW LETTERS dated July 1, consisted of Drs. Albert Ghiorso, Torbjorn Sikkeland, John R. Walton and Nobelist Glenn T. Seaborg, now Chairman of the Atomic Energy Commission. ♦

Between the extremes fall personality traits such as: withdrawn, distant, gregarious, calm, talkative, ability to fantasize or think in unusual ways—which appear to bear little relation to intellectual ability.

For women 36 years old, the personality pattern is similar though much less pronounced. Intelligent women tend to be thoughtful and insightful; less intelligent women are conven-

PERSONALITY AND INTELLIGENCE

Rare Study Tracks Half a Lifetime

An astronomer tracks the stars through the centuries; a psychologist has trouble tracking people through childhood, much less a lifetime.

Subjects get lost; investigators die or move, others feel little inclination to follow their fellow human beings for years on end—all of which makes study based on years of observation of the same subjects a rare thing in the social sciences; though no method yields more fertile evidence on growth and development.

A few such studies exist: among them Project Talent, a 10-year-old study with 440,000 students and the Harvard University child-rearing study with some 300 children, now about 30 years old, and the 38-year-old Berkeley Growth Study.

The Berkeley project offers an unusually complete set of records on the personal and mental growth of some 54 children born in 1929.

Over the years, Dr. Nancy Bayley, recipient of the American Psychological Association's distinguished scientist award in 1966, has conducted some 3,000 interviews with her subjects; more data has been collected by colleagues.

The Berkeley study forced a basic revision in psychological theory with its revelation that the vaunted Intelligence Quotient is not set at birth, but can be enhanced or depressed in early childhood.

Of the original 74 babies, 11 dropped out the first three years. From then until they were 18 years old, the children were seen regularly at least 40 times each. But to do the 36-year testing, Dr. Bayley had to locate all the children again—a major task which often inhibits psychologists from ever beginning such a study.

Dr. Bayley located all but two of the 63, most of whom still lived in California, and was able to test 54 of them. For reasons of objectivity, the actual interviews were done by two independent researchers not familiar with the group.

Last week, Dr. Bayley, still at the University of California in Berkeley, summed up the latest series of tests

on her now 38-year-old subjects before the annual meeting of the A. P. A.

One basic conclusion: You can't tell a girl's I.Q. by the way she acts. At 16, an intelligent girl has one personality; at 36, she has another altogether.

Boys, on the other hand, maintain a fairly consistent relationship between personality and intelligence from about the age of four.

Another conclusion: A boy's mental growth depends a good deal on his mother's treatment of him, while girls tend to return to their innate genetic potential in adulthood, more or less unaffected by early family life.

Dr. Bayley, now a white-haired, soft-spoken woman, was a pediatrician in 1929 when she selected the group of healthy, full-term babies from a Berkeley hospital. They came from white, English-speaking families, but covered all income levels. As adults, the subjects range in education from three to four years of schooling to a degree in medicine.

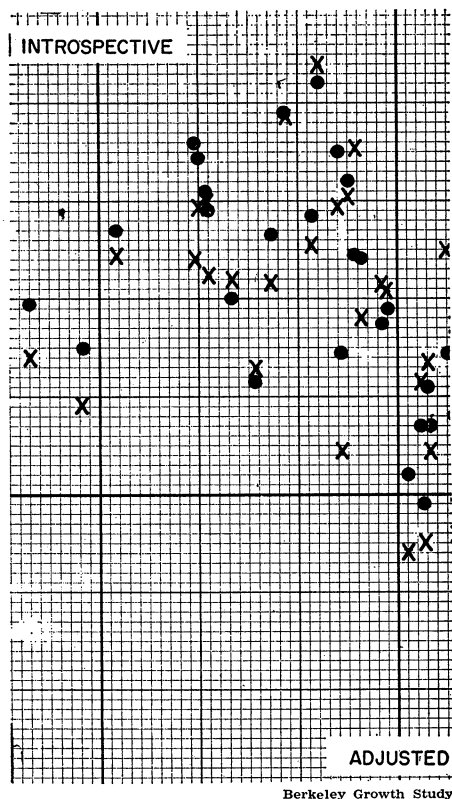
Part way through the study, said Dr. Bayley, it became evident that boys and girls could not be lumped together in either their mental or emotional development.

"Again and again we found that correlations between the boys' behavior and their mental growth were quite significant. But the only thing we could find to correlate with the girls' I.Q.s was the intelligence of their mothers."

Generally speaking, the personality of an intelligent man falls in the introspective rather than expressive range. He tends to be critical, socially perceptive, wide-ranging in interests and concerned with philosophical problems. And he hasn't changed much since he was a teenager.

Rebellious teenagers, Dr. Bayley found, whether bright or dull, indicate mental ability by their means of expression. The more intelligent talk rebellion, the less intelligent act it out.

