of age. In trials 5 and 6 the smaller of each pair of chicks injected with I^{131} at a given level was selected about 2 weeks after injection for replacement therapy. Thyroxin in water suspension was injected daily at a level of 3.8 μg in trial 5, and 5.7 μg in trial 6, per 100 g body weight.

The first visible response to thyroxin injection was rapid resumption of growth. In Fig. 2 are shown a normal control bird, an I^{131}-injected bird, and a thyroid-ecrecticized chick given daily injections of 3.8 μg thyroxin daily.

TABLE 2

EGG PRODUCTION OF THYROXIN-INJECTED HENS AND OF CONTROLS

Hen No.	Dose I^{131} in mc per 100 g body wt	Laid first egg at age in weeks	Egg material per week in g
34	3.1	20	156
56	6.9	19	169
59	9.2	..*	...*
35	0	20	144
54	0	22	Entered production 4 days prior to autopsy

* Condition of the reproductive organs indicated that Hen No. 59 would have laid at an early age.

In Fig. 3 the growth rates of thyroid-ecrecticized, thyroxin-injected birds are compared with those of normal controls, and thyroid-ecrecticized chicks that did not receive thyroxin. Growth and feather development were quickly resumed after the initiation of thyroxin therapy, and some thyroxin-treated birds actually became larger than the comparable normal controls.

Since ionizing radiations are known to have profound effects on the reproductive organs, the egg-producing ability of thyroid-ecrecticized birds, treated with thyroxin, is of particular interest. The experiment was terminated before more than two of the control females had entered production. Two of the three thyroid-ecrecticized females ovulated, and as is shown by Table 2, their rates of production were excellent when the age of the birds is taken into consideration. A third experimental female that received the relatively large dose of 9.2 mc of activity per 100 g body weight was found on autopsy to have developed normally, and presumably she would have laid at an early age.

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Microcrystallographic Data on Sodium-D-Glutamate (Monosodium Glutamate)

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During the period 1936–1940 the writer had occasion to examine microscopically samples of a substance which at that time was considered somewhat of a novelty as a table condiment. This material was the Japanese "Aji-No-Moto," long known and crudely prepared in the Orient as a food supplement. The samples submitted, however, were not pure, containing an appreciable amount of salt and other impurities. The method used for the examination of the material was that which had been previously applied to a microscopic study of the common crystalline amino acids (*4*).

More recently the writer had an opportunity to examine a pure sample[1] of sodium-D-glutamate for the purpose of placing on record the significant optical crystallographic properties of the substance. The increasing widespread interest in monosodium glutamate as a seasoner of foods (*1*, *2*, *5*, *6*) appears to justify a more complete microscopic description than has hitherto appeared. Partial crystallographic and optical data have been recorded (*3*, *7*), including only one refractive index.

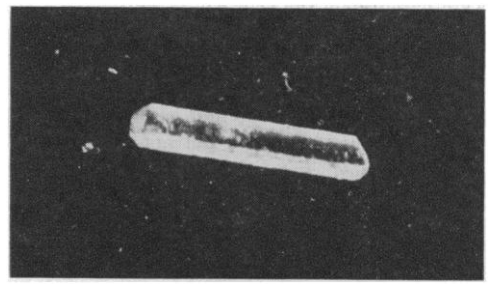

FIG. 1. Sodium-D-glutamate (typical habit).

Microscopic examination of monosodium glutamate ($C_5H_8O_4NNa$) shows that it is crystalline, apparently crystallizing in the monoclinic system, elongated, prismatic forms characterizing the habit (Fig. 1). In parallel polarized light (crossed Nicols), the crystals are elongated parallel to axis *b*, showing parallel extinction and negative elongation. In convergent polarized light (crossed Nicols), partial biaxial interference figures occur, the optic axis figure being most usually shown. Optic sign (−). Refractive indices: $\alpha = 1.500$, $\beta = 1.550$, $\gamma = 1.592$, all ± 0.002.

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[1] Supplied by International Minerals and Chemical Corporation, Chicago, through the kindness of Dr. B. F. Buchanan, Technical Service Director, Amino Products Division.

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Aureomycin and Blood Coagulation

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Moldavsky, Hasselbrook, and Cateno (*5*) were the first to report that the blood of patients receiving injections of penicillin clotted much more quickly than normally. These observations were corroborated and extended experimentally in animals and human beings by Macht (*1*) both after parenteral injections and when administered by stomach. Macht further determined the relative thromboplastic efficiency of the four principal penicillins G, X, F, and K; and also found that streptomycin shortened the coagulation time of whole blood. The clinical bearings of these findings in regard to possible thromboembolic accidents have been also discussed by him (*2*). Recently, the antibiotic aureomycin, discovered by B. M. Duggar, has been introduced into medical practice. It was therefore deemed worth while to study its influence, if any, on blood coagulation.

TABLE 1

EFFECT OF AUREOMYCIN ON BLOOD COAGULATION TIME IN RABBITS

Rabbit	Wt in kg	Normal coag. time in min	Aureomycin in mg	Coag. time in min*	Coag. time in min†
A	3	11	15	9	7
B	2.8	11	10	9	7
C	3.4	10	100	5	1.5
D	2.5	11	65	3	3

* Tested about 1 hr after administration of drug.
† Tested in about 1½–3 hr after administration of drug.

Experiments with aureomycin were made on rabbits and cats, and clinical tests were made on patients who had not received any previous medication. In all of the experiments, the drug was administered by stomach. The clotting time of whole blood was measured by the Lee and White method before administration of aureomycin, and at various intervals afterward.

Table 1 shows the results of 4 rabbit experiments, in which various doses of aureomycin were given to the animals. It will be seen that in each case coagulation time was markedly shortened. Blood in all these was secured by cardiac puncture.

Table 2 gives results of an experiment on a cat and illustrates strikingly that no change occurred in coagulation time of blood taken repeatedly from the carotid artery before giving aureomycin. It shows also the progressive diminution in clotting time after administration of this drug.

TABLE 2

EFFECT OF AUREOMYCIN ON BLOOD COAGULATION TIME OF A CAT*

When tested		Coagulation time in min
10.10 A.M.		10.5
10.20 "		11.5
10.30 "		11.5
10.35 "	200 mg Aureomycin	
11.20 "		8
11.30 "		6
11.40 "		4
11.50 "		4

* Wt—4 kg.

Table 3 presents the findings obtained in 14 patients before and after administration of aureomycin. The patients were given one or two capsules of aureomycin of 250 mg each, the usual clinical dosage. It will be seen that in every case some shortening in coagulation time was produced. Control experiments on human subjects who did not receive aureomycin did not reveal such changes after repeated blood examinations.

TABLE 3

EFFECT OF AUREOMYCIN ON BLOOD COAGULATION TIME OF HUMANS

Patient	Dose in capsules*		Coagulation time in min before dose	Interval hr and min	Coagulation time in min after dose
Mr. D.W.	1	8	1	30	5
Mrs. S.	1	10.5	1		7.5
Mrs. G.	1	9	2		7
Mrs. K.	2	10.5	1	20	3.5
	(1 hr apart)				
Mr. Z.	"	10	1	20	7
Mrs. P.	2	14.5	1	45	8.5
	(together)				
Mrs. I.R.	"	12	1	30	9
Mr. C.	1	8.5	1		7
Mrs. B.	1	11	2	30	7.5
Mrs. M.	1	11	2	30	7
Mrs. D.	1	12	2	30	8
Mrs. B.R.	2	9	3	30	6
	(1 hr apart)				
Mrs. Z.K.	"	9	3	30	6
Mr. J.	"	9	3	30	6.5

* Each capsule contains 250 mg aureomycin.

Tests made on both human subjects and lower animals revealed no difference in prothrombin time, thus indicating that the diminution in clotting time is due to other factors involved in blood coagulation. Repeated tests of blood sera before and after administration of aureomycin revealed phytotoxic properties when tested by the author's phytopharmacological technique (*4*), as found in penicillin and streptomycin (*1*). Experiments now in progress with chloromycetin indicate similar properties.