Similarly, less intelligent men are impatient and impulsive, prone to vent hostilities and unable to delay satisfactions.



Male intelligence at 16 and 36.

tional, bland, vulnerable and anxious—female counterparts of the male's impulsiveness and lack of control. Cheerfulness, poise and gregariousness have little to do with intellect.

The curious fact about women lies in their complete switch from the teenage years. At 16, conventional, somewhat negative girls are often intelligent while thoughtful or gregarious girls tend not to be.

In other words, a gifted teenage girl has such attributes as a weak ego and a thin skin, said Dr. Bayley. She is not candid nor is she interested in the opposite sex.

"It may be," says Dr. Bayley, "that the emotional turmoil of adolescence is more disruptive of the girls' than of the boys' mental processes."

Negative qualities also show up at other times in the girl's life. Unhappiness at the age of one relates somewhat to a high intellect later in life. The opposite was found to be true for boys.

Whatever the explanation for such female personality vagaries, they seem

to have little permanent impact on mental capacity.

Nor does an unhappy family life usually cripple the girl's mental capacity. "There seems to be some kind of genetically determined sex difference in the extent to which these conditions influence later intelligence," Dr. Bayley observes.

"The female of the species tends to return somehow to an innate potential." But male intelligence, tied more closely to personality development, is influenced by events, for good or bad.

Dr. Bayley's group recently found, for example, that a girl's intelligence may be measured with some reliability in the first year of life, solely on the basis of early attempts to speak. Boys cannot be so measured. ♦

MISSING LINK

Most Ancient Ant

The earliest known traces of social life among insects have, until now, been dated at about 60 million years ago. There is such a wide range of fossils from this period, however, that entomologists have long believed that earlier species must link the known, social, primitive ants to their apparent ancestors, certain kinds of nonsocial wasps.

Preserved in amber, along the shore of Raritan Bay on the New Jersey coast, two worker ants have been

found that push the beginnings of insect social life back to 100 million years ago—the age of the amber that trapped them. Their species has been named *Sphecomyrma freyi*; *Sphecomyrma* means "wasp-ant," while *freyi* is a tribute to Mr. and Mrs. Edward Frey, two amateur mineral collectors who discovered the specimens. In general, the head of the new species is like that of a primitive wasp, while the body resembles a primitive ant.

Just how "social" the new species was is not known, though the wasp from which it apparently descended did not live in colonies as most of today's wasps and ants do. However, the two new specimens have metapleural glands on their bodies that are characteristic of living ants. Just what these glands do is uncertain, but they may relate to chemical communication among social insects.

The scientists who determined the importance of the new species, Profs. Edward O. Wilson and Frank M. Carpenter of the Harvard Museum of Comparative Zoology and Dr. William L. Brown Jr., of Cornell University, had an advance "vision" of what such a missing link would look like. As it turned out, their prediction was almost right on the thorax. The only error came from the belief they held that the antlike mandibles evolved before the narrow ant "waist"; *Sphecomyrma* had developed the slim waist, but still retained the primitive wasp's

head. In general, the scientists report in *SCIENCE* (Sept. 1), the species is close enough to its primitive ancestor that it may be close to the beginning of insect social life.

Now the scientists hope that the many people who have been gathering amber from the area for years will make it available to scientists for study. Amber, fossilized resin from certain trees, is often rich in entrapped insects, but not enough of it reaches the laboratory. The substance is fairly common along the seacoasts of Maryland, New Jersey, Long Island and parts of Massachusetts, and has been collected for more than 150 years. ♦

FROM GERMANY

Nuclear Power Go-Ahead

West German power companies have decided to go ahead with two nuclear power station projects in the 600 megawatts plus electrical output class, to be built by the German reactor industry.

The projects, both in Northern Germany, are a pressurized water reactor, to be supplied by Siemens, which will be built at Stadersand for a group including Nordwestdeutsche Kraftwerke; and a boiling water type at Wurgassen, on the River Weser, to be built by AEG for a member of the Veba Group.

The two power stations are supposed to be working by 1972.

Compared with the U.S. and Britain, Germany has been relatively backward in the application of nuclear energy although research in advanced types has been pushed. The only station of any size to be operating is that at Grundremmingen on the Danube, which came on power with an electrical rating of 232 megawatts last December. Grundremmingen was built by AEF to the boiling water concept and is the world's biggest station of that kind.

The slow German start is only partly the result of restrictions placed upon German nuclear research after the war. Government financial support has been restricted, though Dr. Gerhard Stoltenberg, Minister of Science, avoided any further cuts being made in the current economy drive in Bonn.

A coal crisis has also had adverse effects upon German power going nuclear. Tax incentives are offered to ensure that a certain quantity of coal is burnt in power stations and industry itself is frequently torn between the contending claims of coal and other forms of energy. ♦



Harvard

From New Jersey, a 100-million-year-old ant-wasp, oldest social insect.